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ABSTRACT

This dictionary contains about 55,000 terms with approximately 150,000 definitions. These terms are of both a technical and local nature and apply to metal mining, coal mining, quarrying, geology, metallurgy, ceramics and clays, glassmaking, minerals and mineralogy, and general terminology. Petroleum, natural gas, and legal mining terminology, unless of a general nature, has been excluded, as has been foreign terminology where there is an English equivalent. Those Spanish-American and Mexican terms still used in the Southwestern United States have been retained. Many terms are identified by the country or area of origin. Others can be identified by examining the source following each definition. These sources are completely identified, with full bibliographical information, in the list of authorities and sources in the back of the dictionary. A consultation of this list can also aid in establishing the recency of the definition. (Author/PR)
A Dictionary of Mining, Mineral, and Related Terms

Compiled and edited by Paul W. Thrush and the Staff of the Bureau of Mines

U.S. Department of the Interior

1968
Created in 1849, the Department of the Interior—America's Department of Natural Resources—is concerned with the management, conservation, and development of the Nation's water, fish, wildlife, mineral, forest, and park and recreational resources. It also has major responsibilities for Indian and Territorial affairs.

As the Nation's principal conservation agency, the Department works to assure that nonrenewable resources are developed and used wisely, that park and recreational resources are conserved for the future, and that renewable resources make their full contribution to the progress, prosperity, and security of the United States—now and in the future.

UNITED STATES DEPARTMENT OF THE INTERIOR
STEWART L. UDALL, Secretary

BUREAU OF MINES
WALTER R. HIBBARD, JR., Director

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This Dictionary of Mining, Mineral, and Related Terms is the result of an effort by the Bureau of Mines extending over many years. The work began as a revision of Bureau of Mines Bulletin 95, A Glossary of the Mining and Mineral Industry, by Albert H. Fay, first published in 1918, and reprinted in 1947. Fay's Glossary, as it came to be known, has long been the standard authoritative reference work for technical and specialized terms related to mining and the mineral industries.

In the nearly 50 years that have elapsed since the first publication of Fay's Glossary, the expansion of the minerals industries and the development of new mining and related technologies have resulted in considerable extension of the vocabulary of mining and minerals. Hence, the need has grown for an up-to-date, comprehensive, and authoritative reference work. The increased scope and detailed treatment of the work justify its identification as A Dictionary of Mining, Mineral, and Related Terms.

Many individuals, especially those comprising the Bureau's staff of engineers, scientists, and technologists, contributed to the preparation of this comprehensive publication. Much of the credit for the direction and professional conduct of the task is due to Paul W. Thrush, who has served effectively as Editor in Chief.

The Bureau of Mines has prepared and published this dictionary in the expectation that it will be a useful tool in pursuing modern applications of one of the oldest industries in the world.

Walter R. Hibbard, Jr.
Director
June 20, 1967
preface

This dictionary is published by the Bureau of Mines as a contribution to the mining and mineral literature in the belief that it will fill a recognized need.

Several attempts have been made over the years to revise Albert Fay's *Glossary of the Mining and Mineral Industry* which first appeared in December of 1918. Frank L. Hess of the Bureau of Mines worked on a revision, but his untimely death prevented its completion. Subsequently, the writer was employed to compile and edit this dictionary in cooperation with the technical staff of the Bureau of Mines.

Fay's glossary contained about 18,000 terms with 27,000 definitions; the present compilation contains about 55,000 terms with approximately 150,000 definitions. These terms are of both a technical and local nature, and they apply to metal mining, coal mining, quarrying, geology, metallurgy, ceramics and clays, glassmaking, minerals and mineralogy, and general terminology. Petroleum, natural gas, and legal mining terminology, unless of a general nature, has been excluded, as has been foreign terminology where there is an English equivalent.

Several thousand Spanish-American mining terms that appeared in Fay's compilation have been removed to make way for the thousands of new English terms that have evolved over the years. Those Spanish-American and Mexican terms still used in the Southwestern United States have been retained.

Fay's compilation included terminology from the entire English-speaking world. This objective has been maintained in this dictionary. Many terms are identified by the country or region of origin. Others can be identified by examining the source following each definition. These sources are completely identified, with full bibliographical information, in the list of authorities and sources in the back of the dictionary. A consultation of this list can also aid in establishing the recency of the definition. Several thousand terms from Fay that might be considered obsolete were retained because it was felt that we had an obligation to preserve the historical record.

The list of authorities and sources in the back of the dictionary is only a partial listing of the sources consulted in compiling this dictionary. The items in this list are for the most part dictionaries, glossaries, or other tools that were found to be fruitful sources of information. Abbreviations of sources and references and other symbols used in the dictionary are identified in alphabetical sequence in the list of authorities and sources. Many additional citations from textbooks, research reports, and periodicals are given individually throughout the body of the dictionary following each definition. Geographical abbreviations are also listed in the back of the dictionary.

It is too much to hope that the first edition of a volume such as this will be free from error. The Bureau of Mines will appreciate having errors pointed out, and will welcome suggestions for the inclusion of additional terms that may appear to be desirable. Communications should be addressed to the Office of Mineral Information, Bureau of Mines, U.S. Department of the Interior, Washington, D.C. 20240.

Paul W. Thrush
Pittsburgh, Pa.
June 20, 1967
In the compilation of this dictionary, the Bureau of Mines gives credit for each definition as indicated in the list of authorities and sources quoted. Definitions credited Webster 3d in the text have been reproduced by special permission from Webster's Third New International Dictionary, copyright 1966 by the G. & C. Merriam Co., publishers of the Merriam-Webster Dictionaries. Reprinting of these definitions herein in truncated form is not to affect in any way the validity of the proprietary rights of the G. & C. Merriam Co. to the reprinted definitions. Definitions credited Webster 2d in the text have been reproduced by special permission from Webster's New International Dictionary, Second Edition, copyright 1959 by G. & C. Merriam Co., publishers of the Merriam-Webster Dictionaries, and their reprinting herein in truncated form is not to affect in any way the validity of the proprietary right of G. & C. Merriam Co. to the reprinted definitions. Material quoted from Webster's 2d Edition is of historical importance or is material not retained in Webster's 3d Edition.

In all, several hundred specialists of the Bureau of Mines read various sections of this dictionary or technical review. No section was read by fewer than two specialists. Since a listing of individual names would be extensive, grateful acknowledgment is here made for their efforts and for the suggestions and changes recommended by them. James E. Hill and Dr. C. Meade Patterson reviewed the mineral list; Taber de Polo and the late Howard P. Hamlin reviewed the ceramics list; and Dr. Patterson reviewed the general list and part of the geology list, and compiled a list of single-letter abbreviations that has been incorporated in the dictionary. Other Bureau personnel whose services deserve special acknowledgment include Earle P. Shoub, who reactivated the project after Hess' death; A. L. Julian, Jr., whose enthusiastic support reinforced my efforts over the past 6 years; Carl Rampack and Robert P. Willing, both of whom gave valuable assistance and administrative counsel; Hazel J. Stratton, who gave valuable advice on editorial style; and Marion Hatch, whose unexcelled proficiency in library services helped to make the task easier. Special acknowledgment is due Charles W. Merrill, whose continuing interest and professional counsel played a major role in insuring the final completion of the project. In the final phase of the project, Dr. Miles J. Martin of Washington and Meyer Reiness of Pittsburgh provided the administrative authority and guidance needed to bring this long-standing project to a conclusion.

Finally, several people outside the Bureau deserve recognition for their help. I am indebted to Mr. Daniel R. Pfouts, Head of the Science and Technology Department of Carnegie Library of Pittsburgh, Pa., who relaxed the rules and permitted me to use many noncirculating reference tools outside the library for this project; and to Mrs. Virginia R. Fischel, retired professor of library science at the Carnegie Institute of Technology, whose suggestions of sources led to the inclusion of several thousand terms in this compilation.

The contributions of three persons deserve special recognition. Mrs. David Mishkelevich, formerly with the Bureau of Mines and now with the U.S. Geological Survey, made many significant contributions in the early stages of this project. To Marilyn Pantone and Pauline Mekon I owe my deepest gratitude and enduring regard for their cooperation and superior performance. Both of them started with me in 1961 and have remained loyal and dedicated through many vicissitudes. Without their invaluable assistance, this seemingly endless task could not have been completed.

P. W. T
a dictionary of mining, mineral, and related terms
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Alloy

A-11

abalone pearl. A colored pearl from the abalone. A prefix added to the names of the a-axis. In structural petrology, the direction of movement or transport in a tectonic. This may be parallel to lineation, as in many shear zones (slickensides); or normal thereto, as in regionally folded metamorphic terranes. A.G.I.

ab- A prefix added to the names of the practical electrical units to indicate the corresponding unit in the cgs (centimeter-gram-second) electromagnetic system, or the electromagnetic unit (emu); for example, abampere; abouombul; abvolt. Handbook of Chemistry and Physics, 45th ed., 1964, p. 29.

abalone. The mollusk Haliotis, also known as an ormer or ear shell. From the Pacific waters of California; Mexico; Japan; and New Zealand. See also Haliotis. Shiplay.

abalone pearl. A colored pearl from the Pacific usually a blister pearl although a true pearl is found occasionally, especially in Mexico and in California. Usually pronounced green, pale green, or pink cinnabar.


abampere. The centimeter-gram-second (cgs) electrical unit of current; that is, current which, in a one-turn circular conductor of 1 centimeter radius in a vacuum, produces a magnetic intensity of 1 oersteds at the center of the circuit. Equals 10 absolute amperes. Hess.

abandon. To stop drilling and remove the drill rig from the site of a borehole before the intended depth or target is reached. Long.

abandoned cliff; ancient cliff. Cliff abandoned in consequence of differential movement or transport in a tectonic. Many shear zones (slickensides), or normal to a. A.G.I.

abandon. To stop drilling and remove the drill rig from the site of a borehole before the intended depth or target is reached. Long.

abandoned areas. The Persian weight for pearls, about 2.66 troy grains. Shipley.

abeat. The petting weight for pearls, about 2.66 troy grains. Shipley.


abatis; abattis. In structural petrology, the surface along which differential movement takes place. A.G.I.

ab-plane. In structural petrology, the surface of movement or transport in a tectonic. The ab-plane is perpendicular to a. A.G.I.

ab-andes. A method of seismic surveying involving the use of alum, blood, charcoal, and clay. Ham.


abbe value. See Abbe number. Dodd.

abbcite. Ammonia dynamite containing a percentage of ammonium nitrate and trinitrotoluene composition used as an explosive. Pryor, 3.

abbe number. See Abbe value. Dodd.


abberlite. An abrading substance, as emery, and is perpendicular to a. A.G.I.

abberlite. Ammonium nitrate and trinitrotoluene composition used as an explosive. Pryor, 3.


abrasion

men and exert a combined abrasive, compressive, and twisting action twice in each revolution of the specimen holder. Osborne.

abrasion. The wearing away by friction, A.G.I. b. The act of wearing or rubbing off, A.G.I. c. Wearing away by rubbing or friction on the part being cut through water laden with sand and other rock debris and by glaciers. A.G.I. d. The operation of wearing away by aqueous or glacial action. A.G.I.

abrasion hardness. Hardness expressed in quantitative terms or numbers indicating the degree to which a substance resists being worn away by friction contact with an abrasive material, such as silica or carbonaceous grits. Also called abrasion resistance; wear resistance. Compare scratch hardness. Long.

abrasion index. The percentage of a specially prepared 3 in.-2 in. sample of coke retained on a 1/8-inch mesh B.S. test sieve after the sample of coke has been subjected to a standardized abrasion procedure in a rotating drum. B.S. 1016, 1961, Pt. 16.

abrasion of refractories. Wearing away of the surfaces of refractory bodies in service by the abrading action of moving solids. HW.

abrasion plates. A flat surfaced plat-form of large areal extent is a marine peneplain or a marine plane, according to the smoothness of the surface produced by wave erosion. A.G.I.

abrasion resistance. The degree to which a porcelain enamel will resist attack by abrasive materials. ASTM C286-65. See also abrasion hardness.

abrasion shoreline. See shoreline of retrogradation. Schieferdecker.

abrasive. A substance used for grinding, honing, lapping, superfinishing, polishing, pressure blasting, or barrel finishing. It includes natural materials such as garnet, emery, corundum, and diamond, and electric-furnace products like aluminum oxide, silicon carbide, and boron carbide. ASTM Gloss. Natural abrasives in order of hardness include diamond, corundum, emery, garnet, and pumice. Artificial abrasives include borazon, carborundum, corundum (sold as alumund, aloxite, etc.), boron carbide. For preparing polished surfaces on mineral specimens, carborundum, levi-gated alums, jeweler's rouge, and magnesium oxide which used, diamond-impreg-nated paste being employed at final stage. Pryor, 3.

abrasive belt. A coated abrasive product, in the form of a belt, used in production grinding and polishing, ASM Gloss.

abrasive disk. a. A grinding wheel which is mounted on a steel plate, with the exposed flat side being used for grinding, ASM Gloss. b. A disk-shaped, coated abrasive product. ASM Gloss.

abrasive drilling. A rotary drilling method in which drilling is effected by the abrasive action of the abrasive medium which rotates while being pressed against the rock. Franekel, v. 1, Art. 8:30, p. 21.

abrasive finishing. The final cuts taken with a grinding wheel to obtain the accuracy and surface desired. ACSG, 1963.

abrasive formation. A rock consisting of small, sharp, angular fragments or lumps, or a rock, the cuttings from which, produced by the action of a drill bit, are hard, sharp, angular grains, which grind away or abrade the metal on bits and drill-steel equipment at a rapid rate.

Also called abrasive ground. Long.

abrasive ground. Synonym for abrasive formation. Long.

abrasive hardness test. This test employs a rotating abrasive wheel or plate against which specimens are held. The specimens are abraded over a given number of revolu-tions and the weight of material lost is a measure of the abrasive hardness. Lewis, p. 374.


abrasive salts. See abrasiasalz.


absarokite. An alkalic basalt consisting of about equal amounts of olivine, augite, labradorite, and sanidine, with accessory biotite, epidote, and opaque oxides. Leucite is sometimes present in small amounts. Absarokite forms a series with shoshonite with decreasing amounts of olivine and increasing amounts of plagioclase and sanidine. A.G.I.

abrasiva. The axis at right angles to the axis of ordinates. Crispin.

absolute. a. In chemistry, free from impurity or admixture. Hess. b. In physics, not dependent on any arbitrary standard. Hess. c. Frequently used in the trades to indicate a thing as being perfect or exact. Abbreviation, abs. Crispin.

absorbent. A substance that absorbs. Crispin.

absorbed dose. Usually expressed as rads, which represents the energy absorbed from the radiation per gram of specified body tissue. BuMines Bull. 630, 1965, p. 247.

absorber. A rock or rock material, which, by virtue of its dryness, porosity, or permeability, has the ability to drink in or suck up a drilling liquid, as a sponge absorbs water. Also called absorber ground. Long.

absolute potential. True potential difference between a metal and the solution in which it is immersed. Pryor, 3.

absolute pressure. Total pressure at a point in a fluid equaling the sum of the gage pressure and the atmospheric pressure. Webster 3d.

absolute scale. See Kelvin temperature scale.


absolute time. Geologic time measured in terms of years. Compare relative time. Late.

absorbents. Substances, such as wood meal, which are forms of absorbent formation. Also called absorbens. Nelson. 2. The entire mass of superjacent rocks. Briggs, p. 61, c. The entire mass of strata overlying a coal seam. See also neither roof, a. Nelson. b. In mine subidence, the entire mass of superjacent rocks. Briggs, p. 61, c. The entire mass of strata overlying a subsurface point of reference. Bureau of Mines Staff.

absorptance. See Kelvin temperature scale.

absolute zero. The temperature at which all gas would show no pressure if the general law for gases would hold for all temperatures. It is equal to 273.16° C or 459.69° F. Handbook of Chemistry and Physics, 45th ed., 1964, p. F-29.

absorb. To drink in or to suck up as a liquid by a solid like a sponge or fuller's earth. Pryor, 3.

absorbed dose. Usually expressed as rads, which represents the energy absorbed from the radiation per gram of specified body tissue. BuMines Bull. 630, 1965, p. 247.

absorber. A rock or rock material, which, by virtue of its dryness, porosity, or permeability, has the ability to drink in or suck up a drilling liquid, as a sponge absorbs water. Also called absorber ground. Long.
absorptiometer. A device for measuring the absorption. *Heat.* b. The resistance and condenser in series which is placed across a barometer circuit in order to damp any possible oscillatory circuit, which would tend to maintain an arc or spark when a current is interrupted. Also called a spark absorber. C.T.D. c. Any material that absorbs or stops ionizing radiation. Strong neutron absorbers like boron, hafnium, and cadmium are used in control rods. Lead, concrete, and steel attenuate gamma rays and neutrons in nuclear reactor shields. A thin sheet of paper or metal will stop or absorb alpha particles and all but very energetic beta particles. See also poison. L.47.

**absorber** plant. A plant that has the ability to absorb a gas. Bureau of Mines Staff. 1962.

**absorber**. Trade name for activated carbon. *Heat.*

**absorptiometer.** A device for measuring the solubility of a gas in a liquid. *Bennett 2d, 1962.*

**absorption.** Measurement of the loss through absorption by homogeneously colored solution of photosynthetic light. Absorption (Beer’s Law) is proportional to the number of molecules through which the light passes. The Bougner-Beer law is $I = I_0 e^{-kx}$, where $I$ is intensity; $I_0$ is original intensity; $k$ is an extinction coefficient; and $x$ is concentration (grams per liter). Measuring instruments are called absorptiometers or spectrophotometers; much used types being the Bumetron and the Spectro. The method is used where light (including ultraviolet) can be analyzed as an analytical or metric medium. It is much used in mineral dressing control analysis and research.

**absorption.** a. Taking up, assimilation, or incorporation; as, the absorption of gases in liquids, as distinguished from adsorption. Sometimes losing strength in place of adsorption. A.G.I. b. The act or process of absorbing, imbibing, swallowing, or engulfing mechanically. *Fay.* c. A taking in or reception by molecular or chemical action. *Fay.* d. The phenomenon observed when a pleochroic mineral is rotated in plane polarized light. In certain positions, the mineral is darker than in others, owing to the absorption of light. *Fay.* e. In hydrology, a term applied to the entrance of surface water into the lithosphere by all methods. A.G.I. f. As applied to ceramic products, the quantity of water which can be absorbed by the ware, expressed as a percentage of the weight of the dry ware. *Hw.* g. The process in which a solution is drawn into and tends to fill permeable pores in a porous solid body; also, the increase in weight of a body resulting from the penetration of a liquid into its permeable pores. *ASTM C125-66.*

**absorption** hygrometer. A type of hygrometer which measures the moisture content of the atmosphere by means of the absorption of vapor by a hygroscopic chemical. The amount of vapor absorbed may be determined in an absolute manner by weighing the hygroscopic material, or in a non-absolute manner by measuring the physical property of the substance that varies with the amount of water vapor absorbed. The hygroscopic material is suspended in a strip and carbon-film hygrometer element are examples of the latter. *H.G.*

**absorption** loss. a. The loss of water occurring during initial filling of a reservoir in wetting rocks and soil. *Ham.* b. That part of the transmission loss which is due to distortion or the conversion of sound energy into some other form of energy, usually heat. This conversion may take place within the medium itself or upon a reflection at one of its boundaries. This loss is a critical factor in the effectiveness of sonar equipment. *Hy.*

**absorption** of gases. The solution of gases in liquids or the absorption of gases by solids. *Bennett 2d, 1962.*

**absorption** spectrum. The series of dark bands crossing a continuous spectrum, seen when white light has been transmitted through a colored vapor, liquid, or solid. *Anderson,* p. 354. When white light passes through a colored stone, light of certain wavelengths is absorbed more strongly than others, the colors that are absorbed combining to produce the color of the stone. When viewed through a spectroscope, the colors most strongly absorbed may show as dark bands crossing the spectrum in characteristic positions. Such a spectrum is known as an absorption spectrum, and provides a useful means of identification. *Anderson.*

**absorption** tower. A tower in which a liquid absorbs a gas. *Bureau of Mines Staff.*

**absorptivity.** The ability of a substance to absorb radiant energy absorbed by a body to that falling upon it. It is equal to the emissivity for radiation of the same wavelength. *Stock.*

**abstract.** To absorb the waters of a neighborhood stream by abstraction; said of water excepting rain or run-off. *Stock.*

**abstraction.** In geology, the draining of water from a stream by another having more affinity for the streams in which it flows. *Stock.*


**abundant vitrain.** A field term denoting, in accord with the arbitrary scale established for use in describing banded coal, a frequency of occurrence of vitrain bands comprising 30 to 60 percent of the total coal layer. Compare dominant vitrain; moderate vitrain; sparse vitrain. *A.G.I.*

**abutment.** a. A surface or mass provided to withstand thrust, for example, the end supports of an arch or bridge. In coal mining, (1) the weight of the rocks above a narrow roadway is transferred to the solid coal along the sides, which act as abutments of the arch of strata spanning the roadway; and (2) the weight of the rocks over a longwall face is transferred to the front abutment, that is, the solid coal ahead of the face and the back abutment, that is, the settled packs behind the face. See also pressure arch. *Nelson.* b. The structural portion of a furnace that withstands the thrust of an arch. *D.R.*

**abutment load.** In underground mining, the weight of rock above an excavation which has been transferred to the adjoining walls. *Pryor.*

**abyssal.** See abyssal.

**abyssal sea.** That part of the sea which occupies the ocean basins. *Fay.*

**abyssal.** a. Very deep, unfathomable place. *Fay.*

**abyssal**. The term is used to refer to a particularly deep part of the ocean, or to any part below 3,000 fathoms. *H.G.* b. Synonym for pit; pit; pothole; chasm; shaft. *Schieler-decker.*


**abyssal assimilation.** See assimilation. *H.G.*

**abyssalbenthic.** A zone comprising all of the deep-sea benthic system below the archibenthic zone, or below 800 to 110 meters. *A.G.I.*

**abyssal deposit.** A deposit of the deep sea, accumulating in depths of more than 1,500 fathoms of water; these deposits comprise the organic zones, various muddy and red clay of the deepest regions. *C.T.D.*

**abyssal injection.** The process by which magmas, originating at considerable depths, are considered to have been driven up through deep-seated contraction fissures in the margins of the earth. *Anderson.*

**abyssal intrusion.** An alternative name for a plutonic intrusion. *C.T.D.*

**abyssal plain.** a. An area of the ocean floor with a slope of less than 1 in 1,000. *Schleider-decker.* b. Flat, nearly level areas which occupy the deepest portions of many ocean basins. *A.G.I.*

**abyssal realm.** The deep waters of the ocean below 1,000 fathoms, or 2,000 meters, or
abyssal realm

6,000 feet. Bureau of Mines Staff.

abyssal rock. A plutonic or deep-seated igneous rock. The word was suggested and used by Brearly. Fayer.

abyssal theory. A theory of the origin of ores involving the separation of ore from silicates during the cooling of the earth from the liquid stage. A.G.I.

abyssal zone. The marine-life zone of the deep sea embracing the water and bottom below a depth of 6,000 feet. Stokes and Varnes, 1955.


Abyssinian well. Pointed and perforated tube driven into the ground by a light pilehammer. Water is extracted by pumping.

abyssobenthic. Relating to that part of the abyssal realm which includes the ocean floor; peering down to the ocean floor from the ocean floor at great depths. C.T.D.

abyssolith. Literally, a bottomless body of rock material, a molten mass of eruptive material passing up without a break from the zone of permanently molten rock within the earth. A.G.I.

abyssopelagic. Relating to that part of the abyssal realm which excludes the ocean floor; floating in the depths of the ocean. C.T.D.

access point. One to which access is given. C.T.D.

accident. A sudden, unexpected, and unfortunate event. Gr. Brit. An iocident or event at which the man sustains a bodily injury which causes the injured person to be away from work for more than three days A certain degree of harm to an individual is the criterion. The event is usually classified as fatal, a serious nonfatal, or a minor or plus 3-day accident. See also accidental. Hess.

accessory. a. A machine that accelerates electrically charged atomic particles to high velocities. Electrons, protons, deuterons, and alpha particles can be accelerated to nearly the speed of light for use in nuclear research. Types of accelerators include the betatron, cyclotron, linear accelerator, and synchrotron. Familiarly known as atom smasher. L.BJ. b. In the case of stucco, plaster, mortar, concrete, etc., a substance which will hasten the set. ASTM C11-50. c. A device controlling the rate at which fuel is injected into a combustion-type engine and hence controlling its speed. Also called throttle. Long. d. A substance added to increase the rate of a chemical reaction. See also catalyst.

accelerometer. An instrument used to measure acceleration; specifically, a seismic design which measures particle accelerations. A.G.I.

acceptance operations. In mineral processing, rejection of material held as run-of-mine ore because of inferior quality. Bureau of Mines Staff.

accelerator. a. A machine that accelerates electrically charged atomic particles to high velocities. Electrons, protons, deuterons, and alpha particles can be accelerated to nearly the speed of light for use in nuclear research. Types of accelerators include the betatron, cyclotron, linear accelerator, and synchrotron. Familiarly known as atom smasher. L.BJ. b. In the case of stucco, plaster, mortar, concrete, etc., a substance which will hasten the set. ASTM C11-50. c. A device controlling the rate at which fuel is injected into a combustion-type engine and hence controlling its speed. Also called throttle. Long. d. A substance added to increase the rate of a chemical reaction. See also catalyst.

acceleration. That due to the gravitational attraction of the earth is 980.665 centimeters per second square (32.174 feet per second square). Standard value for use in vacuum. International Committee on Weights and Measures. True value varies slightly with isotopic effect, latitude, longitude, and the departure of the planet from a truly spherical shape. Pryor, 3.

accelerator. a. A machine that accelerates electrically charged atomic particles to high velocities. Electrons, protons, deuterons, and alpha particles can be accelerated to nearly the speed of light for use in nuclear research. Types of accelerators include the betatron, cyclotron, linear accelerator, and synchrotron. Familiarly known as atom smasher. L.BJ. b. In the case of stucco, plaster, mortar, concrete, etc., a substance which will hasten the set. ASTM C11-50. c. A device controlling the rate at which fuel is injected into a combustion-type engine and hence controlling its speed. Also called throttle. Long. d. A substance added to increase the rate of a chemical reaction. See also catalyst.

accessor plate. a. The quartz plate which gives the sensitive tilt of a specimen between crossed nicks. It is the mica plate which retains yellow light. Pryor, 3. b. The selenite plate which gives the sensitive tilt of a specimen between crossed nicks. It is the mica plate which retains yellow light. Pryor, 3.

access test. A route constructed to enable plant, supplies, and vehicles to reach a mine, quarry, or open cast pit. In remote and isolated regions, the provision of an access road may be very costly. Nelson.

access time. That required to locate data in the memory. Pryor, 3, p. 31.

accidental. Gr. Brit. An incident or event at work in which some-one sustains a bodily injury which causes the injured person to be away from work for more than three days A certain degree of harm to an individual is the criterion. The event is usually classified as fatal, a serious nonfatal, or a minor or plus 3-day accident. See also accidental. Hess.

accidental block. A solid chip of igneous, metamorphic, or sedimentary rock torn from the subvolcanic basement and ejected from a volcano. Synonym for noncognate block. A.G.I.

accidental error. Unpredictable, arising from a cause or cause. Pryor, 3, p. 139.

accidental inclusion. An enclosed crystal or fragment having no genetic connection with the igneous rocks which it occurs. See also accidental. Hess.

accidental pearl. Genuine natural pearl as distinguished from (artificially cultured pearl. A term not used in the trade as it is of questionable meaning.

Shipley.

accidental cause code. A system sponsored by the American Standards Association. Under this code accidents are classified under eight disabling working conditions and nine improper working practices. Nelson.

accident frequency rate. The number of all disabling injuries (fatal, permanent-total, permanent-partial, and temporary lost-time injuries) per million man-hours of exposure. Hess.

accident-prone. Accident statistics reveal that certain individuals have a predisposition to sustain more accidents than others exposed to the same hazard. This suggests that there is a certain defect or propensity in some miners which makes them accident-prone cases. It is also suggested that such cases tend to sustain an undue number of injuries even at home or at sports.

Nelson.

accident severity rate. The number of days of disability resulting from all accidents (fatal, permanent-total, permanent-partial, and temporary lost-time injuries) per thousand man-hours of exposure. Hess.

acclimatization. A man completely new to a hot mine will find great difficulty in doing any appreciable amount of work. Within a short period, his body will have improved its mechanism for heat loss, the rate at which the man can sweat will be much increased, pulse rate decreased, and body temperature falls, and the man is then said to be "acclimatized" to hot working conditions. A minority never become acclimatized and are said to be "heat intolerant." Roberts, l, p. 132.

acclival valleys. Those that run in the direct-
tion of the dip. A.G.I.

accompan. a. (Corn.) Account day; the usual settling day. Fay. b. The place of meeting, council house. Fay.

accordant tributary. A tributary that enters the main trunk stream at grade, that is, at the same elevation as the main stream. Stokes and Varney, 1955.

accordion roll conveyor. A roller conveyor with a flexible latticed frame which permits variation in length. ASA MH4-1938.

account. The record of the transactions affecting one party; as any one party may be the receiver or debtor in one transaction and the giver or creditor in another, an account has two sides, a debtor and a creditor side. Truscott, p. 280.

accountancy. The continuous recording of transactions on a money basis as a means to show clearly at any time the financial position of a business, what profit or loss has been made over any period, and where that profit or loss was made. Truscott, p. 280.

account day. See bill day. Nelson.

accretion. a. The process by which inorganic bodies increase in size by the addition of fresh particles to the outside of the body. Fay. b. The gradual addition of new land to old by the deposition of sediment carried by the water of a stream. A.G.I. c. May be either natural or artificial. Natural accretion is the gradual buildup of land over a long period of time solely by the action of the forces of nature, on a beach by deposition of waterborne or airborne material. Artificial accretion is a similar buildup of land by reason of an act of man, such as the accretion formed by the groin, breakwater, or beach fill deposited by mechanical means. H.B.G.

accretionary lapillus. A pellet, often exhibiting concentric structure owing to the accretion of fine ash or dust around raindrops falling through an explosion cloud, or to similar accretion around a nucleus fragment which rolls along the ground. Accretionary lapilli are also called mud pellets; pisoliths. A.G.I.

accretionary lava balls. Rounded balls of lava several inches in diameter formed by many small flows, formed by the rolling up and adhesion of viscous lava around some fragment of solidified lava as a center. A.G.I.

accretion. A limekiln which has formed in place by slow accretion of organic remains. Many such deposits belong to the reef or bioherm subclass. A.G.I.

accretion coast. See shoreline of progradation. Schierradenk.

accretion hypothesis. Any hypothesis of the origin of the earth which assumes that it has grown from a small nucleus by the gradual addition of solid bodies, such as meteorites, asteroids, or planetesimals, formerly revolving about the sun in independent orbits, but eventually drawn by gravitation to the earth and incorporated in it. Fay.

accretion vein. A vein formed by the repeated filling of a channelway and its reoccupying by the development of fracturess in the granite during subjacent mineralization. Forrester, p. 115.

accumulation. a. In coal mining, bodies of coal or anthracite collected in higher parts of mine workings and at the edge of goaves and waste. They are found in cavities, at rippling, at other sheltered places protected from the ventilating current, and at the higher sides of rise faces. Mason, 1. p. 262. b. The concentration or gathering of oil or gas in some form of trap. Commercial accumulation is a volume or quantity sufficient for profitable exploitation. A.G.I. c. A collected mass of material. Jones.

accumulator. a. A cylinder containing water or oil under pressure of a weighted piston for hydraulic presses, hoists, etc. It is between the pumps and the presses, keeps a constant pressure on the system, and absorbs shocks. Bureau of Mines Staff. b. A storage battery. Bureau of Mines Staff. c. In oceanography, a spring of rubber or steel attached to a trawling warp, to lessen any sudden strain due to the trawl catching C.T.D.

cumulative conveyor. Any conveyor designed to permit accumulation of packages or objects. Usually roller, live roller conveyor, roller flat conveyor, or belt conveyors. ASA MH4-1958.

accumulator metal. An alloy of 90 percent lead, 9.25 percent tin, and 0.75 percent antimony; condenser tellol. Campbell.

accumulator plant. In geobotanical prospecting, a plant is grown in a pot that maintains an normal content of a metal where growing in metal-bearing soil. A.G.I.

accuracy. a. The practical limit of accuracy in building work is about one-eighth of an inch for placing of walls and floors, and about 1 inch for a long tunnel driven through a mountain. A modern air survey, plotted to a scale of 1 in 500, can give an accuracy of plus or minus 3 inches vertically or horizontally. Ham. b. The closeness of approach to a measurement of the true value of the quantity measured. Since the true value cannot actually be measured, the most probable value from the available data, critically considered for sources of error, is used as the truth. Compare precision. A.S.M. Glaz. accuracy of a method. A measure of the ability of a method to provide accurate results, that is, results which are precise and free from bias. The accuracy of a method must not be confused with its precision. A determination may be made with great precision, and the standard deviation of a number of determinations on the same congnmment may be kept very low, but the results will only be accurate if they are free from bias. B.S. 1017, 1960, Pt. 1.

accuracy of a result. The closeness of agreement between an experimental result and the true value. B.S. 1017, 1960, Pt. 1.


acetamide; acetic acid amide; acetic acid amine; ethanamide. Colorless, deliquescent crystals; mousy odor; CHCONH2. Used in explosives and as a soldering flux. CD 64, 1961.

acetate; ethanolic acid. Produced during the dry distillation of wood followed by ash, and subjected to further distillation by the oxidation of dilute alcohol (HCO3H); specific gravity, 1.0942 (at 20° C). Vitamin C, a precursor of acetic acid and it contain a legal minimum of 4 percent of acetic acid. Used in the porcelain enameling industry to prepare grain-decorating and metal-cutting flame torches. Long.

acetate black. Graphite type of carbon black obtained by incomplete combustion of acetylene; apparent density, 0.21. Ben.

acetate lamp. See carbide lamp. Zern.

acetic acid tetrahydrone; symmetrical tetrahydrone. Mutthmann's liquid. Yellowish-irid liquid; CH3CHOHCH3; specific gravity, 2.98 to 3.00; boiling point, 259° to 247° C with decomposition; density, 1.0002 to 1.0005; boiling point, 151° C (at 54 mm); melting point, 0.1° C; and refractive index, 1.368. Used for separating minerals by specific gravity; a solvent for fats, oils, and waxes; a fluid in liquid gases; and a solvent in microscopy. CD 64, 1961.


acetylene lamp. See carbide lamp. Zern.

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acetylene. A preventable occurrence in coal mining which causes the production of silicon carbide and synthetic graphite. Henderson.

acetylene graphite. Artificial graphite made from coke by electric furnace heating. Bennett 2d, 1962.

acetylene process. A process for the production of artificial or synthetic graphite. It consists of simultaneously coked in the Acheson furnace at 5,000° to 6,000° F. Henderson.


acrimarlite. A pale sulfur-yellow to orange and red arsenochlromolybdate of lead, 33Pb3S33Se33Mo133O1333; Mohs' hardness, 3 to 4; specific gravity, 5.956. From the mines of Guanacare, Chihuahua, Mexico. Hess.

acrylic. A colorless variety of tourmaline. Fay.

acromatic. Free from hue. See also achromatic. Shipley.

acromatic color. White, black, or any tone of neutral gray, that is, gray containing no tint of any hue. See also chromatic color. Shipley.

acromatic loupe. Any loupe containing an achromatic lens. Shipley.

acromatic triple. A loupe corrected for chromatic aberration. See also loupe. Shipley.

acrylic. A Chilean term for a small earthenware dish used in making tests in the patio process. Hess.

acicular. A mineral consisting of fine needle-
acid clay. A naturally occurring clay.

acid bottle. Acid-dip bottle used in survey of Bessemer converter. One liner with acid. In another bit or reused in some other manner. May be fitted in a clinometer. Staff.

acid carbonator. One liner with acid.

acid chloride. A byproduct obtained in treating acid calcium phosphate. See calcium phosphate. A.G.I.

acid chlorination. The process of forcing acid into the borehole and left for 20 to 30 minutes to measure inclination. May be fitted in a clinometer. Pryor, 3.

acid coloring. The determination of the color. A.G.I.

acid desulfurization. The process of removing sulfur from coal by sulfuric acid. See desulfurization. A.G.I.

acid dip. A form of gold decoration for pottery introduced in 1863 by Minton's Ltd., Stoke-on-Trent, England. The glazed surface is etched with dilute HF prior to application of the gold; the decoration only of ware of the highest class. A.G.I.

acid gold. A form of gold decoration for glassware by immersing the surface is etched with dilute HF prior to application of the gold. Long.

acid mine drainage. Acidic drainage from ferrous ore. A.G.I.

acid mine water. Mine water which contains free sulfuric acid, mainly due to the weathering of iron pyrites. A pit water, which corrodes iron pipes and pumps, usually contains a high proportion of solids per gallon, principally the sulfates of iron, chiefly ferrous and alumina. Nelson. See also acid drainage. A.G.I.

acid open-hearth steel. Low-phosphorus pig iron treated in an acid (silica or sand) refractory steel furnace. Dobb.

acid open-hearth furnace. An open-hearth furnace used in the refining of hematite iron; little such iron is now made. The particular feature is that the hearth is made of acid-resistant bricks covered with a fritted layer of silica sand. Dobb.

acid polishing. A method of polishing cut decorations on glassware by immerse the base of known strength (standard solution) and an indicator is used to establish the end point. See also pH. C.C.D. 64, 1961.

acid resistant. A glass to which acid has been added. C.C.D. 64, 1961.

acid resisting. A glass which can be etched with concentrated sulfuric acid. A.G.I.

acid right. The determination of the angle of inclination of a borehole which is used to determine the quantity of acid in a solution. Hauzen.

acid salt. One which forms an acid molecule through combination with one or more protons. Pryor, 3.

acidity. The extent to which a solution is acid. See also pH. C.C.D.

acidity coefficient. See coefficient of acidity.

acidization. The process of forcing acid into a limestone, dolomite, or sandstone in order to increase permeability and porosity by dissolving and removing a part of the rock constituents. It is also used to remove mud injected during drilling. The general objective of acidization is to increase productivity. A.G.I.

acid mine drainage. Acidic drainage from ferrous ore containing acid. See also acid drainage. A.G.I.

acid mine water. Mine water which contains free sulfuric acid, mainly due to the weathering of iron pyrites. A pit water, which corrodes iron pipes and pumps, usually contains a high proportion of solids per gallon, principally the sulfates of iron, chiefly ferrous and alumina. Nelson. See also acid drainage. A.G.I.

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acid polishing

article in an acid bath for a few minutes, rinsing in water and brushing out the cut parts. C.T.D.

acid proofing. A steelmaking process, either Bessemer, open-hearth, or electric, in which the furnace is lined with a siliceous refractory and the pig iron low in phosphorus is required, as this element is not removed. See also basic process. C.T.D. b. One which employs an acid slag. Bureau of Mines Staff.

acidproof brick. Brick having low porosity and permeability, and high resistance to chemical attack or penetration by most commercial acids and some other corrosive chemicals. H.W.

acid radical. That part of the acid which cannot be replaced by a metal; for example, SO₄ in sulfuric acid (H₂SO₄). Cooper.

acid-recovery operator. In the coke products industry, one who recovers sulfuric acid used in processing coke-gas byproducts by cooking sludge with steam in acid regenerator pans. Also called acid regenerator. D.O.T. Supp.

acid refractories. Refractories containing a substantial amount of silica that may react chemically with basic refractories, basic slags, or basic fluxes at high temperatures. ASTM C71-64.

acid refractory material. A general term for those types of refractory material that contain a high proportion of silica, for example, silica refractories (greater than 92 percent SiO₂) siliceous refractories (78 to 92 percent SiO₂). The name derives from the fact that silica behaves chemically as an acid and at high temperatures reacts with bases such as lime or alkalis. Dodd.

acid refractory products. Forming those made of clay-silica mixtures or pure silica. Rosenthal.


acid resistance. The degree of resistance of the ceramic surface to attack by acids, (that is, porcelains enamels, chemical stoneware, glazes, etc.). Bureau of Mines Staff.

acid resistance of vitreous enamels. In the United States the acid resistance of vitreous enamels at (nominal) room temperature was determined by exposing the enamelled surface to 10 percent citric acid for 15 minutes at 80°F ASTM C282. Five classes of enamels are distinguished according to their frequent appearance: AA: no visible stain and passes dry-rubbing test; A: passes blurring-highlight test and wet-rubbing test; B: passes blurring-highlight test; fails wet-rubbing test; C: fails blurring-highlight test; passes disappearing highlight test; D: fails disappearings highlight test. Dodd.

acid-resistant brick. Brick suitable for use in contact with chemicals usually in conjunction with acid-resistant mortars. ASTM C43-65T.

acid rock. Loosely used in petrology, genera lly defined as one of the following: (1) An igneous rock containing 66 percent or more of silica, free or combined, in this sense quartz, feldspar, mica; (2) an igneous rock in which minerals high in silica, such as quartz, alkaline felds par are dominant; and (3) very loosely, an igneous rock composed dominantly of light-colored minerals. In all three senses contrasted with the term misleading, undesirable, and becoming obsolete. As used in the first sense, it is being replaced by felsic or peraluminous; as used in the second sense, it should be replaced by felsic or a term denoting the dominant mineral, and as used in the third sense, it has been replaced by leukocratic. See also acidic, a. Fay.

acid salt. A salt containing hydrogen, (for example, KH₂SO₄). A.G.I. b. A salt which dissolves to yield a solution containing an excess of H⁺ ions over OH⁻ ions, whether or not it contains hydrogen in its formulas, (for example, FeCl₃). A.G.I.

acid scaling. Raw shapes dipped in acid or sprinkled with acid and annealed. Bryant.

acid slag. One which contains substantial amounts of active silica. Bureau of Mines Staff.

acid sludge. Products of refining of tar, shale oil, petroleum in which sulfuric acid reacts to form a sulfonic acid mixture, green acids, and sulfuric acid. Used in the flotation process, and in proprietary collector agents for flotation of iron ores. Pryor.

acid soil. A soil deficient in available bases, particularly calcium, and gives an acid reaction when tested with standard methods. Stokes and Varrone, 1955.

acid steel. Steel melted in a furnace with an acid bottom and lining and under a slag containing an excess of an acid substance, such as silica. ASM Gloss. See also acid process.

acid strength of. Related to ability to liberate hydrogen ions from solution, and hence-to-electrical conductivity of equivalent aqueous solutions of acids. Pryor. 3.

acid sulfate. Compound containing or dissociating to give the ion, HSO₄. Pryor. 3.

test. a. Synonym for acid-dip survey. Long. b. A severe or decisive trial, as of usability or authenticity. Long.

acid tube. Synonym for acid bottle. Long.

acid treatment. The process of agitating petroleum products with sulfuric acid to remove undesirable compounds. Hess.

acid tube. Synonym for acid bottle. Long.

acidulose. Cold mineral waters, especially those impregnated with carbonic acid. Fay. Pay.

acid-vial culture tube. Synonym for acid bottle. Long.

acid water. Water charged naturally with carbon dioxide. Also applied to natural waters containing sulfur compounds, especially sulfates. Bureau of Mines Staff.

acicular. An alloy containing 92 to 97 percent aluminum and offered as a metal of strength and lightness and noncorrosive suitable for use in the construction of automobiles, aircraft, military equipment, railroad cars, valves, hardware, and for the manufacture of helmets. It is silver white, and has a specific gravity of 2.82 and a melting point of 1,382°F. Its tensile strength in 1/16 inch rod given as 10,000 pounds per square inch, and in rods and sheets as 28,000 to 64,000 pounds and heat-treated as upwards of 70,000 pounds per square inch. Fay.


aciform. From the Latin acinus, meaning date-grape or the cluster of grapes or a cluster of berries. Included are clusters of grapes, clusters like grapes. Also, full-leaved leaves or any leaves like a grape. Bureau of Mines Staff.


acinos. Synonym for aciniform; acinos. Bureau of Mines Staff.

acidic acid. Having no inclination or dip; situated where a magnetic needle if suspended freely has no dip or inclination and assumes a horizontal position, as the acinic line or magnetic equator. Webster, 3d.

acinic line; dip equator; magnetic equator. The line through those points on the earth's surface at which the magnetic inclination is zero. The acinic line is a particular case of an isoclinic line. HGÖ.

ACL kiln; Lepol kiln. ACL is a trademark of the Allia-Chalmers Manufacturing Company in the United States. Lepol is a trademark of Polyiusia Company, Germany. Both terms refer to a traveling grate preheater for a portland cement batch prior to its being fed to a rotary cement kiln; with this attachment, the length of a rotary cement kiln can be halved. Dodd.

acme thread. A screw thread, the section of which is between the square threads and the V threads. Used extensively for feed screws. Citrin.

acmite. A brown or green silicate of sodium and iron, essentially NaFe₅O₉·(Si₂O₅)₃, belonging to the pyroxene group and often found in long prismatic crystals characteristically pointed. The variety aegirine is common in certain igneous rocks, occurs in blunted terminated crystals and also in capillary and fibrous forms. Webster 2d. Monocline; Mohs' hardness, 6 to 6.5; specific gravity, 3.5. Dana 17.

acme trachyte. A trachyte in which the pyroxene is acmite or aegirine and the feldspar is anorthoclase. It differs from normal trachyte in that its predominant alkali is soda instead of potash. Acmite trachyte is intermediate between true trachyte and phonolite. First described from the Azores and also found in the Crazy Mountains. Mont. Fay.


acoustic. Used when it modifies designates something which has the properties, dimensions, or physical characteristic which is intimately associated with sound. Hy.

acoustic axis. See axis of acoustic symmetry. HGÖ.
acoustic dispersion. Acoustic dispersion is the change of speed of sound with frequency. H&G.

acoustic impedance. The acoustic impedance is the quotient obtained by dividing the power of the acoustic energy being transmitted at a given time through a given area by the magnitude of this area as the unidirectional steady-state force. H&G.

acoustic interferometer. An instrument designed for measuring strains, for example, to provide a continuous vertical profile of the change of speed of sound with frequency, and by the motion of which sound energy is transmitted in air, in water, or in the earth. The wave may be described in terms of change of pressure, of particle displacement, or of density. A.G.I. b. Used increasingly to study the physical properties of rocks, and composition of gases. Investigations may be made both in situ and in the laboratory. Nelson.

acoustic theodolite. An instrument designed to provide a continuous vertical profile of ocean currents from the bottom to the surface in a specific location. H&G.

acoustic waves. a. The waves which contain sound energy and by the motion of which sound energy is transmitted in air, in water, or in the earth. The wave may be described in terms of change of pressure, of particle displacement, or of density. A.G.I. b. Used increasingly to study the physical properties of rocks, and composition of gases. Investigations may be made both in situ and in the laboratory. Nelson.

Ac-plane. In structural petrology, a plane at right angles to the surface of movement. The ac-plane is the direction of eutectic transport, and c, the axis perpendicular to the surface of movement.

acre. a. A measure of surficial area, usually of land. The statute acre of the United States and England contains 4,836 square feet (43,560 square yards) = 0.4047 hectares = 4,047 square meters, or 1/640 of a square mile. Standard, 1964, b. Can. In Quebec, a linear measure that equals the square of 13.2 feet or approximately 20.7 feet. Fay. c. For the calculation of coal reserves, a convenient rule is to allow 1,200 tons per foot of strike length, 1,500 tons per foot of dip length. A.C.I.

d. May be used, for example, to measure vegetation, such as height, absorption, or impedance. H&G.

acoustic log. A continuous record made in a wellbore showing the velocity of sound waves over short distances in adjacent rock; velocity is related to porosity and the liquid occupying pores. A.G.I. A.C.I.

acoustic methanometer. An instrument to determine the concentrations of methane at points in the underground fire damp drainage pipes. It is based on the principle that sound travels much more rapidly in methane than in air and the intermediate velocity in a simple mixture can be used as a measure of the proportion of the two gases. A range of 40 to 90 percent methane is usually covered. New regulations which became effective in July 1961 call for automatic shutdown of methane drainage plants if the drained gas falls below 40 percent methane. Nelson.

acoustic radiation pressure. The acoustic radiation pressure is a unit directional steady-state force exerted upon a surface exposed to an acoustic wave. Such a steady radiation force is quite small in magnitude and is really observable only in the presence of very intense sound waves. H&G.

acoustic radionuclide. An instrument for measuring acoustic radiation pressure by determining the unidirectional steady-state force resulting from reflection or absorption of a sound wave at its boundaries. H&G.

acoustic resistance. Product of longitudinal wave velocity and density, being the property that controls the reflective power at a boundary plane. Schlierflecker.

acoustics. The science of sound, including its production, transmission, and effects. Hg. acoustic scattering. The irregular reflection, reflection, or diffusion of sound waves in many directions. Hg.

acoustic sounding. The indirect evaluation of the properties of the sea by measuring the length of time necessary for a sound wave to travel to the bottom, reflect and return back to the water surface. H&G.

acoustic strain gage; sonic gage. An instrument for measuring strain, for example, it can be attached to shafts or rotating gears. It contains a length of fine wire under tension, the tension being varied by the strain to which the gage is subjected. The measurement is made that is of the frequency of vibration of the wire when it is plucked by means of a current of magnetic impulse and this measurement can be made with great accuracy. The gage is highly stable and readings can be made over a period of years without any fear of zero drift. See also electrical resistance strain gage; mechanical extensometer. Nelson.

acoustic theodolite. An instrument designed to provide a continuous vertical profile of ocean currents from the bottom to the surface in a specific location. H&G.

acoustic waves. a. The waves which contain sound energy and by the motion of which sound energy is transmitted in air, in water, or in the earth. The wave may be described in terms of change of pressure, of particle displacement, or of density. A.G.I. b. Used increasingly to study the physical properties of rocks, and composition of gases. Investigations may be made both in situ and in the laboratory. Nelson.

Ac-plane. In structural petrology, a plane at right angles to the surface of movement. The ac-plane is the direction of eutectic transport, and c, the axis perpendicular to the surface of movement.

actinium. Actinium is located in the actinide series; symbol, Ac; emits alpha and beta rays; half-life, 22.2 minutes; and degrades to AcB (bismuth 211). A-C-B; atomic number, 89; atomic weight, 227; isotopic with RaB (lead 214). RaD (lead 210), ThB (lead 212), and lead; emits beta rays; half-life, 2.6 minutes; and degrades to AcB (bismuth 211). H&G.


actinium. A radioactive element found in nature as a constituent of all uranium ores. A ton of pure pitchblende contains 0.15 milligram of actinium. Actinium has an atomic number of 89 and is the first member of the actinium series. C.C.D. 64, 1961, b. The elements with atomic numbers above 88. According to many authorities, these elements occupy one single place in the extended periodic table. In the same group into which the rare earth elements (lanthanides) are classified. G. Nay, c. Radioactive elements, atomic numbers 89 to 103. HURD.


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actinium C'. a. A name for polonium 211, a member of the actinium disintegration series. NRC-ASA N1.1-1957. b. A name for thallium 207, a member of the actinium disintegration series. See actinium emanation. Hess.


actinium disintegration series. a. A series of radioactive elements formed by the degradation of AcC (bismuth 211); symbol, AcC"; atomic number, 88; atomic weight, 223 (radium 223); isotopic with radium, thorium, and thorium (radium 224; symbol, ThX); emits alpha rays; half-life, 11.7 days; and degrades to AcD (actinium 219; actinon emanation; symbol, Ac or AcEm). Hess; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-82; Glasstone, 2, p. 135.

actinium emanation. See actinium disintegration series. CCD 6d, 1964, p. 63.

actinium X. The daughter of actinium C" formed by the degradation of RaDc (radioactinium; thorium 227) and of AcE (actinium C; francium 223); symbol, AcX; atomic number, 88; atomic weight, 223 (radium 223); isotopic with radium, thorium, and thorium (radium 224; symbol, ThX). Hess, Glasstone, 2, p. 135.

actinium actinon. a. A gaseous, inert, very short-lived radioactive element of the actinium disintegration series and formed by the degradation of AcX (actinium X; radium 223); symbol, An or AcEm; atomic number, 86; atomic weight, 219 (radon 219); isotopic with radon and thoron (radon 220; symbol, Tn); emits alpha particles; half-life non; and degrades into AcA (actinium 215). Hess; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-81.

actinoform. Having a radiate form. Rice.

actinolite. A natural hydroxy-calcium-magnesium-iron silicate Ca(Mg,Fe)2SiO(Si,OH); green color; monoclinic; luster vitreous to silky; floures to granular; fibers brittle; Mohs' hardness, 5.6; specific gravity, 2.9 to 3.2. Found in the United States, Canada, and Europe. Used as a minor asbestos mineral in building material. An amphibole. CCD 6d, 1961.


actinohydrolytic. Pertaining to the action of an actinomorphic enzyme. Glu.

actinohydrolysis. a. The changing of the passive surface of a metal to a chemically active state. Contrast with passivation. ASM Gloss. b. In the flotation process of ore dressing, the process of altering the surface of specific mineral particles in an ore pulp to promote adherence of certain reagents. Also called activation. B.F. 255. c. The process of adding a catalyst or catalyst carrier. CCD 6d, 1961.

catalyst. A substance which when added to a mineral pulp promotes flotation in the presence of a collecting agent. Also called activator. B.F. 255. CO2 is an element used particularly in differential mineral flotation to help clean the mineral surface so that a collector may adhere and permit or aid its floatability. Frequently used to permit floating minerals that had been previously depressed. Mitch.

catalyzed. a. The changing of the passive surface of a metal to a chemically active state. Contrast with passivation. ASM Gloss. b. In the flotation process of ore dressing, the process of altering the surface of specific mineral particles in an ore pulp to promote adherence of certain reagents. Also called activation. B.F. 255. c. The process of adding a catalyst or catalyst carrier. CCD 6d, 1961.

activation analysis. a. The process of making a material radioactive by bombardment with neutrons, protons, or other nuclear particles. See also activation energy; activator; activation. Pryor, 3. d. The process of adding a catalyst or catalyst carrier. CCD 6d, 1961.
activation analysis

nuclear radiation. The newly radioactive atoms in the sample give off characteristic nuclear radiations that can identify the atoms and indicate their quantity. Activation analysis gives more specific information than chemical analysis. It is being used more and more in research, industry, and criminal investigation, and other areas. L.O.I.

activation energy. The energy required for initiating a physical or chemical transformation, in particular a metallurgical reaction; for example, plastic flow, diffusion, or chemical reaction. The activation energy may be calculated from the slope of the line obtained by plotting the natural log of the reaction rate versus the reciprocal of the absolute temperature. A.M. Gold.

activator. a. In flotation, a chemical added to the pulp to increase the floatability of a mineral in a froth, or to refloat a depressed (sunk) mineral. Also called activating reagent. C.T.D. b. A reagent that affects the surface of minerals in such a way that it is easy for the collector atoms to attach themselves to the mineral surface. E.R.I.

active agents. Surface-active substances which impart reactivity on minerals. Fay.

active lime. That portion of total lime which is available for external attraction, for example, plastic flow, diffusion, or chemical reaction. The active lime permits the application of the law of mass action. C.T.D.

actual age. In geology, the age of a given feature or event expressed in years or centuries. This can seldom be ascertained accurately, and most geologic estimates are subject to wide margins of error. Stokes and Varnes, 1955.

actual aggregate breaking strength. The sum total of the actual tensile tests which have been made on wires before manufacture into wire rope. Ham.

actual breaking strength. The breaking load obtained from a tensile test to destruction on a sample of rope. Ham.

actual horsepower. The horsepower really obtained from a tensile test to destruction on a sample of rope. Ham.

actual performance curve. A performance curve showing the results actually obtained in a tensile test to destruction on a sample of rope. Ham.

actual size. The size to which a rock core is reduced to obtain satisfactory cores and samples of rock. Originally used to mount wheels in which the holes are larger than the machine arbors. See also conditioner. L.E.

actual size. The size to which a rock core is reduced to obtain satisfactory cores and samples of rock. Originally used to mount wheels in which the holes are larger than the machine arbors. See also conditioner. L.E.

actual tensile strength. The true tensile strength of a given mineral specimen. Fay.

actual aggregate breaking strength. The sum total of the actual tensile tests which have been made on wires before manufacture into wire rope. Ham.

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gent evoluition. A.G.I.
adptive metallurgy. Branch of metallurgy that deals with use of metals and alloys. Fay. 


added elements. Any elements added in relatively small amounts to an alloy for scavenging or modifying its properties. Bennett, 2d, 1962. 

additive. A correction applied to times of seismic reflections measured from an arbitrary time origin. The additive is normally applied for the purpose of translating the time origin chosen for computation, and it is usually in the same units as shot time. A.G.I. 

additional constant. The length, which must be added to the product of the intercept, on the staff in stadia work and the multiplying constant, to give the true distance from the center of the telescope to the staff. The length is often less than 1 foot. Ham. 

add; ad. N. of Eng. To earn by labor. Fay. 


addings. A term used in the northern and parts of other coalfields in Great Britain to denote the miner’s wages. Nelson. 

adder muscles. A muscle passing across from one valve of a bivalve to the other, for the purpose of closing the shell. Shipley. 

adhesion. 1. The cohesion of a gearwheel. Crispin. 

adhesion-type ceramic veneer. Ceramic slabs approximately 1/8 thick, held in place by the adhesion of the mortar to the ceramic veneer and the backing wall. No metal anchors are required. See also ceramic veneer. ACG. 

adhesive. A substance capable of holding materials together by surface attachment. CDD 6d, p. 218. 

adhesive force. The frictional grip between two surfaces in contact, for example, between the tire of a locomotive and the rail; the product of the weight on the wheel and the friction coefficient between the wheel and the rail. Nelson. 

adhesive state. A very absorbent state that adheres to the tongue if touched by it. Standard, 1964. 

adiabatic. A change at constant total heat. An action or a process during which no heat is added or subtracted. Strock, 12. 

adiabatic calorimeter. A calorimeter which measures adiabatic temperature changes. The theoretical maximum temperature that would be attained if no heat were lost to the surroundings. Newton, p. 125. 

adiabatic compression. Compression in which no heat is added or subtracted from the air, which cools during the expansion because of the work done by the air. Lewis, p. 665. 

adiabatic efficiency. This is obtained by dividing the power, theoretically necessary to compress the air and deliver it without loss of heat, by the power supplied to the fan shaft. Roberts, 1, p. 186. 

adiabatic expansion. Expansion in which no heat is added to or subtracted from the air, which cools during the expansion because of the work done by the air. Lewis, p. 663. 

adiabatic phenomena. Those which occur without a gain or loss of heat. Hy. 

adiabatic reaction. A reaction which takes place without transfer of heat to or from the body concerned. Hess. 


adiabatic temperature changes. The compression of a fluid without gain or loss to the surroundings is work performed on the system and produces a rise of temperature. In very deep water such a rise of temperature occurs and must be considered in the vertical temperature distribution. Hy. 

adiagnostic. Proposed by Zirkel and applied to mineral constituents of a rock that cannot be distinguished even with the aid of a microscope. Johannsen, v. 1, 2d, 1939, p. 164. 

adiosine. A dense, felsitic, contact-metamorphic rock composed chiefly of exceedingly fine-grained quartz and albite; the soda may reach 10 percent. From the fact that certain minerals are in smaller quantities. Ainosine are formed by reactions following the intrusion of mafic-ultramafic magma (spilitic; desmitite). They also make up beds in metamorphic rocks (Compare porphyroid; halleflinta). Hess. 

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a-dipping. Scot. Toward the dip. Fay. 

d. A horizontal or nearly horizontal passage driven from the surface for the working or unwatering of a mine. If driven through the hill or mountain to the surface on the opposite side it would be a tunnel. Lewis, p. 21. Also called drift; adit level. 

adit. An adit. A horizontal or nearly horizontal passage driven from the surface for the working or unwatering of a mine. If driven through the hill or mountain to the surface on the opposite side it would be a tunnel. Lewis, p. 21. Also called drift; adit level. 

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adit end. The furthest end or part of an adit from its beginning, or the very place where the miners are working underground towards the mine. Hess.

adit level. Mine workings on a level with an adit. Hess.

adjacent. As generally defined and understood, means, by or near, and close, but not actually touching; nonadjacent, representing the opposite situation, means not near, and not close. Ricketts, I.

adjacent sea. Semienclosed sea adjacent to and connected with the oceans. The North Polar, Mediterranean, and Caribbean Seas are examples. Synonym for marginal sea. A.G.I.

adjoining. To be in contact; to lie next to. Jones.

adjutable bed. Bed of a press designed so that the die space height can be varied conveniently. ASM Glass.


adjusting screw. An accurately machined adjustable bed. Bed of a press designed so that the adhesives are calcareous. Similar deposits are found in other desert basins. The agent of deposition seems to be mainly water and the places of deposition are more or less flat areas in the central and lower parts of desert basins. The materials, in part at least, have been produced from the rocks of the desert slopes through both decomposition and disintegration. A.G.I. b. The mixed earth or clay of which such bricks are made. Standard, 1964, c. In mining, a brick of pulverized ore mixed with clay, as in quicksilver metallurgy. Fay. d. Synonym for mandrel. Long. e. A firm sticky clay. Long.

adobe brick. A large clay brick, of varying size, roughly molded and sun-dried. ACGS.

adobe flat. A broad flat formed by deposition from sheetfloods and floor with sandy clay or adobe. The surface, when dry, is normally hard, smooth, and somewhat streaked in appearance due to the presence of fine crenulations in the direction of flow. USGS Bull. 730, 1923. pp. 69-70.

adoberia. An adobe kiln or yard. Hess.

adobe shot. Ordinarily referred to as a dobe shot. A stick or part of a stick of dynamite is laid on the rock, is broken and covered with mud to add to the force of the explosion. A mudcap shot. Hess.

adolescent river. In physical geology, a river in the stage where it has acquired a well-cut channel, sometimes reaching baselevel at its mouth, and a graded bed. Standard, 1964.

A drill rod. A former standard diamond-drill rod superseded in 1954 by the DCDMA standard AW drill rod. Long.

adhesion. A. The work of excavating as mining advances. A.G.I. b. Substitution of a common element by a trace element or water) which is added in small quantity adsorbed and that not adsorbed at a constant temperature. Pryor, 3.

adsorption. A solution of dissolved substances, or of liquids by the surface of a solid, particularly clay or adobe. The surface, when dry, is normally hard, smooth, and somewhat streaked in appearance due to the presence of fine crenulations in the direction of flow. USGS Bull. 730, 1923. pp. 69-70.

adsorb. To condense and to hold a gas on the surface of a solid, particularly clay or adobe. The surface, when dry, is normally hard, smooth, and somewhat streaked in appearance due to the presence of fine crenulations in the direction of flow. USGS Bull. 730, 1923. pp. 69-70.

adsorbate. That which is adsorbed by an adsorbent. Pryor, 3.

adsorption. Proximate. The two histogram classes adjacent to the maximum class in the graphic representation of particle size analysis. A.G.I.

adsorbs. Materials added to mortar as water-repellent or coloring agents or to retard or speedup setting. ACGS.

adolescent river. A river in the stage where it has acquired a well-cut channel, sometimes reaching baselevel at its mouth, and a graded bed. Standard, 1964.

adularization. The introduction of or placement by adularia, as in the potash flotation process. Bureau of Mines Staff.

advanced, advance. The work of excavating as mining goes forward in an entry and in driving a cut channel, sometimes reaching baselevel at its mouth, and a graded bed. Standard, 1964.

advanced gallery. A small heading driven in advance of the main tunnel in tunnel excavation. Fay.

advanced gates. Gate roads that are driven simultaneously with the longwall entry but which are not advanced more than 10, 20, or more yards in advance of the face. The area immediately ahead of the coal face


adverse claim. A claim made to prevent the patenting of part of the ground within the area in question; for example, an adverse claim of ground located under a house would include the part of his claim that is overlapped by the interest of his coowner to be forfeited upon death of the joint tenant, if the coowner has transferred his interest in the property. The term is used in a legal sense to mean nothing more than the intention of the dissessor to appropriate and use the property, whether in fact it is so used or not. See also adverse intent. Nov. 3. c. The process of relieving the effects of caviation by admitting air to the section affected. Seelye, 1. d. The process of mixing air or other gases with water, sewage, etc. Seelye, 1.

adverb. A term used to express the result of the action of a joint owner of a mining claim who by proper notices causes the intention to acquire by purchase for failure to perform his share of the assessment work. Fay.


adz. A cutting tool with the blade set at right angles to the handle; used for rough dressing timber. Crispin. Also spelled advr. Webster 3d.

dead-eye hammer. Usually the claw-type nail hammer in which the eye is extended to give a longer bearing on the handle than is the case with other hammers. Crispin. AEC Abbreviation for Atomic Energy Commission. GPO Style Manual, p. 155.

adze. A device used to measure the effect of the atmosphere on Portland cement during storage. Air dry has no effect, but if it is exposed to moist air both moisture and carbon dioxide are absorbed with erratic effects on the setting behavior. See also air entraining. Dodd.

aeration, zone of. The zone in which the interstitial fluid of the parent rock minerals are not (except temporarily) filled with water under hydrostatic pressure; the interstitial fluid is either air or are filled with water that is held by capillarity. Rice.


Aereos apparatus. A liquid-air type of breathing apparatus which is smaller and lighter than the Aerophor apparatus. The entire apparatus is carried on the wearer's back and has a weight of only 32 pounds, which is 8 pounds lighter than the Aerophor breathing apparatus. The mouthpiece of the Aereos apparatus has been specially designed to prevent the involuntary inhalation of the outside atmosphere should the mouth or nose muscles become slack. McAdam, pp. 32-44.

Aerex fan. Trade name for an axial-flow type of mine fan. It has the advantages of high efficiency, small size, and high operating speeds. See also fan, 1. Nelson.

aerial. Relating to the air or atmosphere. Subaerial is used to denote land occurring under the atmosphere as subaqueous. See also air entraining. Webster 3d.
aerial magnetometer

ure variations in the earth's magnetic field while being transported by an aircraft. Same as airborne magnetometer. A.G.I.

aerial tramway. A system for the transport of continuous vertical photographs from an airplane for geophysical and other purposes. One such method employs a steel cable, usually mounted 35-foot, millimeter positioning camera, which photographs continuously the track of the aircraft. From the prints obtained, a mosaic map is closely examined through double-eye pie viewers, etc., and the possible nature of the geology and subsurface structure can be inferred by trained geologists. See also profile flying; radio altimeter. Nelson.

aerial railroad. A system of wires from which to suspend cars or baskets, as in hoisting ore. Standard, 1964. See also aerial tramway. Fay.

aerial rope way. System of ore transport used in rough or mountainous country. A cable is carried on pylons, and loaded buckets are (1) towed from loading point to discharge; (2) suspended from a carriage running on this cable, and then returned empty along a second cable; or (3) the whole cable moves continuously carrying buckets which hang from saddle clips and are loaded and discharged automatically or by hand control. Pryor, 3. See also bicable; jig-back; monocable; aerial tramway. Standard, 1964. "A Offices. Synthetic water-soluble polymers used as flocculating agents. Bennett 2d, 1962. 44.

aerofall. A short, cylindrical grinding mill with a large diameter used dry, with either coarse lumps of ore, pebbles, or steel balls as crushing bodies. The mill load is air-sewn to remove finish mesh material. Pryor, 3. 1961.

aerograph. A device for spraying powdered glass or mineral on the surface of pottery by means of compressed air. Dodd.

aerodynamic. 1. Pertaining to or affecting the motion of gases in the body. The disease is characterized principally by urticarial pain, cramps, and swelling, and sometimes results in death. Also known as decompression sickness. H.O.G.

aerodynamic instability. Flutter which may occur in a structure exposed in wind forces. This form of instability can be guarded against by suitable design. Ham.

aeronautical. The science or liberation of gases in the blood vessels of the body, as brought on by a change from a high, or relatively high, atmospheric pressure to a lower one. H.O.G. b. The disease or condition caused by the formation or liberation of gases in the body. The disease is characterized principally by urticarial pain, cramps, and swelling, and sometimes results in death. Also known as decompression sickness. H.O.G.数组.

aerofall mill. A short, cylindrical grinding mill with a large diameter used dry, with either coarse lumps of ore, pebbles, or steel balls as crushing bodies. The mill load is air-sewn to remove finish mesh material. Pryor, 3. 1961.

aerofocls. An apparatus containing a supply of compressed air for respiration, as for a miner. Webster 3d.

aerofolic. An obsolete term for siderolite. A.G.I.


aerosol. A suspension of ultramicron size or liquid particles in air or gas, as smoke, fog, or mist. Webster 3d.

aerosol. Trade name of strong wetting agent based on sulfonated bi-carboxylic esters. Hest.数组.


aerugite. A green to brown nickel arsenate, perhaps SnNiOAsO; an analysis gave 48.77 percent nickel. It is an oxidized ulvöspinel mineral. Hest.

aerug. a. Copper rust; verdisol; especially, green copper rust adhering to old bronzes. Standard, 1964. b. Copper carbones, due to weathering of the metal; especially, the patina adhering to old bronzes. Hest.数组.

aeruginite. A black to transparent yellowish-brown, complex orthorhombic titanocolumbium of thorium and the cerium metals with some iron, calcium, etc.; 32 to 37 percent, CbO2; 21 to 42 percent, TIO2; 19 to 24 percent, cerium earths; 1 to 3 percent, rare earth oxides. Specific gravity, 4.93-5.17; in pegmatites. Hest.数组.

aeruit. Basalt; Metarciamic Harbite, an isometric HgS. Dana 6d, p. 63.

aetite. A nodule consisting of a hard shell of hydrated oxide of iron within which the yellow oxide becomes progressively softer toward the center which is sometimes empty. Fay. b. Synonym for eagletone. Standard, 1964.

AFA rammer. Apparatus designed by the American Foundrymen's Association for the preparation of test pieces of foundry sand; it has also been applied as a method for the preparation of test pieces of particulate refractory materials. The rammer operates by a 14-pound weight falling through a height of 2 inches on the plunger of a 2-inch diameter mold; normally, the weight is allowed to fall on the mold three times. Dodd.

A-frame headgear. A steel headgear consisting of two heavy plate A-frames, set fit for breathing. Fay. b. A portable apparatus containing a supply of compressed air for respiration, as for a miner. Webster 3d.

A-frame headgear. A steel headgear consisting of two heavy plate A-frames, set fit for breathing. Fay. b. A portable apparatus containing a supply of compressed air for respiration, as for a miner. Webster 3d.

aerolite. A stony meteorite in which silica and silicates. CCD 6d, 1961.

aerology. A science dealing with the study of the composition of gases in the body. The disease is characterized principally by urticarial pain, cramps, and swelling, and sometimes results in death. Also known as decompression sickness. H.O.G.数组.

aerole. A stony meteorite in which silica and silicates. CCD 6d, 1961.

aeromagnetic prospecting. A technique of exploration of an area using an aerial magnetic meter to survey that area. A.G.I.

aerometer. An instrument for ascertaining the weight or the density of air or other gases. Pryor, 3.

Aeromine Promoters. Trademark for a group of cationic flotation reagents. Used in the flotation of ores and minerals, primarily silica and silicates. CCD 6d, 1961.

aeropone. A respirator in the form of a tank which contains, in one or more compartments from the lungs, and containing chemicals designed to revive the air to render the air fit for breathing. Fay. b. A portable apparatus containing a supply of compressed air for respiration, as for a miner. Webster 3d.
A-frame headgear

east: the shaft mouth. They are braced together and carry the heavy girders which support the diaphragm plate. It is a completely self-supporting and rigid structure and leaves more usable space around the collar. It includes a guide-tower structure built over the shaft collar. A number of these headgears have been erected in the Republic of South Africa. Nelson.

African nephrite. Same as Transvaal nephrite. afterburst. a. A rock burst is sometimes followed by an afterblast. Continued blowing of air through a fissure subsequent to a rock burst. Pryor, 3.

aftercooling. The cooling of a reactor after the principal reaction has ceased. Most of the afterheat is due to the decay of fission products. D.L.


aftergases. Gases produced by mine explo- sions or mine fires. Fay.

afterheat. The heat produced by the continuing decay of radioactive atoms in a nuclear reactor after the fission chain reaction has ceased. D.L.


agglomerate. 16

agate. Aagate consisting of Jasper, containing veins of chalcedony. Dana.

agate opal. Optalized agate. Fay.

agate shell. Same as agate snail, a large land snail with a shell of pure agate. Shipley.

agate ware. A. An enameled iron or steel ware used for household utensils. Used exclusively as table equipment in miners' camps and boarding houses. Fay. b. Pottery, veined and motled to resemble agate. Standard, 1964. c. Bodies formed by blending differently colored clays (known as solid agate), or by covering surfaces with differently colored slips. C.T.D.

agateous. Producing or containing agate. Shipley.

ag大涨. Like or pertaining to agate. Shipley.

agateite. To change into, or cause to resemble an agate. Shipley.

agatized wood. A variety of silicified wood which resembles any variety of agate. Shipley.

AGC Automatic gain control. An electronic device used in television and radio amplifiers to keep the overall recording level from varying more than a controlled amount.


agatification. The ratio of daughter to parent isotope; the term is often used to indicate a ratio that is perturbed by some factor and, therefore, not indicative of the absolute age of the mineral. A.G.I.

agglomerate. A brecia composed largely of angular volcanic clasts. More specifically, a heterogeneous mixture of fragments of volcanic and other rocks.
agglomerate
filling the funnel or throat of an extinct or quiescent volcano. Fay, b. To collect into a ball, heap, or mass; hence, to gather into a heap or mass; as to agglomerate coal. Webster 3d. c. Contem- poraneous pyroclastic rock containing a predominance of round or subangular frag- ments larger than 32 millimeters in diam- eter. A.G.I.

agglomerate belt flotation. A coarse-fraction concentration method used in milling pep- ble phosphate in which conditioned feed at 70 to 75 percent solids is placed on a flat, vibrating belt traveling at a rate of about 75 feet per minute. Water sprayed on the surface of the pulp aerates the pulp causing agglomerates of phosphate particles to float to the side of the belt for removal. The silica fraction travels the length of the belt and is permitted to flow off the opposite end. Baffles are positioned at approp- riate points along the belt to stir the material so that trapped phosphate par- ticles are given an opportunity to float. Concentrate from the first belts or rougher operation, is cleaned on a second belt for further silica removal. Tailings from the cleaning operation are recycled to the rougher circuit. Arberit, p. 536.

agglomerated. Bonded aggregate. V.V.

agglomerating value. A measure of the bind- ing qualities of coal but restricted to describe spalled-off scoria in the interstices between the blocks, and by the general absence of an ash or tuff matrix. A.G.I.

agglutinating power. See caking index. Nelson.

agglutinating value. A measure of the binding qualities of a coal and an indication of its caking or coking characteristics. Applicable with reference to the ability of fused iron to precipitate an inert material as sand. Compare agglomerating value. A.G.I.

agglutinating-value test. A laboratory test of the coking properties of coal, in which a determination is made of the strength of buttons made by mixing powdered coal and 15 to 30 times its weight of sand. Bureau of Mines Staff.

aggradation. a. The natural filling up of the bed of a watercourse at any point of weakening of the current, by deposition of detritus. Standard, 1964. b. Specifically, the building up of fanlike graded plains by streams in arid regions by the shifting of the streams and the loss of the water in the soils. Contrast ed with degradation. Standard, 1964. c. The process of building up a surface by deposition. A.G.I. d. The growth of a permafrost area. A.G.I. e. See also aggradation plain.

aggradation plain. A topographic plain built up by aggradation in arid districts. It is began by the building up of the bed of a stream, at the foot of a decivility, forming a plain with a nearly straight longitudinal profile, which may become a very broad plain of deposition. Standard, 1964.

aggrading stream. Synonym for upgrading stream. A.G.I.

aggregate. a. Sand, gravel, or any clastic material in a bedded iron ore, sometimes so abundant as to make it resemble a puddinngstone. Uncrushed or crushed gravel, crushed stone or rock, sand, or artificially produced inorganic materials, which form the major part of concrete. Taylor, c. To bring together; to collect or to gather into a mass. Webster 3d. d. Composed of mineral or rock frag- ments; composed of mineral crystals of one or more kinds. Webster 3d. e. See concrete aggregate; lightweight expanded clay aggregate. A.G.I.

aggregated. Packed particles. V.V.

aggregated ore; aggregated sulfide. Massive sulfide in which the sulfide constitutes 20 percent or more of the total volume. A.G.I.

aggregated sulfide. See aggregated ore. A.G.I.

aggregate polarization. Polarization in a rock thin section in which the constituent min- erals cannot be individually recognized. Webster 3d.

aggregate structure. A randomly oriented mass of separate little crystals, scales, or gains that extinguish under the polarizing microscope at different times. Fay.

aggressive magma. A magma that forces its way into place. Synonym for invasive magma. A.G.I.


aging. a. The storing of ceramic raw ma- terials (glazes, slips, glasses, etc.) before processing. Bu- reau of Mines Staff. b. The change occur- ring in plagioclase feldspars in the lapse of time. ASTM C286-65. c. Curing of pre-}
Agnite. A. Migmatite containing xenoliths. A.C.I. Supp. b. Fragmental plutonic rock with more or less granitic cement. A.G.I. Sandstone. c.開放岩 in which pegmatite has filled the cracks and formed a three-dimensional network. Heti.


agnostic line. One of several lines on the earth's surface, on which the direction of the magnetic needle is truly north and south; a line of no magnetic declination. Standard, 1964.

agpaitic. Applied to the process of mineral formation distinguished from an ordinary granite process by an excess of alkali (especially sodium) as a result of which the amount of alumina is insufficient for the formation of aluminum silicates. Heti.

agreement. The written document by which the contractor and the authority mutually agree to comply with the requirements of the tender. Fay.

agricultural drain. Earthenware or porous concrete pipes of about 3 inch internal diameter, laid end to end below ground with open joints in order to drain the subsoil. Synonym for land drain. Ham.

agricultural geology. Applied to soil improvement. Schoeller.

agricultural hydrate. A relatively coarse, unrefined form of hydrated lime that is mainly used for neutralizing soil acidity and for purposes where high purity and uniformity are not necessary. Bennett 2d, 1961.

agricultural line. A. A lime whose calcium and magnesium content is capable of neutralizing soil acidity. ASTM C51-47. B. Lime containing a minimum amount of water to form calcium hydroxide. CDD 64, 1961.

agricultural pipe. See field-drain pipe. Dodd.

agriculture stone. A finely ground limestone or a mixture containing considerable riebeckite. Fay.

agrolite. A. An instrument for boring holes in stone or other masonry or holes used in blasting. Webster 3d. B. An instrument for explosive work in mining. Webster 3d. C. A bubble of irregular shape formed generally by volume of 21 percent oxygen and 79 percent nitrogen. It also contains about 0.003 percent carbon dioxide, some aqueous vapor, and some argon. Fay. a. To ventilate a mine. Fay. Long. b. A bubble which is forced into the furnace. Henderson.

agriculture. Fr. An instrument for boring holes in stone or other masonry or holes used in blasting. Webster 3d.

agricultural pipes. See field-drain pipe. Dodd.

air. a. The mixture of gases that surrounds the earth and forms its atmosphere; composed by volume of 21 percent oxygen and 78 percent nitrogen; by weight about 23 percent oxygen and 77 percent nitrogen. It also contains about 0.003 percent carbon dioxide, some aqueous vapor, and some argon. Fay. b. The current of atmospheric air circulating through and ventilating the workings of a mine. Fay. C. To ventilate any portion of the workings of a mine. Fay. d. A bubble of irregular shape formed generally by volume of 21 percent oxygen and 79 percent nitrogen. It also contains about 0.003 percent carbon dioxide, some aqueous vapor, and some argon. Fay. a. To ventilate a mine. Fay. Long. e. Air piped under compression to bottom of drill hole through the drill stem and used in place of water to clear the bit of soil and to blow them out of the borehole. See also air circulation. Long. f. Air piped under compression to bottom of drill hole through the drill stem and used in place of water to clear the bit of soil and to blow them out of the borehole. See also air circulation. Long. g. Air piped under compression to bottom of drill hole through the drill stem and used in place of water to clear the bit of soil and to blow them out of the borehole. See also air circulation. Long.

air adit. An adit driven for the purpose of ventilating a mine. Fay.

air-avid surface. A surface that seems to prefer contact with air to contact with water. A particle (or mineral) of this sort will adhere to an air bubble and float out of a flotation pulp; otherwise, the particle will not float. Also called water-repellent surface. Compare water-avid surface. Hanon, p. 98.

air barricade. The division of a ventilation gallery in a mine when a wall is thrown into two parts; the air is led in through the one part and back through the other part. Stock, v. 1, p. 534.

air base. In photography, the distance between the exposure stations of two overlapping aerial photographs. See also base line. Seelye, 2.

air bell. a. In flotation, the small air pocket or bubble which forms after emergence from pulp into froth have different characteristics, hence the distinction. These bubbles vary in attractive and retaining power for aerophilic mineral grains, and are a critical component of the flotation process. Also called air bubble. Pryor, 3. b. A bubble of irregular shape formed generally by the electrospinning or melting operations in the manufacture of optical glass. ASTM C162-66.

air belt. In a cupola furnace, an annular air space around the furnace, from which air is forced into the furnace. Henderson.

air blast. a. A term improperly used by some diamond drillers as a synonym for air circulation. See also air circulation. Lang. b. A disturbance in underground workings accompanied by a strong rush of air. Fay. c. A strong rush of air, as by the explosion force, is caused by the ejection of air from large underground openings, the sudden fall of large masses of rock, the collapse of pillars, slippage along a fault, or a strong current of air pushed outward from the source of the explosion force. Standard, 1964.

airbreakers. A device of bluiting in which compressed air at very high pressure is piped to a shot shell in a short hole and discharged. B.S. 3618, 1964, sec. 6.

air block. Air trapped in the upper end of an unvented inlet pipe. Air trapped in the core barrel, which, when sufficiently compressed, acts like a solid and stops further advance of core into the inner tube. Also referred to as air cushion. Fay.

airborne electromagnetic prospecting. Electromagnetic surveys carried out with airborne equipment. Since 1950, an increasing proportion of such surveys have been carried out in this manner since advantages in cost reduction and speed are great. Debra, p. 369.

airborne geophysical anomaly. A geophysical anomaly related to geologic formations that can be detected by airborne equipment. Hawkes, 2, p. 320.

airborne magnetometer. A device used to measure variation in the earth's magnetic field while being transported by an aircraft. Same as aerial magnetometer. A.G.I.

airborne radiation thermometer. A device for measuring the intensity of gamma radiation by employing a phosphor which emits a minute flash of light on absorbing a gamma ray. A photograph multiplier tube converts the light flash into an electrical current or voltage variation which is proportional to the intensity of gamma radiation. A.G.I.

airborne scintillation counter. Any scintillation counter especially designed to measure the ambient radioactivity from an aircraft in flight. The instrument must be mounted in the field while being transported by an aircraft. Same as aerial scintillation. A.G.I.

airborne seaming. A process for the general, as opposed to local, repair of a gas retort by blowing refractory powder into the sealed retort, while it is hot; the powder builds up within any cracks in the refractory, brickwork and seals them against gas leakage. Compare spray welding. Dood.

airbound. The condition of a pipeline where the gas entrained prevents the free flow of water through it. Sellew, 1.

air box. a. A rectangular wooden pipe or tube made in lengths from 9 to 15 feet for ventilating a heading or a sinking shaft. Fay. b. A rectangular wooden pipe or tube made in lengths from 3 to 15 feet for ventilating a heading or a sinking shaft. Fay. c. A rectangular wooden pipe or tube made in lengths from 9 to 15 feet for ventilating a heading or a sinking shaft. Fay.

air breakers. A method of breaking down coal by the use of high-pressure compressed air. The method was first introduced in the United States about 1947. As used today, the power unit is normally an electrically driven air compressor operating at pressures of 10,000 to 12,000 pounds per square inch. The high-pressure air is conducted through a steel pipeline to the working face, and copper tubing or wire-braded rubber hose is used to connect the supply pipeline to the air-breaker shell which discharges the air in the shothole. Normally, one or two shells are in use in a working place at any one time, and the simplicity of the operation is such that the
air chamber. A vessel installed on piston pumps to minimize the pulsating discharge of the liquid pumped. The chamber contains air under pressure and is fitted with an opening on its underside into which some of the liquid from the pump is forced upon the delivery stroke of the piston. The air acts as a cushion to lessen the fluctuation of the suction strokes. According to S. K. McAdam, pp. 91-92.

air channels. In a reverberatory furnace, air channels are usually squared to a square meter. Air is blown through these channels to prevent the oxygen from coming in contact with the coal while it is being burned. It is the practice to make recirculation possible. Lewis, p. 671-672.

air changes. The simultaneous control, within prescribed limits, of the quality, quantity, and temperature-humidity of the air in a designated space. It is essentially atmospheric environmental control. Control of only one or two of these properties of the atmosphere does not constitute air conditioning. To make sure of correct usage, a series of ventilation tables of the recommended number of such changes for various-type rooms are used for ventilation design. Crispin.

air clamp. Any type of clamping device operated by pneumatic pressure. Crispin.

air classifier. An appliance for separating or sizing granular or powdered materials such as clay, edges of mica sheets and penetrating along the edges of sheets and along the edges of mica. Pryor, 3. See also infrasizer.

air crossing. A bridge where a return airway through the face crosses the forward airway and is forced to avoid overheating the surrounding atmosphere. B.S. 3323, 1960.

air curing. The process by which pigments are brought to a state of equilibrium with the surrounding atmosphere. B.S. 3323, 1960.

air current. A. The flow of air ventilating the workings of a mine. Also called airflow. air quantity, B.S. 3618, 1963, sec. 2. B. A body of air moving continuously in one direction. Jones.

air development. A stoppage of airflow due to air or other gas crowding the face ahead of the advancing mine. Jones.

air displacement pump. A pump consisting of a closed vessel from which water is expelled through a delivery valve and pipe by means of compressed air admitted to the top of the vessel. Also called displacement pump. B.S. 3618, 1963, sec. 4.

air distribution. Supplying air in the desired amounts to the various working places in a mine. Hartman, p. 250.

air dome. A cylindrical air-sealed container closed at the upper end and attached in an upright position above and to the discharge of a piston-type pump. Air trapped inside the closed cylinder acts as a compressible medium, whose expansion and contraction trends to reduce the severity of the pulsations imparted to the liquid discharged by each stroke of a pump piston. Also called bonnet; pressure dome. Lewis.

air door. A door erected in a roadway to prevent the passage of air. When doors are erected between an intake and an exhaust they may be known as separation doors. Also called door; separation door; trapdoor. B.S. 3618, 1963, sec. 2. A door in a ventilation network that may be used with safety in gaseous and dusty mines. See also compressed-air blast.

air drier. A. A device for drying down coal by which compressed air, generated locally by a portable compressor at 10,000 pounds per square inch, is blown through a cooling cylinder, which is placed in a hole drilled in the coal. Thus, slow breaking results, with no flame, in producing a larger percentage of lump coal than is made by using explosives. Its principal advantage is that it may be used with safety in gaseous and dusty mines. See also compressed-air blast. Lewis, p. 114.

air drain. A passage for the escape of gases from a mold while the molten metal is being poured. Standard, 1964.

air dried. Of minerals, naturally dried to equilibrium with the prevailing atmosphere. Pryor, 3.

air dried basis. An analysis expressed on the basis of a coal sample with moisture content determined at the moisture equilibrium with the surrounding atmosphere. B.S. 3323, 1960.

air drill. A. A small diamond drill driven by compressed air. Long. B. A small rotary-type rock drill driven by compressed air. Long.

air drive. See jackhammer operator. D.O.T.

air bearing. A. Dry, if dry to such a degree that no further moisture is supplied on exposure to air. Webster 3d. Most air-dry substances contain moisture that can be expelled by heating them or placing them in a vacuum. Fay. B. Said of timber, the moisture content of which is in approximate equilibrium with the surrounding atmosphere. Jones.

air drier. Drying to such a degree that no further moisture is given up on exposure to air. Webster 3d. Most air-dry substances contain moisture that can be expelled by heating them or placing them in a vacuum. Fay. B. Said of timber, the moisture content of which is in approximate equilibrium with the surrounding atmosphere. Jones.

air duct. A. Tubing which conducts air, usually from an air compressor to a point as required in the mine. B.S. 3618, 1963, sec. 2. B. An air box, canvas pipe, or other air carrier for delivering compressed air. Foster.

air elutriator. See air classifier; air classifier. Enam.

air elutriation. A method of separating or sizing granular or powdered materials such as clay, through deposition in air currents of various speeds. This principle is widely used in continuous pulverizing of dry materials, such as grit, feldspar, limestone, and clay. See also air classifier; air elutriator. Enam. Dic.

air filter. A device for filtering out impurities from the air breathed by human beings. Such devices are used on the coal face to prevent and control the spread of tuberculosis. C.T.D.

air flush. Stain formed by air entering at an air in a designated space. It is essentially atmospheric environmental control. Control of only one or two of these properties of the atmosphere does not constitute air conditioning. To make sure of correct usage, a series of ventilation tables of the recommended number of such changes for various-type rooms are used for ventilation design. Crispin.

air drive. See jackhammer operator. D.O.T.

air driven. A. Dry to such a degree that no further moisture is given up on exposure to air. Webster 3d. Most air-dry substances contain moisture that can be expelled by heating them or placing them in a vacuum. Fay. B. Said of timber, the moisture content of which is in approximate equilibrium with the surrounding atmosphere. Jones.
of the glaze constituents. The term was used particularly when ware was fired in saggers in coal-fired kilns, air escaping from a faulty sagger into the kiln with the same time that the gases were treated into the sagger. The term is also sometimes applied to a glaze that has partially devitrified and is then a result of cooling slowly between 900° and 700° C.

Dodd. air elutriation. Method of dividing a substance into various particle sizes by means of an air process, after grinding. See also air classifier. C.T.D. air embolism. See caisson disease. Ham. air endway. A narrow roadway driven in the coal seam parallel and close to a winning headway chiefly for ventilation. The air endway usually acts as a return and is connected at intervals of 10 yards or so to the headway spout. Fay. See companion heading, Nelson.

Hansen. air entrained concrete. Concrete used for road construction in the United States, having about 5 percent of air in its composition. Although less dense than ordinary concrete, it has very high resistance to frost. The strength loss as compared with ordinary concrete is about 5 percent for each 1 percent of air entrained. Ham.

Hansen. air emulsion. The addition of a material to Portland cement clinker during grinding, or to concrete during mixing, for the purpose of reducing the surface tension of the water so that 0.5 to 1 percent (by volume) of minute air bubbles become trapped in the concrete. This improves workability and frost resistance and decreases segregation and bleeding. The agents used as additions include: 0.025 to 0.1 percent of alkali salts of wood resins, sulfonate detergents, alkali naphthenate, or triethanolamine salts; or 0.25 to 0.5 percent of the Ca (calcium) salts of glues (from hides); or 0.25 to 1.0 percent of Ca (calcium) lignosulfonate (from papermaking). Dodd. air entrained-agitating core. A concrete mixture that contains usually a resin which entrains the air in very fine bubbles. Its purpose is to increase both workability of the wet concrete and its frost resistance when hardened. Ham.

Hansen. airfield soil classification. Classification published in Casagrande in the United States in 1946, based on sieve analyses and consistency limits. Cohesive soils can be divided into those with a liquid limit above or below 30 percent. The former are, in general, clays and the latter, silts. Ham. air filter. A device for cleaning compressed air. Hansen.

Ham. air float. A device which is fitted to tube breathing apparatus. There are two kinds in general use, one consisting of a flexible corrugated rubber tube and the other a canvas fabric bag. On inspiration, air is drawn partly from the equalizer, which is reduced in volume and finally from the tube. On expiration, the equalizer restores itself to its original volume and in doing so draws air through the tube. Thus the air is kept flowing very nearly in a continuous stream, and the wearer, without the aid of bellows or rotary blower, experiences very little resistance to breathing. Mason, s. 1, p. 327.

Hansen. airflow meter. An instrument which measures and shows directly on a scale the flow of air in a pipe or hose in cubic feet per minute. Nelson.

Ham. air flush. Synonym for air circulation. Long.

Ham. air flushing. The circulation of air through the drilling apparatus during drilling to cool the bit and to remove the cuttings from the hole. B.S. 3610, 1963, sec. 2.

Hansen. air foam extinguisher. An extinguisher which produces a foam somewhat similar to that produced by a chemical foam extinguisher, therefore, it can be used for the same purposes. However, unlike the chemical foam type, this extinguisher can be recharged underground by simply replacing the container with water and inserting a scaled metal charge holding foam concentrate and a proper gaseous charge of carbon dioxide. McAdam, p. 112.

Ham. air foil. A fan with an airfoil-shaped blade which moves the air in the general direction of the axis about which it rotates. Strack, 10.


Ham. air gap. a. The distance between the surface of the electrode and the oscillator plate. It is usually necessary to avoid particular gap dimensions in which resonance damping occurs with acoustic waves generated by the oscillator plate. Am, 1, b. The distance between passing material and tip of attracting magnetic pole, in a magnetic separator. Pryor, 3, c. The gap between rotor and stator of a dynamo or an electric motor. Fay.

Ham. air gas. a. A combustible gas made by charging air with the vapor of some volatile hydrocarbon mixture (as gasoline) and using a pyrolyzing torch. Webster, 3d.

Ham. air gas. b. A producer gas consisting chiefly of carbon monoxide and nitrogen and made by blowing air into a producer. Webster 3d.

Ham. air gate. a. Mid. An underground roadway used principally for ventilation. Fay. b. An air regulator. Fay. c. In molding, an orifice through which the displaced air and gases escape from the mold while the molten metal is filling it. Fay.

Ham. air hammer. a. Sharp, vibratory impacts in a liquid pump or piping system caused by entrapped air. Long. b. Reciprocating motion induced in a drill string by excessive air pressure at face of drill bit when air is used in lieu of a liquid as a bit coolant and cuttings removal agent. Long. c. A pneumatically actuated hammer. Long. d. A tool in which a hammerhead is activated by means of compressed air. The air is conducted to the tool through a hose. A trigger starts or stops the admission of air to the hammerhead. Fay. e. An airhammer operator. One who breaks asphalt, concrete, stone, or other pavement, who loosens earth, digs clay, breaks rocks in trimming bottom or sides of trenches or other excavations, or who reduces the size of large stones, using an airhammer. D.O.T. Supp.

Ham. air hardening. See air hardening refractory cement.


Ham. air hammer. Steel containing sufficient carbon and other alloying elements to harden fully during cooling in air or other gaseous mediums from a temperature above its transformation range. The term should be restricted to steels that are capable of being hardened by cooling in air in fairly large sections, about 2 inches or more in diameter. Same as self-hardening steel. ASM Gloss.

Ham. airhead; airheading. S. Staff. A smaller drift driven parallel to the main haulageway for an air course. A connecting crosscut is called a spigot. Long.

Ham. air intake. An appliance to warm the air as it enters the downcast shaft or intake drift. In countries where the winter is very cold, such as Poland and Russia, nearly all mines are equipped with air heaters. A few British mines have oil-fired air heaters, mainly to prevent the accumulation of ice in wet downcast shafts or on winding ropes. Nelson.

Ham. air-heating furnace. A furnace used for heating air to warm a room or building. Hess.

Ham. air heave. Structure. Small crumplings, which die out downward, found in laminated sands of the United States. These sands are usually made up of fine grains of quartz or feldspar coarser than 0.002 mm in diameter, which are presumed to be formed by rise of air trapped in sand at low tide. Pettijohn.

Ham. air hold. a. Hoisting machinery operated by compressed air. Fay. b. A small portable hoisting machine usually mounted on a column and powered by a compressed air motor. Also called tugger. Long.

Ham. airhole. a. A small excavation or hole made to improve ventilation by communication with other workings or with the surface. See also cundy. B.S. 3618, 1963, sec. 2. b. A venthole in the upper end of the inner tube of a double-tube, core barrel to allow air and/or water entrapped by the advancing core to escape. Long. c. A void, cavity, or flaw in a casting or bit crown. Fay.

Ham. air horsepower. a. The rate at which energy is used in horsepower units, in moving air between two points. B.S. 3610, 1963, sec. 2. b. The horsepower in an air current is usually expressed in the form: Horsepower = \( \frac{P \times Q}{100} \) where \( P \) equals ventilating pressure in pounds per square feet and \( Q \) equals quantity of air in cubic feet per minute. Nelson.


Ham. air intake. Blowing operation in which air is blown through molten copper in a wire bar or anode furnace. Fuel is removed as SOx and impurities are slugged off. Fay.

Ham. air intake. A device for supplying a compressor with clean air at the lowest possible temperature by air cooling under controlled conditions. By rise of air trapped in sand at low tide. The air is conducted into the airway usually for the return and is connected at intervals of 10 yards or so to the headway spout. Fay. See also companion heading, Nelson.

Ham. air float. B.S. 3618, 1963, sec. 2. a. A B.S. 3618, 1963, sec. 2. b. The horsepower in an air current is usually expressed in the form: Horsepower = \( \frac{P \times Q}{100} \) where \( P \) equals ventilating pressure in pounds per square feet and \( Q \) equals quantity of air in cubic feet per minute. Nelson.
intake air, the greater is the capacity of the compressor; a drop of 5° in temperature represents a gain in capacity of approximately 1 percent. In hot climates the intake should be placed on the coolest side of the compressor house. Lewis, p. 671.

air leg. A cylinder in which the feed is supported by air pressure acting on the cylinder and air-operated piston, the rod of which descends or ascends in order to give the hammer. B.S. 3618, 1964, sec. 6.

air lift. a. An apparatus used for pumping water from wells either temporarily or for permanent water supply; for moving or removing liquids such as sulfuric acid; for unwatering flooded mines; for elevating mill tailings, sands, and slimes in cyanide plants; and for handling the feed to ball mills. In operation, compressed air enters the suction pipe and mixes with the water. As the water is agitated by the air, pulp elements and, if practically at atmospheric pressure at the top of the discharge pipe. The efficiency of the air lift is calculated on the basis of the foot-pounds of work done in lifting the water, divided by the isothermal work required to compress the air. Lewis, pp. 686-689. b. A method used in petroleum exploitation in which gas pressure is increased artificially or by natural gas into the deposit under pressure from a neighboring borehole, thereby forcing the petroleum out. Standing, p. 261.

air-lift dredges. Dredges in which solids suspended in a fluid are lifted. By injecting air into a submerged pipe at about 60 percent of that passing through the surface, the density of the fluid column inside the pipe can be lessened, forcing the fluid column down reduced to cubic feet of free air, and calculating the amount of air in the system at time of shutting down reduced to cubic feet per minute of free air at time of that the valves are tight and all loss in valves on both ends of the line. Assuming that the valves are tight and all loss in pressure due to leakage, the cubic feet of free air lost per minute through leakage is:

\[ Q = \frac{2T}{5V} \]

where \( Q \) equals leakage in cubic feet per minute of free air at time of shutting down, \( V \) equals total volume of air in the system at time of shutting down reduced to cubic feet of free air, and \( T \) equals time in minutes from shutting down until the gage has dropped to zero. Lewis, p. 679.

air leak. a. The short-circuiting of air from intake to return airways (through doors, stoppings, wastes, and old workings) without doing useful work in flowing around the faces. The total air leakage is usually within the range of 35 to 55 percent of that passing through the surface fan. Nelson. b. The leakage of air in the transmission lines may be determined by filling the entire system with air at normal operating pressure and then closing the valves on both ends of the line. Assuming that the valves are tight and all loss in pressure due to leakage, the cubic feet of free air lost per minute through leakage is:

\[ Q = \frac{5V}{2T} \]

air lock. a. A casing at the top of an upcast boring borehole, thereby forcing the petroleum out. See also anemometer. Nelson. b. An air pocket or bubble in a pipeline moving, and caused by the expansion of air. Nelson. c. A system of doors arranged to allow the airway where the volume of air passing is measured periodically. The station should be straight, smooth and of uniform section to obtain as near as possible, streamline flow. Permanent air-maltering stations are usually constructed in concrete or brickwork. See also anemometer. Nelson.

air motor. A motor driven by compressed air; it may be either a vane- or gear-type rotary or a reciprocating piston-type motor. Long.

air mover. A portable compressed-air appliance, which may be used as a blower or exhaustor. It converts the compressed air into a large induced volume of moving air. The compressed air is fed through a side inlet and is expanded at a high velocity through an annular orifice. It is useful for emergency ventilation in workings where auxiliary fans cannot be installed. Nelson.

air receiver. The air receiver is required to but 1 pound of a combustible substance. Hess.

air receiver, a. A heated chamber for drying samples of ore, coals, etc. Zen.

air permeability. See permeability. Dodd.

air pressure. a. Pipes for conveying air for ventilation or for other purposes. Fay. b. See ventilation tubing. Nelson.

air pl. See air shaft. B.S. 3618, 1963, sec. 2.


airplane strand wire rope. A small 7- or 19-wire galvanized strand made from plow steel or crucible steel wire. H&S, p. 129.

air pockets. Pockets of air sometimes found in clay during wedging or throwing. J.C.S., 1963.

air pollution recorder. Instrument collects atmospheric samples of particulate matter and aerosols on the continuous filter tape. Sampling is performed at a uniform rate by means of a motor-driven pump or other vacuum system. Suitable values of R for different types and sizes of airways are obtained by reference to tables in which the resistance in Atkinsons, per 100 yards of airway, is given. See also ventilation. Nelson. 5.

air pressure. For rock drills, the air pressure ranges from 70 to 90 pounds per square inch, the most economical pressure for such machines being from 90 to 95 pounds per square inch, when high drilling speed is attained. Ham.

air-pressure drop. The pressure lost or consumed in overcoming friction along an airway. It can be calculated from the formula

\[ P = \frac{Q^2}{R^2} \]

where \( P \) equals pressure drop in inches water gauge, \( R \) equals resistance in Atkinsons, and \( Q \) equals air quantity in thousands of cubic feet per second. Suitable values of \( R \) for different types and sizes of airways are obtained by reference to tables in which the resistance in Atkinsons, per 100 yards of airway, is given. See also ventilation. Nelson. 5.

air propeller. A rotary fan for circulating air. Webster 3d.

air pump. A pump for exhausting air from a closed space or for compressed air or for forcing it through other apparatus. Compare vacuum pump. Webster 3d.


air puncher. A machine introduced in 1904 to the mining industry that consisted essentially of a reciprocating chisel or pick, driven by air. A compressor plant, usually located outside the mine near the boilers of the air for the puncher. Kentucky, p. 340.

air quantity. The amount of air flowing through a mine shaft or through one or more fans in cubic feet per minute. Air quantity is the product of the air velocity times the cross-sectional area of the airway. Bull. Miner. Bull. 589, 1960, p. 2. See also air volume; air current, a.

air ramming. A method of forming refractory shapes, furnace hearths, or other furnace parts by means of pneumatic hammers. HW.

air receiver. A vessel into which compressed air is discharged to be stored until re-
air receiver
quired.
C.T.D.
air-deduction process. See roasting and reaction process. Fay.
air-regulating dampers. Shutters fitted to the isolating doors in the sandstr. Plastic refractories to reduce or regulate the underground air-flow in an emergency. Such an emergency would be a large open fire in the workings and it is decided to reduce the flow of air past the fire. Nelson.
air regulator. An adjustable door installed in permanent air stoppings to control ventilating current. Bureau of Mines Staff.
air requirements. The quantity of air required to maintain adequate ventilation of the mine. This quantity will depend on (1) the length of face room in production; (2) the average distance from the shafts to the faces; (3) the gas emission rate; (4) the depth of the workings; and (5) the volatile. China clay; the velocity of an air ventilation. Nelson.
air-cooled blast furnace slag. The material resulting from solidification of molten blast furnace slag under atmospheric conditions. Subsequent cooling may be accelerated by applying water to the solidified surface. ASTM C125-66.
air rod puller. See rod puller. Long.
air sampling. The taking of air samples in mine workings for analysis in the laboratory. The usual method is by air pump and bottle. The air in the bottle is replaced by a sample of mine air by means of the hand pump and then closed tightly by a rubber cork. See also sampling instrument. Nelson.
air sampling pump. A pump, designed to collect air samples in laboratory or field, and may be used in conjunction with filters, impactors, impingers, and bubblers, depending on the model. Operating principle may depend on graphite ringed pistons activated by a split phase motor, on the movement of air by a rotating vane blower, or on other vacuum induction apparatus. Beits, p. 378.
air-sand process. See Fraser's air-sand process. Mitchell, p. 529.
air seal. A method for the prevention of the escape of gases from the entrance or exit of a continuous furnace, or tunnel kiln, by blowing air across the opening. Dodd.
air separation. In powder metallurgy, the classification of metal powders into particle size ranges by means of a controlled air jet. Beits, p. 378.
air separator. A machine for the size classification of the fine ceramic powders, for example, fine refractories, from the entrained air or current controls the size of particles classified. Dodd.
air stack. The property of a material to develop high strength when dried, an example being air-setting mortars. A.R.I. in a material such as a castable refractory, refractory mortar, or plastic refractory, the ability to harden without the application of heat. A.R.I. Long.
air-setting refractories. Compositions of ground refractory materials which develop a strong bond upon drying. These refractories are used in the manufacture of mortars, plasters, refractories, ramming mixes, and gunning mixes. They are marketed in both wet and dry condition. The dry compositions require tempering with water to develop the necessary consistency. Hills.
air-setting refractory mortars. A composition of finely ground materials, marketed in either a wet or dry condition, which may require tempering with water to attain the desired consistency and which is suitable for laying refractory brick and bonding them strongly together. Hills.
air-shaft. A shaft used wholly or mainly for ventilating mines, for bringing fresh air to places where men are working, or for exhausting used air. It may either receive or discharge the circulating current. See also downcast, a; upcast. Fay; B.C.I.
air shooting. This ventilation of a, a seismc wave in crustal rocks by explosion in the air above the area. In rock shattering, an air shot is one in which pockets of air are left when charges are filled, to reduce shatter. Pryor, 3. See also compressed-air blasting.
air shot. A shot prepared by loading (charging) in such a way that an air space is purposely left in contact with the explosive for the purpose of lessening its shattering effect. Fay.
air shrinkage. The volume decrease that a clay undergoes in drying at room temperature. Fay.
air-slaked lime. Contains various proportions of the oxides, hydroxides, and carbonates of calcium and magnesium, which result from excessive exposure of quicklime to air that vitiates its quality. It is partially or largely decomposed quicklime that has been exposed to the atmosphere to give slow hydration. Fay.
air slitting. a. York. A short heading driven more or less at right angles to and between two headings, or levels, for ventilation. Fay. b. See stenton. B.S. 3618, 1963, sec. 2.
air slug. A mass of air under compression entrapped in the air that vitiates its quality. It is partially or largely decomposed quicklime that has been exposed to the atmosphere to give slow hydration. Fay.
air survey. a. A map production from an air-streak; chain. In mica, a series of air inclusions connected (or nearly connected) to form a relatively long, thin air streak. Also known as silver streak. Skow.
air survey, a. A map production from an interconnected series (mosaic) of aerial photographs made in conjunction with fixes by a theodolite of locating points on the ground. Pryor, 3. b. In mining, a check on ventilation, gas, and dust in a mine. Pryor, 3.
air-swept ball mill. See ball mill. Dodd.
air-swept mill. A tumbling mill used in dry grinding, from which finished material is removed by means of regulated air currents which can be so controlled as to produce a closed circuit. Pryor, 3.
air swivel. A device similar to a water swivel but designed to conduct air under compression into a rotating drill stem when air instead of a liquid is used as an agent to flush drill cuttings out of a borehole. Compare water swivel. Long.
air-stowing machine. The machine used for blowing the shatter chippings into the waste area in pneumatic stowing. It consists of a steel paddle wheel revolving in an adjustable casing. Stowing water is fed continuously from a hopper to the machine which in turn blows the material through 5- to 6-inch-diameter pipes into the waste area. See also pneumatic stowing. Nelson.
air table; pneumatic table. A shaking table used when water is scarce to effect gravity concentration of sands. Air is blown upward through a porous deck, over which a layer of finely crushed ore passes. The heavy and light minerals stratify and gravitate to separate discharge zones. Pryor, 3.
airtight. So constructed or sealed as to prevent any inlet or outlet of air. Cuspin.
air tong. Air-actuated breakout tong. See also breakout tong. Long.
air-track drill. A heavy drilling machine for quarry or opencast blasting. It has caterpillar tracks and is operated by independent motors which drive its own portable rotary compressor and drills 3- or 4-inch-diameter holes at any angle but is chiefly used for vertical holes up to 80 feet in depth. Nelson.
air transport. A method employed in some mines in which the filling material is transported and stowed in a special hopper by pipelines. Stoces, v. 1, p. 190.
air trap. a. A device for shutting off foul air or gas from drains or sewers. Webster 3d; b. An air pocket. Webster 3d.
air trunk. A large pipe or shaft for conducting air, as for ventilation, or to a furnace. Fay.
air turbolamp. A lamp coupled to the compressed air mains, which may be at any pressure above 40 pounds per square inch. It consumes from 5 to 6 cubic feet per minute of free air. The elec-
air turbolamp

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alaskite

akori. A porous coral which, previous to the
beginning of the 18th century, was fished,
fashioned, and prized by the Negroes of
West African Coast. It is a red, blue, or
violet-colored stone, has also been fished in
Samoa; probably still used as a gem by the natives.
The name has more recently been applied
to substitutes such as rock, glass, and pearl
with little nacre. Shipley.

akrochondrite. A yellowish red-brown hydrous
silicate of the cyclosilicate group. Found in the
MnsAsO4MnO4MnsH2O. Minute, spherical
crystal aggregates. Monoclinic.

From Langban, Sweden, Engländer.

akosite. A euhedral chordite in impure ha-
lite, Mg0B04H2O from Ak-sui, Kazak
stan, U.S.S.R. Named from locality. locality.

akosphore. Introduced by Barrell for that
outer part of the centrosphere which theo
retically stores up the stress during the
progressive changes toward contraction
in the inner earth (the barysphere). Hess.

Al Chemical symbol for aluminum. Hand
book of Chemistry and Physics, 45th ed.,
1964, p. 81.

Alabandine ruby. Originally, alabandine
garnet from ancient Babylon. Sometimes
applied to violet-red spinel. Shipley.

Alabandite. A massive, granular sulfide of
manganese, occurring in veins in Romania.
Also called mangambende. C.T.D. A vein
mineral, MnS; isometric; black; Mohs' hardness
3.5 to 4; specific gravity, 4.0. Dana 17.

Widely used for ornamental purposes.

Alabandrite. A light-green variety of diopside from
Alaka, Japan. Named from locality. Hess; English.

Alabandite. A light-green variety of diopside from
Alaka, Japan. Named from locality. Hess; English.

Alachment. A name given to the cellulosic group. Found
as a vein mineral of the oxidized zone
of Alamos, Sonora, Mexico. Closely related to
wellastonite; monoclinic. E.G.T. u. 12, pp.
277, 301; Hess; English.

Alambre. Fr. A special fireplace at the base of
a porcelain kiln, fed from the outside.

Widely used for ornamental purposes.

Alabandite. A light-green variety of diopside from
Alaka, Japan. Named from locality. Hess; English.

Albrecht. Rock crystal. Shipley.

Alaskite. a. A plutonic rock containing ortho-
clase, microcline, and subordinate quartz,
with a few or no mafic constituents.
Plagioclase may or may not be present.

Alaskite. b. A rock in the feldspar group, the former
being defined specifically as a granite mass
found near Spruce Pine, N.C., from which the feldspar is
alaskite. A quartz-feldspar rock containing so much quartz, that it is a transitional phase between typical alaskite and typical quartz. Hess.

albite. A hard, greenish to yellowish, although other colors are possible, feldspar. From Pennsylvania; New York; and Canada. See also peristerite. Shipley.

Alexandrite. A sapphire; blue in daylight, changing to violet, purple, or reddish under most artificial light. So named because alexandrite also changes color under similar conditions. Also called alexandrite sapphire. Shipley.

algae. A single-celled or multicellular plant, similar to those of terrestrial plants, but differing in that they have no gametophytes, no sporophytes, and their sporangia are not shed. Shipsley.


aleurite. A variety of aleurite, exhibiting adulteresence, which is more pale greenish to yellowish, although other colors are possible. From Pennsylvania; New York; and Canada. See also peristerite. Shipley.


aletheopteris-like andalusite. Andalusite of various colors which become reddish under lamplight and most other artificial light. Shipley.

alexandrite-like tourmaline. Same as chameleonite. Shipley.


alexeyevite; see alexeyevite.

alexeyevite. Having pheneocrysts containing aluminum and ferric iron. C.I.P.W.

alexjejevite. See alexeyevite.

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aleurite. A single-celled or multicellular plant, similar to those of terrestrial plants, but differing in that they have no gametophytes, no sporophytes, and their sporangia are not shed. Shipsley.


alginate. The salts of alginic acid are hydrophilic colloids derived from certain marine algae, such as the giant kelp of the Pacific Coast. Sodium alginate is the most common form, but ammonium alginate is usually preferred in the ceramic industry, due to its lower ash content. Alginate solutions possess marked suspending, thickening, emulsifying, stabilizing, and water-holding properties. In addition, they act as binders in ceramic processing, either in the body or the glaze. They can be used as a replacement for the various water-soluble gums used in the industry. Some forms of alginites have been used as a flotation agent for enamels.
alginates. Another name for oriental alga sapropel. Equivalent to peat of the algarite. A general term for a bitumen derived from algae. The salts of alginic acid are hydroalgodonite. Arsenide of copper occurring as silver blue, yellow to orange. Alginite is best recognized by an incrustation in the Algodona silver mines in the form of sporinite in coals of low rank. In transmitted light, alginite sometimes shows structure (of colonies of algae). The color is generally due to the presence of metallic iron in the maceral. More specifically only that from the coast of Algeria. Shiapley.
Algerian onyx. Another name for oriental alga sapropel. Equivalent to peat of the algarite. A general term for a bitumen derived from algae. The salts of alginic acid are hydroalgodonite. Arsenide of copper occurring as silver blue, yellow to orange. Alginite is best recognized by an incrustation in the Algodona silver mines in the form of sporinite in coals of low rank. In transmitted light, alginite sometimes shows structure (of colonies of algae). The color is generally due to the presence of metallic iron in the maceral. More specifically only that from the coast of Algeria. Shiapley.
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alkali feldspar or Cornish stone, and are used in the preparation of frits for glasses. They decrease the vitrification and melting points of ceramic mixtures and are also used in the preparation of casting slips. The oxides of calcium, strontium, and barium are called alkaline earths. 

Rosenthal.

alkaline igneous rock. A rock with more of the alkali elements than are contained in the feldspars, therefore, such minerals in feldspathoids are present; an igneous rock with more of the alkali elements than the average for its clan; an igneous rock with an alkali-lime index less than 51; and igneous rocks of the Atlantic series, obsides, A.G.I. Supp.

alkaline-earth subbentonite. A bentonite containing alkali-earth metals that can be replaced by hydrogen and in which the positive plates consist of finely divided iron. A concen- trated solution of potassium hydroxide acts as electrolyte. The normal voltage varies between 1.0 and 1.5 volts per cell. Bennett, 1962.

alkaline water. A water having a bitter or soda-like taste. If strongly alkaline, the water is unfit to drink or use in mixing cements. Long.

alkane. A member of the paraffin series as methane, ethane, etc. Fry, 193.

alkane. A compound of lead, copper, bis- muth, and sulfur occurring in lead-gray, needle-shaped crystals; also massive. Fay.

alkaline test. A process by which a solution is treated with a solution of caustic soda, making it purer and more suitable for cementing. The kerosines are divided into classes according to the results given by this test and a fixed scale constructed. Fay.

alkaline storage battery. Analogous to a voltaic cell except that the positive plates are of ceramic or glass, and the electrolyte is a solution of a salt of an alkali metal. See also battery. 

alkaline weathering. The degree of resistance of a ceramic surface to attack by aqueous alkaline solutions (that is, enamel glazes, stoneware, chemical stoneware, etc.). Bureau of Mines Staff.

alkalinity, protective. Lime added to auriferous pools to insure alkalinity, without which gold precipitation cannot be successful. Fry, 193.

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alkaline water. A water having a bitter or soda-like taste. If strongly alkaline, the water is unfit to drink or use in mixing cements. Long.

alkane. A member of the paraffin series as methlane, ethane, etc. Fry, 193.

alkene. A compound of lead, copper, bis- muth, and sulfur occurring in lead-gray, needle-shaped crystals; also massive. Fay.

alkyls. A chemical group that possesses the power of neutralizing acids, and turns red litmus blue. Gordon.

alkali feldspar. An alkali-bearing feldspar carrying free quartz and alkali feldspar. C.M.D.

alkali-lime series. Igneous rocks which contain soda-lime (plagioclase) feldspars. Hess.

alkali metal. A metal in group IA of the periodic system; namely, lithium, sodium, potassium, rubidium, caesium, and francium. They form strong alkaline hydroxides; hence, the name. A.G.I. Supp.

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alkalimetry. The determination of the amount of alkali contained in a solution by titration with a standard acid solution. Coop.

alkaline. A term rather loosely used to mean one of the following: (1) more than average alkali (K_2O + Na_2O) for the clan in which they occur; (2) containing feldspathoids or other materials, such as acmite, so that the molecular ratio of alkali to silica is higher than 1 to 6; or (3) embracing those rock series having a combined content of alkali oxides less than 51. A.G.I. Supp.

alkaline-series. One of the four chemical classes of igneous rocks distinguished by Peacock based on the alkali-lime index. This term comprises those rock series with alkali-lime indexes less than 51. Schieffelbeer.

alkali polishing. A term used to denote the polishing of elements (group II) forming bivalent cations, including calcium, strontium, and barium. Hess.

alkali-earth subbentonite. A bentonite containing calcium, strontium, or barium; and sometimes containing a small percentage of radium. A.G.I.

alkali flotation. An alkali-bearing feldspar carrying free quartz and alkali feldspar. C.M.D.

alkali water. A water having a bitter or soda-like taste. If strongly alkaline, the water is unfit to drink or use in mixing cements. Long.

alkane. A member of the paraffin series as methane, ethane, etc. Fry, 193.

alkene. A compound of lead, copper, bis- muth, and sulfur occurring in lead-gray, needle-shaped crystals; also massive. Fay.

alkylene. A member of the hydrocarbon group series, C_2H_4, for example, ethylene, propylene, etc. Fry, 193.

alkalic igneous rock. See alkalic igneous rock. A.G.I.

alkaline metal. See alkali metal.

alkaline storage battery. Electric storage battery in which the positive plates consist of nickel and nickel peroxide, and the negative plates of finely divided iron. A concentrated solution of potassium hydroxide acts as electrolyte. The normal voltage varies between 1.0 and 1.5 volts per cell. Bennett, 1962.

alkali neutralizer. See neutralizer. Dodd.

alkalinity. A. The combining power of a base as measured by the maximum number of equivalents of an acid which it can react to form a salt. Brantly, 1. b. The extent to which a solution is alkaline. See also pH. C.T.D. c. In sea water, the excess of hydroxyl ions over hydrogen ions, generally expressed as milliequivalents per liter. HBG.

alkalinity, protective. Lime added to auriferous pools to insure alkalinity, without which gold precipitation cannot be successful. Fry, 193.

alkaline pyroxenes. Sodium iron silicates with some calcium, magnesium, and potassium; NaFe_2 O_6 (SiO_4); transparent; color, brown or green; Mohs hardness, 6.0 to 6.5; easily, replaceable; specific gravity of igneous soda-rich rocks, for example, nepheline syenite. Fry, 193.

alkali water. A water having a bitter or soda-like taste. If strongly alkaline, the water is unfit to drink or use in mixing cements. Long.

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alkylene. A member of the hydrocarbon group series, C_2H_4, for example, ethylene, propylene, etc. Fry, 193.

alkalic; alkali. A vitreous brownish-red hydro- magnesium arsenate; MnO_2.AS_2O_3; melting point, 652°C, As_2O_3 28.8; Mohs hardness, 4.5; specific gravity, 3.04; apparently a metamorphic mineral. It is monoclinic and resembles asinite. Larsen, p. 129.
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Allarguent. A name given to the hexagonal phase know in the synthetic system silver antimonide. Silver containing less than 10% antimony. Found associated with pyrargyrite and cubic antimonial silver from Cobalt, Ontario. American Mineralogist, v. 39, July-August, p. 1941.

all-basal furnace. Abbreviation for all-basal open-hearth steel furnace. The whole of the superstructure of such a furnace, hearth, walls, roofs, ports, ends is built of basic refractories. These furnaces were introduced in Europe in 1933, the object being to make it possible to operate at a higher temperature than that possible with basic open-hearth, furnaces having a silica roof. Doddd.


alligator bide. A defect characterized by an extreme roughness of the porcelain enamel surface; a severe case of orange peel. ASTM C286-65.

alligatoring. The longitudinal splitting of flat slabs of metal in a plane parallel to the rolled surface. Also called fishmouthing. ASM Gloss.

alligator wrench. A wrench having a fixed flaring jaw with teeth on one side. Webster 3d.

allignite. A fossil resin related to amber from the Baltic region; derived from plant debris. English.

alligatoring. A completely altered gabbro with aplitic texture. Commonly contains a little thorium and may be metasomatic. A.G.I. This is weakly to moderately radioactive; black to dark brown but commonly greenish, grayish, yellowish, or even white due to alteration. Typically an accessory mineral in granites, syenites, diorites, and pegmatites; also in gneisses and amphibolites and as a contact metasomatic mineral in limestones; found associated with magnetite, biotite, epidote, carbonatite, and amphibolite. Commonly contains a little thorium and may be amorphous; hexagonal; tin white or reddish-brown in thin sections; granular or massive; nonsilicic; vitreous; and yellowish. A.G.I. From Alligator, North Carolina. American Mineralogist, v. 19, 1934.

alligator wrench. A wrench having a fixed flaring jaw with teeth on one side. Webster 3d.

all-geared drive. The transmission of power for feeds and speeds on a machine by means of gears instead of by belts and pulleys. Crispin.

alliancous. Applied to minerals having the odor of garlic; for example, arsical minerals. Fay.

alliance coupling. A coupling designed for a maximum drawbar pull of 5 tons or, in special alloy steels, up to 10 tons. Its horizontal gathering range is 18°. The coupling is provided with a swing knuckle and a forged steel pin. Fay.

alligatoring. A completely altered gabbro with aplitic texture. It is subdivided into Gyttja type and Drift type. Tomkiewicz, 1954.

alliance; allilace. A steel-gray cobalt-arcesenic-bismuth sulfitic, CO(AsBi)S, usually with part of the cobalt replaced by iron; crystallizes in the orthorhombic system. Fay.

allilacite; allilacose. A mineral or rock which has been transported to the site of deposition. A.G.I.

allilacose. A completely altered gabbro with aplitic texture. It is subdivided into Gyttja type and Drift type. Tomkiewicz, 1954.

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allomorphism

limonite. Johannsen, v. 1, 2d, 1899, pp. 165, 190.


allomorphite. J. T. K. L.


allophane. A yellowish-green to greenish-yellow, hydrous aluminum silicate, found near Salt Lake City, Utah. English.

allophanoa. Clays of the allophane, halloysite, and montmorillonite groups. English.


allophane. See alligene. A.G.I.

allophane. See alligene. A.G.I.

allophane. A constituent of a metamorphic rock which, in the new rock, has not had its original crystal outlines changed. Johansson, v. 1, 2d, 1899, p. 163.

allophane. Proposed by Rosenbusch and applied to those minerals of igneous rocks which are not bounded by their own crystal faces, but which have their outlines impressed on them by the adjacent minerals. Rocks that consist predominantly of an allophane mineral assemblage are said to have an allophane-granular (xenomorphic-granular) texture. Contrasted with autolithomorphic; idiomorphic; euhedral. Synonym for xenomorphic; anhedral. A.G.I.

allophane-granular. Used to indicate the texture of igneous rocks if almost all the constituents are xenomorphic and of the same size. Synonym for xenomorphic-granular. Schieferdecker.

allopotite. One of the forms assumed by an allotriomorphic substance; for example, diamond is an allotriomorphic diamond. Standard, 1964.

allopotite. Applied by Berzelius to those substances which exist in two or more forms, as diamond and graphite. A.G.I. See also allotriomorphic.

alloptope; allotropism. The existence of a substance, especially an element, in two or more different modifications usually in the same phase, as different crystalline forms of carbon, iron, plasphor, and sulfur. Weber 26.

all over. End of a shift; when the breaker at a colliery shuts down for the day it is said to be "all over." English.

allowable bearing value. The maximum pressure that can be permitted on foundation soil giving consideration to all pertinent factors and with adequate safety against rupture of the soil mass or movement of the foundation of such magnitude that the structure or subsurface works will be endangered. Also called allowable soil pressure. ASCE P1826.

allowable pile-bearing load. The maximum load that can be applied on a pile with adequate safety against movement of such magnitude that the structure is endangered. SOM.

allowable stress; working stress. If a member is so designed that the maximum stress as calculated for the expected conditions of service is less than some certain value, the member will have a proper margin of safety against damage or failure. This margin of safety is, of course, dependent on many factors, the kind, and for the material and condition of service in question. The allowable stress is less than the working stress because of the uncertainty as to the conditions of service, nonuniformity of material and inaccuracy of stress analysis. The margin between the allowable stress and the damaging stress may be reduced in proportion to the certainty with which the conditions of service are known, the intrinsic reliability of the material, the accuracy with which the stress produced by the loading can be calculated, and the degree to which failure is unattended by danger or loss. Compare damaging stress; factor of safety; factor of utilization; margin of safety.

allowance. a. Eng. Refinement of bread, cheese, and beer supplied by the lessee or owners of a mine to surveyors. Fay. b. Eng. A.I. given to workmen on having to work under unusual conditions, for example, when they are wet through. Fay. c. The calculated difference between the volume occupied by a cement slurry when mixed and the volume it will occupy on setting, due to change in volume and material price paid to drill-crew members working in remote areas under rigorous conditions; e.g., a specified difference in weights exactly calculated, as a synonym for tolerance. See also tolerance. Long. f. The specified difference in limiting stress (minimum clearance or maximum interference) between mating parts, as computed arithmetically from the specified dimensions and tolerances of each part. ASM Gloss.


alloy. A substance having metallic properties and being composed of one or more chemical elements of which at least one is an elemental metal. ASM Gloss.

alloyage. The act or process of alloying; specifically, in minting, of alloying the precious metals with base ones to harden forming an alloy. Standard, 1964.

alloy balance. An adjustable balance that is in equilibrium when the weights in the scalpens are in proper proportion for forming an alloy. Standard, 1964.

alloy cast iron. Cast iron containing alloying elements. It may be: (1) a combination of nickel, chromium, copper, and molybdenum. These elements may be added to increase the strength of ordinary iron, to facilitate heat treatment, or to obtain martensitic, austenitic, or ferritic irons. C.T.D. alloy elements. Chromium, tungsten, iron, molybdenum, and other elements which aid in making alloys heat resistant and corrosion resistant. Bennett 24, 1962.

alloying. The addition of one metal to another or the introduction of one or more different elements to form an alloy. Standard, 1964.

alloying elements. An element added to a metal to effect changes in properties, and which remains within the metal. ASM Gloss.

alloy, monoferron. Any alloy based on metals other than iron, that is, usually a copper, aluminum, lead, zinc, tin, nickel or magnesium. C.T.D.

alloy plating. The codeposition of two or more metallic elements. See also alloy. ASM Gloss.

alloy powder. In powder metallurgy, a powder of which each particle is composed of the same alloy or two or more metals. ASM Gloss.
alluvial cone

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in the gravel along the courses of valleys and rivers on the bedrock. Generally, the purest tin ore. Fay.

alluvial diamond. A diamond found in river gravels; also, loosely used for a diamond found in beach and desert gravels. A.G.I.

alluvial fan. A. The outspread sloping deposit of boulders, gravel, and sand left by a stream where it leaves a gorge to enter upon a plain or an open valley bottom. Fay. b. The land counterpart of a delta. An assemblage of sediments marking the place where the larger streams from a steep gradient to a flatter gradient and suddenly loses its transporting power. Typical of arid and semiarid climates, but not confined to them. Lett.

alluvial flat. A generally narrow plain, having a slope of 3 to 20 feet to the mile, built of fine sandy clay or adobe brought down by an ephemeral stream, having a smooth surface that is usually unmarked by streams but where so marked the channels are insignificant. USGS Bull. 730, 1923, p. 86.

alluvial gold. Gold found associated with waterworn (water-transported) material. Schielerdecker.

alluvial mining. The exploitation of alluvial deposits by dredging, hydraulic mining, and drift mining. See also placer mining. Nelson.

alluvial ore deposit. An ore deposit in which the recoverable mineral particles have been transported and deposited by a stream. Schiederdecker.

alluvial plains. a. If a stream is swift in one part of its course and slow in another, the swifter part may carry a load which the slower cannot carry. Deposits made then be made in the valley where the current is sluggish. In this way, floodplains are constructed. Floodplains produced by the filling of a valley are alluvial plains. We commonly think of alluvial plains as made of fine mud, but alluvial plains may be made of fine sand, silt, or pebbles, under special circumstances. A.G.I. b. A plain resulting from the deposition of alluvium by water. In the southwestern United States, most alluvial plains are formed by streams having a considerable grade, and therefore, they are generally referred to as alluvial slopes. USGS Bull. 730, 1923, p. 86.

alluvial-poor shoreline; alluvial coast. Shoreline or coast formed by a plain composed of fluviatile, fluviolacustrine or marine alluvial material. Schiederdecker.

alluvial slope. A surface composed of alluvium that slopes away from the sides of mountains and merges with the plain or broad valley floor upon which it rests. The alluvial slope near the mountains may be as much as 300 feet per mile. The plain is built by the union of the alluvial fans of tributary streams, which are common intermittent, and it is sometimes called a fan apron, debris apron, or piedmont plain or slope. USGS Bull. 730, 1923.

alluvial stone. A mineral that has been transported and deposited by water. See also alluvial deposit. Shipley.

alluvial tin. Stream tin, or cassiterite pebbles used as an ornamental stone. Also called princess blue. Shipley.

alluvial values. In placer mining, the minerals recoverable from the alluvium. These include cassiterite, gold, diamond, and gem stones, zirconia, rutile, monazite, and platinum. Pryor, 3.

alluviation. a. The process of building alluvial cones and deltas. Standard, 1964. b. A hydraulic effect on solids suspended in a current of water, whereby the coarsest and heaviest particles are the first to settle out on diminution of slope or velocity of the stream, and the finest muds the last. Pryor, 3.

alluvium. a. Clay silt, sand, gravel, or other rock materials transported by flowing water and deposited in comparatively recent geologic time as sorted or semi-sorted sediments in riverbeds, estuaries, and flood plains, on lakes, shores, and in fans at the base of mountain slopes, and estuaries. The term is not applied to subaqueous sediments deposited in seas or lakes or to non-sorted sediment carried or deposited by glacial. Compare Bull. of Mines Staff. a. As incorrectly used by some drillers to designate earthy clay material directly below the soil layer and above the solid, unbroken bed or ledge rock. Long.


alnugmide. alnugmide. A variety of garnet, Fe₃Al₂(SiO₄)₃, sometimes referred to as precious garnet. Its color is a fine deep red, it often shows a violet tinge, and it resembles rubies in most properties. Used as a gem. Also called alnugmoh stone. Mohs' hardness: 7; specific gravity: 4.25; isometric. Fay; Dana 17, p. 597.


alnugmide spinel. A violet-colored type of ruby spinel. C.M.D.

alnugmide. See alnugmide.

alpha. The first letter (a) of the Greek alphabet. Commonly used as a prefix to show that a mineral, the condition of a metal, or other thing or property is one of several closely related species, or one of a series: beta (b) the second letter, and gamma (γ), the third letter are used likewise, for example, alpha rays, beta rays, and gamma rays and alpha quartz and beta quartz. Hett.

alpha alumina. A white, a-hydrous, non-hygroscopic substance. If precipitated from an acid solution, it is known as aluminum hydroxide (Al(OH)), which is calcium (Al₂O₃). It is the natural product of the Bayer process and other processes used (or proposed) to treat bauxite, clay, or other aluminum-bearing materials. Newton, pp. 470-477.

alpha-beta brass. An alloy of 57 to 63 percent copper and 37 to 43 percent zinc, with a possible small addition of lead. Used in hot working. Pryor, 3.

alpha brass. An alloy of 70 percent copper and 30 percent zinc, perhaps with a small addition of lead. Used in heavy cold working. Pryor, 3.

alpha-carneolite. A sodium anorthite, NaAl₅SiO₅, produced by heating nepheline to 1,468° C. It can be preserved by quenching at temperatures above 690° C, at which point it passes into beta carnegolite. Isometric; rounded grains. English.


alpha compounds. The ash-free portion of coal. Not strucrurally designed. English.


alpha hydrite. A porcelain-white, hydrous asic sulfosilicate of thorium with some uranium, iron, and lead; isotropic. An aluminum boride. From Hylia, Ontario, Canada. English.

alpha iron. The body-centered cubic form of pure iron, stable below 1,870° F. ASM Gloss.


alpha particle. alpha radiation; alpha ray. A positively charged particle emitted by certain radioactive materials. It is composed of two protons and two neutrons; hence, it is identical with the nucleus of a helium atom. It is the least penetrating of the three types of radiation (alpha, beta, and gamma), being stopped by a sheet of paper. It is not dangerous to living things unless the emitting substance is inhaled or ingested. Ley.
alpha quartz. A form of quartz, apparently hexagonal, trapezohedral, tetrahedral, formed at temperatures below 750° C; occurring in irregular, large, and aggregate masses. English. Also called low quartz.

alpha rays. A. One of the three types of rays (alpha, beta, and gamma), emitted by radioactive sources. Crispin. B. Streams of alpha particles. C.T.D.

alpha uranium. The allosopic modification of uranium metal which is stable below 667° C. It is orthorhombic. NRC-AS I 11-1957; Handbook of Chemistry and Physics, 45th ed., 1964, p. 163.

alpha zircon. A mineralogical name for any zircon with properties about specific gravity 4.7; refractive index, 1.92 to 1.98. Strongly birefringent, 0.059. Almost no other type is used in jewelry. See also beta zircon; gamma zircon. Shipley.

alpha proton. Proposed by Salomon for clays and silts consisting largely of rock flour, such as the fine material produced by glaciers. There is little reason for the term, and extreme difficulty in its application because of inability to differentiate that a clay is of glacial origin and not composed of particles of many origins brought together by wind or water. A.G.I.

alpine. Great east-west structural belt including the Alps of Europe and the Himalayas and related mountains of Asia, folded mostly in the Tertiary period. A.G.I. Supp. 37


alpine revolution. That period of earth movement in the Tertiary period (mainly in the Miocene) when the Alps and other mountain chains came into existence. C.T.D.

aluminum. Crispin. Crystalline alumina

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ammonium chloride. The salt of ammonia and hydrochloric acid, usually obtained by electrolysis. See sodium chloride.

ammonium carbonate. Anhydrous carbonic acid ammonium salt, used in perfumery and in the manufacture of ammonia. See ammonium nitrate.

ammonium nitrate. A salt of the nitric and ammonium acids used in fertilizers and explosives. See ammonium carbonate.

ammonium hydroxide. A base obtained by neutralizing nitric acid with ammonia. See ammonium carbonate.

ammonium nitrite. A salt of nitrous and ammonium acids, used as a oxidizer in pyrotechnics and explosives. See ammonium carbonate.

ammonium perchlorate. Ammonium salt of perchloric acid, used in the manufacture of explosives. See ammonium carbonate.

ammonium sulfate. A salt of sulfurous and ammonium acids, used in fertilizers and as a mordant. See ammonium carbonate.

ammonium hydroxide. An alkaline solution of ammonia, used in the manufacture of ammonia and in the treatment of wool. See ammonium carbonate.


alpine revolution. That period of earth movement in the Tertiary period (mainly in the Miocene) when the Alps and other mountain chains came into existence. C.T.D.


alumina ceramic

which alumina, (Al₂O₃), is the essential crystal phase. ACSB-4.

alumina crucible. A crucible made from alumina mixed with highly heated calcium aluminate. Such crucibles are said to withstand temperatures of 2500° C. Bauxite has been used to replace the alumina, H. L.


alumina, natural abrasive. See corundum; emery, AGSC, 1963.

alumina-corundum. A vitreous ceramic white refractory material for technical applications, (Al₂O₃), is the essential crystal phase. H.TDM 2C42-60.

alumina-silica refractories. Refractories consisting essentially of alumina and silica, and including high-alumina fire clay, and kaolin refractories. H.W.

alumina, sintered. Alumina, sometimes containing an amount of clay or of a mineralizer, and fired at a high temperature to form a dense ceramic. Sintered alumina has great mechanical strength and abrasion resistance, high dielectric strength, and low power factor. Because of these properties, sintered alumina is used in thread guides, tool tips, and grinding media; as the ceramic component of spark plugs, electronic tubes, ceramic-to-metal seals, etc. Sintered alumina coatings can be applied to metals by flame-spray method.

aluminia. A. A compound having the general formula, MAO₃ or MA₂O₅, in which M indicates a monovalent metal. Bennett 2d, 1962. B. A salt of alumic acid. Sodium aluminate is a common one, used to good advantage as a mill addition, to set up acid-resisting enamels and certain cast-iron ground coats. Mineral aluminas, like Mg₃Al₂O₅, are termed spinels. Enam. Dict.

alumina trisilicate; aluminum hydrate; alumina hydrate; hydrated alumina; hydrated aluminum oxide; hydrated aluminum oxysulfate, Al₂O₅·3H₂O or Al₂O₃·H₂O; monoclinc; white; crystalline powder, balls, or granules; specific gravity, 2.42; insoluble in water; and soluble in mineral acids and caustic soda. Obtained from bauxite. Used in glass and ceramics as a source of aluminum. CCD 6d, 1961. Sometimes used in sinted bodies because of possible high reactivity. Used in the placing and firing of various ceramic products to prevent sticking of the ware and the setter. L. L.


alumnum. A hydrous sulfate of aluminum, Al₂(SO₄)·9H₂O, usually occurring in white reniform masses. Fay.

alumnum, British spelling of aluminum. See also aluminum.

aluminizing. Forming an aluminum or aluminum alloy coating on a metal by hot dipping, hot spraying, or diffusion. ASM 3.

aluminum-cobalt. A variety of copiapite in which X in the formula, X(OH)₃·Fe⁺⁺,

(50%,1,3H₂O), is mainly Al[Al₁₀₁·7₂-4.43 percent]. Compare ferritcopiapite. Spencer 18, M.M., 1949.

alumunisilicate refractory. A general term that includes all refractories of the fire clay, silitamite, mullite, diopside, and bauxite types. Dodd.

aluminisilicate bricks. Various kinds of alumina silicon refractories with metal oxides or other radicals. Used as catalytic in refining petroleum and to soften water. See also seals. CCD 6d, 1961.

aluminothermic reaction. In thermit welding, the chemical reaction which occurs when powdered aluminum is ignited with the oxides of other metals. The aluminum extracts the oxygen from these metals and burns fiercely, melting them and forming the weld. Ham.

aluminothermy. A process of producing great heat and strong chemical reduction by oxidizing finely divided aluminum with oxygen taken from another metal, this metal being thus reduced from its oxide (as molten iron is obtained from iron oxide in welding by the thermit process). Webster 3d.

aluminous. Of the nature of alumina or clay. Fay.


aluminous fire clay refractory. This type of refractory material is defined in British Standard 1902 as an aluminosilicate refractory containing 38 to 45 percent Al₂O₃. Dodd, C.T.D.

aluminous ores. Iron ores in which the gangue consists principally of alumina.

aluminous refractory goods. Those which contain more than 45 percent alumina. Roush.

aluminum. A light, silver-white, ductile metal with high electrical conductivity and good resistance to corrosion. Obtained from bauxite. It has numerous uses and is the basis of many light alloys. Symbol, Al; valences, 3; atomic weight, 26.98; atomic number, 13; isometric; specific gravity, 2.705 (at 20° C); specific electrical resistance, 3.80 microhms per cubic centimeter (at 20° C); mass conductivity, 212.9 percent of standard aluminum. Mersereau, 4th, p. 27.9. After magnesium, it is the lightest of the metals. Used in the manufacture of glassware and in the production of white enamel. CCD 6d, 1961.

aluminum bronze. An alloy of aluminum and copper resembling pale gold; used in cheap jewelry, etc. Standard, 1964. As a powder, used in glazing. Fay.


aluminum deuteron. See Briska detonator. Higham, p. 61.

aluminum fluoride; aluminum fluorides; aluminum fluoride. AlF₃; molecular weight, 40.03; triclinic; colorless, transparent; specific gravity, 3.07; melting point, 1,040° C; and soluble in water. Used in the production of white enamel. CCD 6d, 1961.

aluminum hexafluoride; aluminum hexafluorides. A white powder; Al(F)₃. Used in artificial gems, enamels, and glass. CCD 6d, 1961.

aluminum gold. An alloy said to be ruby red containing 22 percent aluminum and 78 percent gold; melting point, 1,080° C. Camm.


aluminum hydroxide, gelatinous; hydrous aluminum oxide; aluminum gel. A white, gelatinous precipitate; Al₂O₃·2H₂O. Used in the manufacture of glassware and in ceramic glaze. CCD 6d, 1961.

aluminum metaphosphate. Al₅(PO₄)₃; molecular weight, 263.91; white crystalline powder; melting point, 1,700° C; and insoluble in water. Used in glass, china, and enamels. Fay.

aluminum minerals. Alunite, albunite, andalusite, bauxite, corundum, cryolite, cyanite, diopside, eucryptite, gillette, garnet, jade, kaolin, micas, mullite, nepheline, nephrite, quartz, spodumene, tourmaline, wavellite, and many silicates. The commercial ores of aluminum are cryolite, a fluoride of sodium and aluminum, found in Greenland; and bauxite, a hydrous compound of alumina, ferric oxide, and silica, found in Arkansas, Georgia, and Tennessee. Fay.

aluminum nitride. AlN; hexagonal; and clear white crystals. Used to make crucibles for melting aluminum by reacting aluminum powder with nitrogen. Lee.

aluminum orthophosphate. a. AlPO₃; molecular weight, 123.1; orthorhombic plates; specific gravity, 2.556; melting point, above 1,500° C; insoluble in water; and soluble in acids. Used in ceramics. Bennett 2d, 1962. b. White crystals; insoluble in alcohol; and soluble in alkalies. CCD 6d, 1961.

aluminum oxide. See aluminum. Fay.

aluminum phosphate. a. Phosphorus acid; phos- phosphorus acid. A white, granular powder; approximately 2Al₂O₃·3B₂O₃·3H₂O. Used in the glass and ceramics industries. CCD 6d, 1961.

aluminum boride. The usual compound is AlB₁₂, this dissociates above 980° C to form Al₂B₁₀ and Al₁₃Dodd.

aluminum brass. Brass to which aluminum has been added to increase its resistance to corrosion. It contains 24 to 42 percent zinc, 55 to 71 percent copper, 1 to 6 percent aluminum. Used for condenser tubes, etc. Nelson.

aluminum bronze. An alloy of aluminum and copper resembling pale gold; used in cheap jewelry, etc. Standard, 1964. As a powder, used in glazing. Fay.


amagrosite. A hydrous silicate of magnesium and aluminum, Mg(OAlO2SiO2)7H2O. It is commonly known as natural soap or soaprock. A trade name for a Bentonite from the Amargosa River, Calif. The same as montmorillonite. English.

amal. Eng. With great force or speed. Wagons or tubs are said to run amain, if by accident they go over an incline, bank, or dump, without the rope being attached; or through the rope becoming detached or broken. Fay.

amalgame. A mineral, (Fe,Mg)O(OH); rhombohedral; oxidizes rapidly in air; occurs as thin veins in kimberlite; U.S.S.R. Hey, M.M., 1964; Fleischer.

amakusa. The Japanese equivalent of china stone. See also china stone. Dodd.

amalgamation. a. The production of an amalgam by which mercury is alloyed with some other metal to produce an amalgam. It is generally done through suitable doors. Fay.
b. To amalgamate gold. Fay.
c. Amalgamates gold. Fay.

d. Amalgamating battery accumulations and other materials. It is run with intermittent charges, and consists of a lead of steel balls or pebbles to effect continuation and to bring the mercury into contact with the metal to be amalgamated. Charging and discharging are done through suitable doors. Fay.

amalgamating barrel. A short, cylindrical vessel or barrel with solid ends turned to the plates in a mill treating gold ores. Fay.

amalgamating table. A sloping wooden table covered with a copper plate on which the amalgamating battery accumulations and other material. It is run with intermittent charges, and consists of a lead of steel balls or pebbles to effect continuation and to bring the mercury into contact with the metal to be amalgamated. Charging and discharging are done through suitable doors. Fay.


c. Native amalgamated gold 39 to 42.6 percent gold has also been found. Sanford.

d. Amalgamated ore. An ore in a vacuum tube having electrodes of mercury amalgamated with zinc, cadmium, or other metal. The spectra of such ores contain the bright lines of the metals in the electrodes. Webster 2d.

amalgam. a. An alloy of mercury with one or more other metals in ASM Glass. b. A styptic of gold and mercury, about one-third gold by weight, obtained from the plates in a mill treating gold ore. C.T.D. c. A native compound of silver and mercury, in which the percentage of silver ranges from 2.7 to 9.5. Native amalgam gold carrying 39 to 42.6 percent gold has also been found. Sanford.

amalgamite. A trade name for a bentonite from the Amargosa River, Calif. The same as montmorillonite. English.


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mated with mercury added to the pan.  C.T.D.

amalgamation process. A process of gold or silver recovery in which the ore, finely divided and suspended in water, is passed over a surface of liquid mercury to form an amalgam. The amalgam is subjected to fire-refining processes for the recovery of its gold, silver, and copper content. See D.O.T. 1.

amalgamation. a. An apparatus used in mining for bringing pulverized ore into close contact with mercury. The ore is then ground to a fine pulp from which it may be separated. See by heat. D.O.T. 1.

amalgamation pan; amalgamating barrel. A small cylinder batching amalgam slivering. A process of silvering amalgamation process. A process of gold or silver treatment. See amalgamation. See C.T.D.

amalgamation table. A table used in the amalgamation process. A small cylinder batching amalgam barrel. A small cylinder batching amalgam plate. A sheet of metal (copper, muntz, etc.) with an adherent film of mercury that seizes gold or silver from the mixture of ore and mercury, thus causing particles of free gold to amalgamate with mercury. See D.O.T. 1.

amalgamation gilding. A process of gilding in which the metal is coated with gold amalgam and the mercury driven off by heat. Standard, 1964.

amber. amber drop. A term describing a shape in which amber occurs. Webster 3d.

amber kaolin. A white-firing micaceous kaolin from Hirschau, Oberpfalz, Germany. It takes a fine polish and is used chiefly in making ornamental objects (as beads and mouthpieces). Webster 3d. See also kaolin.

amber color. amber color plate. A term describing a shape in which amber occurs. Webster 3d.

amber kaolin. A white-firing micaceous kaolin from Hirschau, Oberpfalz, Germany. It takes a fine polish and is used chiefly in making ornamental objects (as beads and mouthpieces). Webster 3d. See also kaolin.

amber colophony. amber varnish. Same as amber pitch. Webster 3d.

ambers. See amber lac. Webster 3d.

amberfish. amber fish. A name for amber. Webster 3d.

amber, oil of. A reddish brown distillation of amber. Webster 3d.

ambers. See amber lac. Webster 3d.

amber, oil, amber. oil. A reddish brown distillation of amber. Webster 3d.

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American American disk filter. A continuous rotary filter in which the separating membranes are washed with water. American pigments. See pigment, American. 1940.

American pigment. A type of pigment that is used in the production of American pigments. American pigments. See pigment, American. 1940.

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American pigments. See pigment, American. 1940.
American disk filter

American gold. See coi gold.

American green jade. A Chinese trade name for a variety of green jade, which occurs in foliated quartzite and is very popular with American tourists and exporters in China. The name was unheard of before World War I. Shipley.

American gold. See coin gold.

American gold. See coin gold.

American jade. A Chinese trade name for pale reddish-purple jade, occurring in amygdaloidal geodes. Usually pale to dark green or bluish green. Also used for the pigment amorphous of this color.

American amethystine. A color designation meaning violet to purplish, used as in amethystine glass and amethystine sapphire. Shipley.

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American amethystine. A pigment usually composed of a lead molybdate or a basic lead sulphate, known as Mexican turquoise. Shipley.

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ammonium alamgal

ammonium bicarbonate; ammonium-hydro-
gen carbonate; ammonium acid carbonate.
NH₄HCO₃. Used in conjunction with fluo-
rates as a refrigerant for selecting certain
types of glassware, as in producing
frosted surfaces on electric light bulbs.
ammonium bifluoride; ammonium acid flu-
ride; ammonium-hydrogen fluoride. White;
orthern or tetragonal; deliquescent;
(NH₄)HF. Used for processing beryl-
ium; in electropolishing; as a chemical re-
agent; in etching glass (white acid); and
in ceramics. C.D, 6d, 1961.
ammonium carbonate; ammonium sesqui-
carbonate. A mixture of ammonium acid car-
bonate and ammonium carbonate; (NH₄)
HCO₃, (NH₄)(NH₄)CO₃; colorless crystal-
plates or acicular powdcr; and unstable in
air, being converted into the carbonate.
Used in ceramics. C.D, 6d, 1961.
ammonium chloride; am ammoniae. NH₄Cl;
isometric; and colorless. When dissolved
in water, it is used as an electrolyte for
some primary cells. Obtained as a by-
product in gas manufacture. Used as a
flux in soldering. Crispin.
ammonium fluoride. NH₄F; monoclinic;
white and specific gravity, 1.31. Used in
glass etching. C.D, 6d, 1961.
ammonium fluoroborate; ammonium al-
oxalate. Colorless; orthorhombic;
(NH₄)H(C₂O₄). Used in integral worlds of
cements, concrete, and stucco. C.D, 6d,
1961. Molecular
weight, 301; melting point, 74° C; and
ammonium fluoride. (NH₄)F; orthorhomb-
ic; and colorless. Sometimes added as a
minor agent in glass batches since it is
claimed to shorten the melting time and to
be more effective than salt cake as an
accelerating agent, both of melting and
refining. Lee. Obtained as a byproduct of
the distillation of oil shales, lignite, and
bituminous coals. Used widely as a fertil-
izer. Hess.
ammonium hydroxide. See ammonium
hydroxide. C.D, 6d, 1961.
ammonium hydroxide. A solution of ammonia
in water. NH₄OH. C.D, 1961.
ammonium nitratevanadate. NH₄VO₃. Used in
certain ceramic glasses, especially in the
trivaniumodium yellow glasses, and as a base
for ceramic glazes. Can be combined with
tin to produce tin-vanadium yellow. Les.
ammonium nitrate. NH₄NO₃; molecular
weight, 80.04; colorless; monoclinic;
specific gravity, 1.725 (at 25° C); melt-
ing point, 186.9° C; soluble in water;
and stable in dry alcohol. Used in explosives
and as a fertilizer. Bennett 2d, 1962.
ammonium nitrate. A white crystalline powdcr,
(NH₄)NO₃; molecular weight, 64.07; reddish-yellow powder;
insoluble in water; and soluble in acid. Used for painting on porcelain. Bennett 2d, 1962.
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ammonium nitrate. A white crystalline powdcr,
ampelitis

city of bituminous earth used as an insecticide sprirkled on vines. Tomkiewicz, 1954.

amperage. The strength of a current of electricity acquired in an ammeter.

amperes. The practical unit of electric current. The current produced by 1 volt acting through a resistance of 1 ohm. Abbreviation, amp. Webster 3d.


amper-turn. The meter-kilogram-second (mks) unit of magnetomotive force equal to the magnetomotive force around a path that links one turn of wire carrying an electric current of 1 ampere; 1 amper-turn is equal to 0.4 x 1.257 gilberts. Webster 3d.


ampere-hour. The quantity of electricity carried past any point of a circuit in 1 hour by a steady current of 1 ampere; 1 ampere-hour equals 3,600 coulombs. Abbreviation, amp hr. Webster 3d.


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analcite (analcime). Webster 3d. b. The same as analcite. Webster 3d.

analcimization. The replacement of feldspars or feldspathoid by analcite (analcime), usually in igneous rocks and the result of late-magnetic or post-magnetic reactions. A.G.I.

analcitholith. An igneous rock composed of analcite (analcime), either primary or secondary. Hess.

analcite. See analcite.

analcite basalt. An olivine-bearing basaltic rock, in which the predominant felsic mineral is analcite (analcime). See analcite.

analkite essexite. A gray to almost black, fine-grained analcite diabase. A diabase, containing analcite, usually as an interstitial constituent. Holmes, 1928.

analcitite. See analcite.

analog indicator. A device which translates a measured variable to a readable form. Pryor, 3, p. 31.

analog computer. One which works by creating an analogy of the problem, mathematically. Pryor, 3, p. 31.

analogous. a. Corresponding to or resembling something else in some way; as in form, proportion, etc. Bureau of Mines Staff. b. Designating that pole (end) of a pyroelectric crystal to which heating gives a positive charge. Compare analogous. Bureau of Mines Staff.

analogy. Comparison between two effects. Alternating current is used as an analogy in the study of tides. Electrical analogies are also applicable to such studies as seepage of water through sand, and to the solution of structural problems. A.S.M.E.

analysis. a. A quantitative statement of the experimentally determined physical and chemical characteristics of a substance. See also air-dried basis; dry ash-free basis; dry mineral matter basis. B.S. 3373, 1960. b. The determination of the chemical composition of the constituents of a coal, rock, or mineral. See also assay; chemical constitution of coal. Nelson. c. The process of reducing a problem to its primary components; the assessment of causes or faults from survey data, etc. Nelson. d. The separation of combined substances into their constituent chemical processes. Webster 3d. e. The determination, which may or may not involve actual separation, of one or more ingredients of a substance either as to kind or amount. Also, the result of such a determination. Webster 3d.

analytical chemistry. Qualitative or quantitative composition of materials. Pryor, 3, p. 80.

analyze. To separate into constituent parts or elements for study. Merriam, 4th, p. 413.

analyser. a. One of two nicol prisms or polaroid discs in the petrological microscope, between which the thin rock sections are studied with transmitted polarized light. Pryor, 3, b. The part of a polaroscope that receives the light after polarization and exerts a magnetic or post-magnetic force on the processes are constructive. See also katamorphic zones.

anamorph. a. Metamorphism; anamorphism. Metamorphism at considerable depths in the earth's crust and under great pressure, resulting in the formation of complex minerals from simpler ones. Fay. The term contrasts with kathamorphism, which designates the breaking-down processes that take place at or near the surface of the earth. See also kathamorphism. 

anamorphic. a. Designating that pole (end) of a pyroelectric crystal to which heating gives a positive charge. Compare analogous. Bureau of Mines Staff.

anchor. a. To fasten down or hold in place. Long. b. A heavy object buried in ground to which a guy or drain line may be attached. Also called put- or deadman. Long. c. A lag screw used to anchor the drill base to a platform or sill. Long. d. An anchor-shaped rabble used in drawing coke from a coke oven. Hess. e. An anchor-shaped rabble used in drawing coke from a coke oven. Hess.

anchor charge. Means of fastening an explosive charge to a seismic shot hole to allow several charges to be preloaded. At each stage, the bottom charges are fired first, the upper charges being held down by anchors. A.G.I.

anchor derrick. A steel, towerlike derrick designed to serve as a drill platform and as support for drive pipe or casing in drilling boreholes in formations under very high water. The tower is held upright by anchors in the water by lines fastened to anchors. Long.

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anchor-type ceramic veneer. Ceramic slabs approximately 2 to 2 1/2 inches thick, held per minute with a cutting depth from 1/2 to 3 inches and the broken coal is loaded by a plough-shaped body on to an armored conveyor. The machine can be operated independently of the face conveyor. See also Renshaw-Kennedy conveyor.

anchorage distance. That distance behind a quay wall at which a deadman must be fixed to insure that it will not slip with the wall but will provide an efficient anchorage for it. Ham.

anchoring bolt. A bolt or other device used to secure a diamond-drill core to a solid foundation. It may or may not be threaded. Long. c. A lag screw used to anchor the drill base to a platform or sill. Long. d. A bolt or other device used to anchor the drill base to a solid foundation. It may or may not be threaded. Long. e. A lag screw used to anchor the drill base to a platform or sill. Long.

anchorage. That portion of any beam or structure designed to resist pulling out or slipping of the beam or structure when subjected to stress. Nelson.

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anchor line. Cable connecting anchor with anchor jack. See jack.

ancylite. A very rare, weakly radioactive, ancient beach placer. Deposits found on the anchor plates. Plates attached to a drill base.

anchor ice. Ice formed below the surface of the water or to submerged objects. Also called ground ice; bottom ice. Webster 3d; Fay.

anchorite. A nodular and veined variety of diorite, the normal facies of the rock being variegated with dark mafic segregation patches and light felsic contemporaneous veins. From Anchor Inn, Caldecote, Nuneaton, England. Holmes, 1929.

anchor jack. See jack.

anchor plate. Cable connecting anchor with drill barge, float, other vessel, or drilling tower. Long.

anchor oven. An oven from which coke is removed with an anchor. Standard 366.

anchor plates. Plates attached to a drill base used to anchor or fasten the drill to the drill platform or platform sills with anchor bolts. Long.


ancpylosynt. To unite solidly; to grow together into one. Rice.


ancient cliff. See abandoned cliff. Schiessl.


ancolysis. A very rare, weakly radioactive, amphibolitic hornblende.

ancolyte. A direction of coal face roughly half-way between the main (bord) and secondary (end) cleavages; on the cross. Mason.

Anderseni. One of the plagiolase feldpars, AbAs-Abs-Abs; a mineral between albite and andorite.

andesine. A volcanic rock composed essentially of andesine and diorite. Usually, the plagiolase is strongly zoned and may range in composition from about An 50 to An 75, but the average composition usually falls within the range of andesine. When the rock is porphyritic, the plagiolase phenocrysts are usually more calcic than the plagiolase in the groundmass, and in addition, the groundmass may contain small amounts of microcrystalline or occulit psamitic feldspar and cristobalite. Pyroxene, hornblende, or biotite, or all three in various proportions, may constitute the mafic constituents. A.G.I. Also called leucotroite.

Andesite line. A map line designating the petrographic boundary of the Pacific Ocean. Extrusive rocks on the Pacific side of the line are basaltic and on the other side andesite. Lees.

Andesite. A dark, steel-gray sulfantimonite of the line. Fay.

andersonite. A very rare, strongly radioactive, secondary mineral, NaCa(UCO3)(OH). It is bright yellow-green and occurs as a lussore line with gypsum, schroekeringite, bayleisite, and schwartzite. Crosby, p. 6.

Anderton shearer loader. A widely used cut-and-tuck loader in which the ordinary jib of the longwall coal cutter is replaced by a shearing drum which cuts a web from 16 to 22 inches depending on its width. The machine travels on an armored conveyor and requires a pit-free-front for working. It shears the coal in one direction and the front coal is loaded by a plough deflector, and then returns along the face without cutting and loads the remainder of the broken coal. The ordinary Anderton is suitable for coal seams above 6 inches thick. See also shearer loader. Nelson.


andesite. One of the plagiolase feldpars, AbAs-Abs-Abs; a mineral between albite and andorite.

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The speed of the decomposition reaction is double that obtained with dry additions. *See also* blasting; molasses/A.N. explosive.

**angelardite.** The corrected form of angelarite, so named after the locality Angelard (not Angel) in France. It is a massive, blue-green, and crystalline incrustation on andesite from the Cerrro Pululon tin mine, northwestern Argentina; adamantine to semimetallic lustre; conchoidal fracture. *American Mineralogist,* 44, No. 11-12, November-December 1959, p. 1222-1223.

**angle.** A free or given erroneous, first in 1837 to vivianite, and again in 1848 to berthierite. *Dana 6d,* p. 115. *See* angelardite.

**angle of a surface**. The angle formed by two meeting planes (line angle), two meeting planes (dihedral angle), or three or more planes meeting in one point (trigonal angle). *Webster 3d.* b. The difference in direction of two lines. *Webster 3d,* c. A projecting corner; a pointed form or sharp fragment. *Webster 3d.*

**angle beam.** A two-limbed beam. *ACS Gloss.*

**angle of dip.** The angle at which strata or mineral deposits are inclined to the horizontal plane. In most instances subsequent to the deposition of the strata have caused them to be inclined or tilted. *See also* apparent dip; true dip. *Nelson.* Synonym for dip. *Fay.*

**angle of draft.** Approach to perpendicular of a surface necessary for satisfactory draining purposes. *ACS 1226.*

**angle of draw.** a. In coal mine subidence, this angle is assumed to bisect the angle between the vertical and angle of repose of the coal surface, which is 20° for flat seams. For dipping seams, the angle of increase, being 35.8° from the vertical for a 46° dip. The main break occurs over the seam at the vertical, equal to half the dip. *Lewis,* pp. 618-619. b. The angle between the limit line and the vertical. *Nelson.*

**angle of external friction; angle of wall friction.** The angle between the abscissa and the tangent of which is the index of anisotropic minerals are rotated between crossed nicols for flat mineral planes. *ACS 1226.*

**angle of extinction.** When transparent or translucent thin sections of anisotropic minerals are rotated between crossed nicols in a polarizing microscope light ceases to be transmitted when the mineral's planes of vibration are parallel to the nicol plane. The angle between the two vibration. *Fay.*

**angle of external friction.** The angle between the vertical and the tangent of which is the index of anisotropic minerals are rotated between crossed nicols in a polarizing microscope light ceases to be transmitted when the mineral's planes of vibration are parallel to the nicol plane. The angle between the two vibration. *Fay.*

**angle of friction.** The angle between the perpendicular to a surface and the resultant force acting on a body resting on the surface, at which the body begins to slide. *Ham.*

**angle of incidence.** The angle formed by the line of incidence and a line drawn from the point of contact perpendicular to the plane of the surface on which the incident ray or body impinges. *Fay.*

**angle of inclination.** The angle of slope from the horizontal. *Bureau of Mines Staff.*

**angle of internal friction.** The angle between the abscissa and the tangent of which is the index of anisotropic minerals are rotated between crossed nicols in a polarizing microscope light ceases to be transmitted when the mineral's planes of vibration are parallel to the nicol plane. The angle between the two vibration. *Fay.*

**angle of repose.** The maximum slope to which a heap of any loose or fragmented solid material will stand without sliding, or come to rest when poured or dumped in a pile or on a slope. *Bureau of Mines Staff.*

**angle of shear.** The angle between the planes of maximum height which is bisected by the axis of greatest compression. *Rice.*

**angle of sliding resistance.** The value of sin θ in Coulomb's expression for the frictional force acting on a given plane and the normal to that plane. *ACS P1826.*

**angle of static friction.** a. That angle, the tangent of which is the index of a reflecting substance. *Fay.* b. The angle of refraction from a plane surface at which light is polarized. *Hers.*

**angle of pull.** The angle between the vertical and an inclined plane bounding a deflection surface exceeding the vertical. *Fay.*

**angle of reflection.** The angle which a reflected ray of light, upon leaving the surface of an object, makes with the normal to that surface. *Shipley.*

**angle of refraction.** The angle which a refracted ray of light makes with the normal to the surface on which it entered, or interior surface of an object, such as a transparent stone or crystal, makes with the normal to that surface. *Shipley.*

**angle of repose.** See angle of rest. *Bureau of Mines Staff.*

**angle of rest; angle of repose.** The maximum angle to which a heap of any loose or fragmented solid material will stand without sliding. If the angle of rest may be varied, the angle of repose is determined by experiment. It is zero for a saturated clay sheared without variation of moisture content, but for silts and clays in different conditions the value differs. *Ham.*

**angle of slide.** The slope, measured in degrees of deviation from the horizontal, on which loose or fragmented solid materials will start to slide; it is a slightly greater angle than the angle of rest. *Bureau of Mines Staff.*

**angle of swing.** The number of degrees through which the dipper moves horizontally from the filled position to the dump position to that surface. *Shipley.*

**angle of thread.** The angle included between the sides of the thread, that is, the spread of the thread from the screw to the major or minor diameter. *Bureau of Mines Staff.*

**angle of total reflection.** Same as critical angle. *Shipley.*

**angle of wall friction.** See angle of external friction. *ACS P1826.*

**angle plate.** Used in setting up work, generally for machinery; made of cast iron, being formed of two plates of metal at right angles with each other, and pierced with holes or slots for the reception of bolts. *Gates.*

**angle rule.** Synonym for clinometer rule. *Long.*

**angle base.** A special type of wall tile. *Dodd.*

**angle beam.** a. A two-limbed beam used for fixing a piece of timber to another, as in shafts, etc. *Zern.* b. See angle iron. *Hers.*

**angle brace.** A brace used to prevent sliding or overturning of a piece of timber, when used parallel to or perpendicular to the surface. *Ham.*

**angle rod.** A kind of bar with a pointed end inserted in the soil to form an angle or right angle with the earth's surface. *ASTM.*

**angle plate.** Used in setting up work, generally for machinery; made of cast iron, being formed of two plates of metal at right angles with each other, and pierced with holes or slots for the reception of bolts. *Gates.*

**angle rule.** Synonym for clinometer rule. *Long.*

**angled.** A brittle, lustrous lead sulfate, PbSO₄; orthorhombic; color transparent to opaque; Mohs' hardness, 2.5 to 3; specific gravity, 6.3. Valuable lead is oxidized and concentrated by gravity and/or flotation. *Pryor, 3; Dana 17.*

**angled.** A purpose-made clay or concrete tile for use in an angle in vertical exterior tiling. *Dodd.*

**angle to the right.** Horizontal angle measured clockwise from the preceding line to the
angle to the right

following one. Svercle, 2.

angle trough. A short curved section of a shaker or sorter trough mounted on a trough line to change the angle of direction. Up to 15° of turn the angle trough does not affect the face of the shaker or sorter other than connection to adjacent troughs. For a greater degree of turn, a shaker belt and a swivel device are employed with the trough action joint.

angular furnace. A furnace for the distillation

angular. -ing -ed. Willims.

angular shear. An inclination between two cutting edges to reduce the amount of pressure on the material cut. See 1. G.1. and C.1., 4.

angular inconsistency. An unconformity in which the lower underlying strata dip at a different angle than the overlying strata. A.G.I. See also conformities. A.G.I. Supp.


angular velocity. The time rate of angular displacement usually expressed in radians per second, or in revolutions per seconds, or per minute being a vector, the direction and sense of which are such that the motion appears clockwise to one looking in the direction of the vector. Webster 3d.

Anisou-Smith compound. A proteogenic ceat-

angular for valves, fittnes, and pipes used for underound work, composed of coal tar, tallow, resin, and quicklime B.S. 3618.

Annamite. A rock composed chiefly of anhy-

angularly. -ing. -ed. Macalister. A bulldozer with a blade that can be pivoted on a support center pin, so as to cast its load to either side. Nichol.

Anise. A trade name for cast tungsten car-

anglemeter. angledean. Angstrom. A roundness grade showing very

anglemeter. -ing. -ed. As a unit, the initial letter a of angstrom

anglemeter. -ing. -ed. As a unit, the initial letter a of angstrom

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anhydrous. a. Without water, especially water of crystallization. Webster 3d. b. An oxide of a nonmetallic element or an organic radical, capable of forming an acid by the abstraction of one element of water, or of being formed from an acid by the abstraction of the water, or of uniting with basic oxides to form salts. Webster 3d. c. A compound formed from another or others by the abstraction of water. See also acid anhydride. Webster 2d.

anhydrite. Calcium sulfate. CasO\textsubscript{2}. ortho-

anhydrite. a. A compound derived from another compound (as an acid) by the removal of the elements of water. Webster 3d. b. A residue of a nonmetallic element or an organic radical, capable of forming an acid by the abstraction of one element of water, or of being formed from an acid by the abstraction of the water, or of uniting with basic oxides to form salts. Webster 3d. c. A compound formed from another or others by the abstraction of water. See also acid anhydride. Webster 2d.

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anionic flotation

Staff. 2. A flotation process in which the undissolved ions of heavy minerals instead of the metal ores are floated. It is used with some success in the treatment of low-grade sources. A.G.I. Supp.

anisometric compound. A compound in which the bonds joining different metallic cations have an average of different relative strengths. A.G.I. Supp.

anisometric structure. In a crystal, a bond-line orientation that there is pronounced quantitative difference between the bond strengths. Prior. 3.

anisometric. A rock of porphyritic texture in which the chief minerals are embedded in a matrix or groundmass Obsolete. A.G.I.

anisometric. A rock of porphyritic texture in which the chief minerals are embedded in a matrix or groundmass Obsolete. A.G.I.

anisometric. A Happening asymmetrical. Not isometric. Applied to crystals with three unequal axes Webster 3d. b. Or relating to a rock of granular texture but having mineral constituents of unequal size Webster 3d. c. A textual term applied to granular rocks in which the grains are of different sizes. Webster 3d. d. A rock of different sizes. Webster 3d. e. A rock of different sizes. Webster 3d.

anisotropic. Having physical properties that vary in different directions. Specifically of optical crystallography showing double refraction. Characteristic of all crystalline substances, including minerals, except those belonging in the hexagonal system, which are isotropic. Opposite of isotropic. Fay. A.G.I.

anisotropic fabric. One in which there is preferred orientation in space of the elements of which the rock is composed. A.G.I.

anisotropic mass. A mass having different properties in different directions at any given point. ASCE P1826.

anisotropy; anisotropic. a. The property of being anisotropic, or exhibiting properties (such as velocity of light transmission, conductivity of heat or electricity, or compressibility) with different values when measured along axes in different directions Webster 3d. b. The condition of having different properties in different directions. For example, the state of geologic strata of transmitting sound waves with different velocities in the vertical and in the horizontal directions. A.G.I.

anisomorphite. A mafic olivine basalt composed mainly of pyroxene, with lesser amounts of olivine and plagioclase, and accessory olivine, apatite, and opaque oxides. A.G.I.

anisophyle. A white, red, or grayish calcium-magnesium-iron carbonate, CaCO₃(Mg,Fe,Mn)CO₃; commonly occurring in the partings of coal; thombohedral Dana 17; R.S. 3723, 1960.

anhydrometeors. See anecystosomiation. Webster 3d.

anhydrosilicate. A mineral, Ni₃(AsO₄)₆·8H₂O. Usually found as green incrustations as an alteration product of nickel ore. Monche, Min. Soc. called nickel bloom. A.G.I. Dana 17.

anhydrous. a. To heat, fire, bake, or fuse, as glass, asphalt, salt, clay, etc. Fig. b. To heat, as glass, earthenware, or metals in order to fix colors. c. To heat, as glass, earthenware, or metals, by heating and gradually cooling, so as to toughen them and remove brittleness. d. To prevent or remove objectionable stresses in glass by continuous cooling from a suitable temperature. ASTM C162-66.

annealed steel. Steel that has been softened or had strains removed by heating followed by slow cooling. [Rm.

annealed wire. Wire that has been softened or annealed Zen.

annealing. 1. A HEATING and holding at a suitable temperature and then cooling at a suitable rate for such purposes as reducing hardness, improving machinability, facilitating cold working, producing a desired microstructure, or obtaining desired mechanical, physical, or other properties. When applied to ferrous alloys, the term annealing without qualification, implies full annealing. When applied to nonferrous alloys, the term annealing implies a heat treatment designed to soften a cold-worked structure by recrystallization or subsequent grain growth or to soften an air-hardened alloy by causing a nearly complete precipitation of the second phase in a relatively coarse form. ASM Gloss. b. The transformation of the cooling rate at different temperatures of porcelains, glass, and other ceramic ware containing large quantities of vitreous material to prevent defects such as dunting, crazing, cracking, crystallization, etc. Bureau of Mines Staff. c. The process by which glass and certain metals are heated and then slowly cooled to make them more tenacious and less brittle. Important in connection with the manufacture of steel castings, forgings, etc. F any. d. See malleable castings. e. The process of heating metal shapes in a red heat or above, prior to cleaning. See also fine annealing. ASTM C286-65.

annealing arch. The oven in which glass is annealed. Fay.

annealing but. A box in which articles to be annealed are enclosed while in the furnace Standard, 1964. Also called annealing pot.

annealing color. The hue taken by steel in an annealing process. Fay.

annealing furnace. See annealing oven. Fay.

annealing oven. An oven for heating and gradually cooling metals or glass to remove stresses. Standard, 1964. Also called annealing furnace. Fay.

annealing point. The temperature at which the viscosity of glass is 10⁶ poises. Formerly defined as 10⁶ poises. The internal stresses are substantially relieved in 15 minutes at this temperature. ASTM C286-65.

annealing pot; annealing but. A pot in which articles are placed to be annealed. It is closed to prevent oxidation. Fay.

annealing range. The range of glass temperature in which stresses in glass articles can be relieved at a commensurable desirable rate. For purposes of comparing glasses, the annealing range is assumed to correspond with the temperatures between the annealing point and the strain point. ASTM C162-66.

annealed. annealed. a. A submetallic black, iron-black, or slate-gray color, crystallizing in the orthorhombic system. An intergrowth of samarskite and columbite. Fay; Crosby, p. 4.

annealed lamp. a. Lepidomelane; (H,K)₆Fe₆(FeAl)₄(SiO₄)₃, Mohs' hardness 3. Specific gravity, 5.0 to 5.2. A black, rather brittle mica characterized by the large content of ferric iron. Dana 6d, p. 634, b. Synonym for hydroxylmica. Hyd 2d, 1955.

annealed. Tennellite, Cu₆S₄As₄, in which part of the arsenic is replaced by bismuth. Dana 64, p. 138-140.

annual labor. Same as assessment work, on mining claims Fay.

annual layer. A sedimentary layer deposited, or presumed to have been deposited, during the course of a year; for example, a glacial layer. A.G.I. Super. A dark layer in a stratified salt deposit containing disseminated anhydrite A.G.I. Supp.

annual value. The annual value of a property is the estimated annual surplus of revenue over expenditure in process of liquidating the mineral reserves. In the usual case, that of a property owned by a company, it is the dividend estimated maintainable annually over the whole computed life, the regular distribution of ultimate profit Truscott, p. 234.


annealed. Recap. The space between casing and the wall of the hole or between drill pipe and casing and is an annular space. Fay.

annealed. Recap. A ring gear with teeth fused to its internal circumference. Also called internal gear. Crispin.

annealed. a. The electropositive pole. A.G.I., Supp. b. The positive terminal of an electrolytic cell. Webster 3d. c. The electrode at which electrons leave a device of an electrolytic cell. Webster 3d. d. The negative terminal of a primary cell or of a storage battery that is delivering current. Webster 3d. e. The electron-collecting electrode of an electron tube. Webster 3d.

annealed. Recap. An anodic cell in an electrolytic cell the enclosure formed by a diaphragm around the anodes. ASM Gloss.

annealed. Copper. Special-shaped copper slabs, resulting from the refine of blister copper in a reverberatory furnace, used as anodes in electrolytic refinement. ASM Gloss.

annealed. Copper. The dissolution of a metal acting as an anode. ASM Gloss.

anode fall. The effect produced by polarization of the anode in the electrolysis of fused salts. It is characterized by a sudden increase in voltage and a corresponding decrease in amperage due to the anode's being virtually separated from the electrolyte by gas bubbles. Fay; Crosby, p. 4.

anode efficiency. Current efficiency at the anode. ASM Gloss.

anode fall. A very thin space-charging layer in a gas discharge tube, placed on the anode surface, characterized by a steep potential gradient through the region. BoMines Bull. 625, 1965, p. 781.
anode film

anode film, a. The portion of solution in immediate contact with the anode, especially if the concentration gradient is steep. (Gloss. b. The inner layer of the anode itself. ASM Gloss.

anode furnace. A copper or nickel refining furnace, in which copper or impure nickel is refined. Bureau of Mines Staff.

anode metals. Metals used for electroplating. They are as pure as commercially possible, uniform in texture and composition, and have the skin removed by machining. In addition to pure single metals, various alloys are produced in anode form, such as... standard.

anode mud. anode slime. A deposit of insoluble residue formed from the dissolution of the anode in commercial electrolysis. Sometimes called anode slime. ASM Gloss.

anode picking. See electrolytic picking. Dodd.

anode scrap. Remnants of anode copper retrieved from electrolytic refining of the metal. H. P.

anode slime. See anode mud.

anode cleaning. Electrolytic cleaning where the work is the anode. It is also called reverse-current cleaning. ASM Gloss.

anodic coating. A film on work resulting from an electrolytic treatment at the anode. ASM Gloss.

anodic picking. Electrolytic picking where the work is the anode. ASM Gloss.

anodic painting. In the electrical self-potential method of geophysical prospecting, if the chemical composition of the soil or subsoil is such as to give electrical polarization, the zone of electropotential potential is the anodic zone. A.G.I.

anodized aluminum. Aluminum which has been made the anode or positive electrode of an electrolytic chemical bath containing sodium phosphate or other solution. On passing a current through the bath, the aluminum is chemically oxidized on the surface, giving it a fine matte appearance.

anodizing. Forming a conversion coating on a metal surface by anodic oxidation; most frequently applied to aluminum. ASM Gloss.

anorgan. An obsolete term for rocks that have risen from below; that is, eruptive rocks. Fay.


anolyte. The electrolyte adjacent to the anode in an electrolytic cell. ASM Gloss.

ammonia. A lightweight alteration product of jaspermorite; a pyroxene, (Mn,Zn,Fe,Mg)(Ca,Na,Fe)2SiO,; blood red in thin section, containing 30 percent MnAs, with copper and nickel. Hess.

ammonious double refraction. Double refraction in a chemically slightly refractive substance. Caused by internal strain. Seen by irregular extinction when substance is observed between crossed nicols as in symmetrical prism and sometimes in garnet. Skipper.

ammonious magma type. An unusual magma type that is generated by or affected by assimilation. It is to be distinguished from magma types formed by differentiation alone. A.G.I.

anomaly. A. Any deviation from uniformity. A distinctive local feature in a geophysical survey, such as an anomaly of over a large area. An area or a restricted portion of a geophysical survey, such as a magnetic survey of the earth, that differs significantly from the rest of the survey in general. The anomaly might be associated with petroleum, natural gas, or mineral deposits, or provide a key to interpreting the underlying rock structure. Drilling for economic mineral deposits might be conducted in the area of a geophysical anomaly. In seismic usage, anomaly is generally synonymous with structure, but it is also used for spurious or unexplainable seismic events or for local deviations of potential functions which cannot be conclusively attributed to a unique cause. A.G.I. b. Any departure from the normal maeristic field of the earth is a magnetic anomaly. It may be a higher or a lower, subcontinuous, ridgelike or valleylike, or linear and dikelike. A.G.I. c. A gravity anomaly is the difference between the theoretical calculated gravity and the observed terrestrial gravity. In comparing any set of observed data with a computed theoretical curve, the difference can be observed value and the corresponding computed value, or the observed minus the computed value. Excess observed gravity is a positive anomaly, and a deficiency is a negative anomaly. See also Bouguer anomaly; free-air anomaly; normal gravity; A.G.I. Supp. d. A crystallographic anomaly is the lack of agreement between the apparent external symmetry of a crystal and the observed optical properties. Schueller-decker.

anomaly drilling. Boreholes drilled to explore the formations in or adjacent to an anomaly. Long.


anomalite. Applied to a geologic feature that formed during a period of tectonic quiescence between orogenetic periods. A.G.I.

anomalite granite. A granite, the replacement of which is not connected with an orogen. Schueller-decker.

anomalite complex. A geologic time when significant deformation of the earth's crust did not occur. A.G.I.

anomalite. An end-member of the plagioclase I-feldspar series, Ab-An=CaAl2SiO6, consisting of calcium-aluminum silicate and containing no sodium. The intermediate plagioclases may be regarded as mixtures of anorthite with the other end-member, albite. Treml. Compare albite. Fay. Done 17.


anomalite. a. Proposed by Turner for a granular igneous rock composed almost wholly of anorthite. Hess. b. A coarse-grained granito-granitic rock that consists almost entirely of anorthite. The rock is a feldspathic extreme of the gabbro group, an anorthosite formed of anorthite. Hess.

anomalite schist. A trichassic feldspar closely related to the orthoclase group. Chiefly a soda potash feldspar. (K(AlSi3O8)).NaAl(AlSi3O8).


anthonyite. A plutonic rock composed almost entirely of plagioclase, which is usually lathrodite. It is a monomineralic equiaxed aggregate of plagioclase that is frequently seen in thin sections. Bureau of Mines Staff.

anthonyite. The process of formation of anorthosite by replacement of metamorphism. A.G.I.

anthos. Oxygen deficiencies in the blood cell, or tissues of the body in such degree as to cause psychological and physiological disturbances. Anoxia may result from a scarcity of oxygen in the air breathed or from an inability of the body tissues to absorb oxygen under conditions of low ambient pressure. Also called hypoxia. HOG.

anthropoid. A.N.S. amphibolite skarn. An underwater breathing apparatus consisting essentially of a breathing bag worn around the neck, and an oxygen cylinder, reducing valve, and carbon dioxide absorbent canister worn at the left side. A counterbalance weight is worn on the right side. When the cylinder is fully charged with pure oxygen, this apparatus can be used up to 40 minutes at depth down to 30 feet. Mr.Adam, pp. 163-164.

antagonizing screws. On a theodolite, clip screws used to eliminate index error of a vertical circle. Prior, J.

antecedent. Pertaining to streams, valleys, or complete drainage systems that were established before upwars, faulting, or folding, and that maintained their original courses despite subsequent deformation. A slow rate of uplift is implied. The term contrasts with consequent and superimposed (or superposed). Stoles and Varnes, 1955. b. Pertaining to or characterizing the internal movements of the earth concerned in the elevation of continental masses and their exposure to degradation. Contrasted with consequent. Standard, 1964.

antecedent stream. A stream that retained its early course and remains unaltered since its course was assumed. Fay.

antecedent valley. A stream valley that existed before uplifts, faulting, or folding occurred and which maintained itself during and after the uplifts, faulting, or folding. Bureau of Mines Staff.

antecedent stream. a. In a deformed region may be found, therefore, true antecedent streams, and streams that were consequent upon the form of the surface assumed as the result of early movement but are antecedent to later movements of the same series. Such a stream might be termed antecedent, consequent, or antecedent-sequent. A.G.I. b. A stream that is consequent on some earlier stage of the warping and antecedent to the rest. A.G.I.

antelope aquamarine. See Colorado aquamarine.

antil. In blast-hole drilling, the cuttings around the hole collar. Kramanhøj, p. 50.

antilite. Gypsum or rock salt of the radiating clusters of long needle or hairlike crystals on the roof or wall of a cave. A.G.I.

antimony. A hydrous aluminum tungstate, AI02WO4, 3H2O, as white chalky material. Used as a rouge of the Congo. Spencer and Mau, 1949.

antimony. A mineral, Cu(OH)2, 3H2O; monomelane; lavender-colored pleochroic crystals; unaltered biotite, or Centennial mine, Calumet, Mich. Compare calomite. Hay, MM, 1964; Flitner.

1964.
anthophyllite. A close-brown orthorhombic amphibole, (Mg,Fe)₃Si₆O₁₈(OH), usually massive, and of a color due to oxidation of the magnesium, a metallicate of magnesium and iron. It is a variety of asbestes. 

C.M.D. Dana 17.

anthophyllite. From Greek anthrax, coal, also, a precious stone; combing forms used commonly to denote substances resembling or derived from coal or fossils found in the coal measures.


anthophyllite. Obtained by the distillation of coal tar. Used in the manufacture of dye-stuffs Crayon.

anthracene oil. A heavy green oil that distills over from coal tar above 270° C and is the principal source of anthracene, phenanthrene, and carbazole. Webster 3d.

anthracene. An old name for coal tar later transferred to mineral coal. Tomkeieff, 1954. See also anthrax.

anthracite. A grouping name for coal, anthracite, peat, etc. Tomkeieff, 1954.

anthracite. Containing or yielding anthracite. Webster 3d.

anthracite. A brownish resin found in the coal measures; also, a precious stone; combinings used commonly to denote substances resembling or derived from coal or fossils found in the coal measures.

Tomkeieff, 1954.

anthracite. a. A hard, black lustrous coal containing a high percentage of fixed carbon and a low percentage of volatile matter. Commonly referred to as hard coal, it is mined in the United States, mainly in eastern Pennsylvania, although in small quantities in other states. B.C.I. 1947. Probable identical with attrite. Webster 3d.

b. Nonagglomerating anthracite coal having 92 percent or more, and less than 7 percent of ash, dry-matter-free) and 8 percent or less, and more than 2 percent of volatile matter. (Dry, mineral-matter-free). A.S.T.M. D388-38 c. A black coal with semimetallic luster, semiconchoidal fracture, and volatile-matter content usually less than 7 percent. Carbon content is 80 to 85 percent in France, 85 to 93 percent in Pennsylvania, and 85 to 95 percent in Wales compared to 70 to 85 percent carbon in bituminous or soft coal. Anthracite ignites with difficulty, produces no smoke, burns at first with a very short black flame; that disappears after the coal is thoroughly ignited, and produces an intensely hot fire. Also called hard coal.

Kilkenny coal; stonelump.

anthracite. a. Having a greater hardness than the anthracites.

b. See large-diameter bore machine.

anthracite coal. Used refractory. A manufactured refractory comprised substantially of calcined anthracite coal.

ASTM C71-64

anthracite coal sizes. Will pass through

<table>
<thead>
<tr>
<th>Name of size</th>
<th>Will pass through</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broken</td>
<td>41/16 in. round mesh</td>
</tr>
<tr>
<td>Egg</td>
<td>34/16 in. round mesh</td>
</tr>
<tr>
<td>Store</td>
<td>27/16 in.</td>
</tr>
<tr>
<td>Chestnut</td>
<td>19/16 in.</td>
</tr>
<tr>
<td>Pea</td>
<td>15/16 in.</td>
</tr>
<tr>
<td>Buckwheat</td>
<td>9/16 in. round mesh</td>
</tr>
<tr>
<td>No. 1</td>
<td>9/16 in. round mesh</td>
</tr>
<tr>
<td>No. 2 (Rice)</td>
<td>5/16 in. round mesh</td>
</tr>
<tr>
<td>No. 3 (Barley)</td>
<td>3/16 in. round mesh</td>
</tr>
<tr>
<td>No. 4</td>
<td>2/16 in.</td>
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<tr>
<td>No. 5</td>
<td>1/16 in.</td>
</tr>
</tbody>
</table>

anthracite coal. Will not pass through

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anthracite coal. Massive fibrous of the lungs marked by a tumidity, consisting of breath from inhalation of carbon and quartz dusts. Also called miner's phthisis. Webster 3d.

anthracite. A coal-black bituminous marble or limestone usually emitting a foul smell when rubbed. Webster 3d. Also called stinkstone; stone coal.

anthracite. A short form of anthracite.

anthracite. A brownish resin found in coal and partly soluble in ether, the remaining insoluble black powder is called anthracene. Webster 3d.

anthracite. A dense black powder obtained from a resin in the coalbeds of Brandrlil, near Schlak in Bohemia, after the resin is treated with nitric acid which dissolves the schlanie, leaving the insoluble portion, anthracene. Webster 3d.


anthracite. Sizes of anthracite smaller than barley. Jones.


anthracite. Variant of anthracocilikis. Webster 3d.

anthracite. A highly graphitic coal. One specimen contained 97.1 percent fixed carbon. A.G.I. Supp. b. Anthracite material occurring in veins in Precambrian slate of the Sudbury district, Ontario, Canada. A.G.I. Supp. b. Introduced by R. Thiesen in 1920. Used microscopically, anthracite generally reveals some of the original plant structure. Cellular inclusions indigenous to the original plant structure. Cellular inclusions indigenous to the original plant tissue are assigned to the anthracite when present. Conventionally, anthracite must be more than 14 microns thick perpendicular to the bedding plane. Microscopic material resembling anthracite in color and transmissibility but less than 14 microns wide is included with translucent humic degradation matter. Color is orange to red brownish-red; the depth of color increasing with rank and the thickness of the thin section. Cellular inclusions may vary in color from reddish-brown to light yellow. In general, plant structure is revealed by slight differences in the tint of cell walls and cell fillings. Anthracite that is transitional into the and is tint than normal anthracite of the same rank, and cell structure is more clearly shown. It is present in quantities of carbon in structure. It is present in quantities of carbon in structure. Anthracite is a black, bituminous coal containing 50 to 70 percent of anthracite, b. By the physical variations in coal that make it possible to classify coal material by type. A.G.I.


Anthracocilikis. A synonym of anthracocilikis. See also Molucca.

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antiphlogistic device. A cushioning device to prevent the breakage of fragile or delicate objects.

antikline. A fold which is convex downward, having the same general form as a syncline, but the two sides dip in opposite directions, and the limbs generally form a more nearly parallel alignment.

anticlinal. Relating to or denoting an anticline.

anticline. A fold which is convex downward, having the same general form as a syncline, but the two sides dip in opposite directions, and the limbs generally form a more nearly parallel alignment.

anticline, a. Inclining in opposite directions. Having or relating to a fold in which the sides dip from a common line or crest. Of or pertaining to an anticline. The opposite of synclinal.

anticline axis. The medial line of a folded structure from which the strata dip in either direction. Fay. b. A line of hills, or a valley, is composed of strata, which on the two sides dip in opposite directions, the imaginary line that lies between them and towards which the strata on each side rise, called an anticlinal axis.

anticline bend. An upwardly convex flexure in which one limb dips gently towards the apex and the other limb dips more steeply away from it. Compare syncline, monocline.

anticline. A fold or range of hills, or an arch-shaped form. Gordon.

anticline mountain. Using the terms anticlinal and synclinal in their commonly accepted sense, we propose to apply the phrases anticlinal or synclinal mountain or range to designate ridges formed respectively by a convex and concave flexure of the strata.

anticline theory. The theory that water, oil, and gas accumulate in the order named in upwarped strata, provided such a structure contains reservoir rocks in proper relation to source rocks and an impervious barrier. A.G.I.

anticline valley. A valley which follows an anticlinal axis. The term was used as early as 1862 by C. H. Hitchcock. A.G.I.

anticline, a. A fold or range of hills, or an arch-shaped form. Gordon.

anterior. Relating to the part of an organism on the side opposite the posterior or hind part.

anterior or anterior. Of or relating to the part of an organism on the side opposite the posterior or hind part.

anterior. Of or relating to the part of an organism on the side opposite the posterior or hind part.

anterior. A. Trivalent and pentavalent antimony forms a comparatively small part. Pettijohn.

anterior. Antimonious. A salt or ester of antimonious acid; a compound containing the radical SbO⁺₄, Sb₄O⁻₇, or Sb₂O⁻₆ (diantimonate) in which antimony has a +5 valence. A.G.I. b. A salt contains pentavalent antimony and oxygen in the anion.

anterior. Antimonial arsenic. A native compound of arsenic and antimony of which the antimony forms a comparatively small part. Members of this series with antimony greater than arsenic dimorphous with polybasite, which has a unit-cell 8 times as large.

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antimony. A. Trivalent and pentavalent metalloid element that is commonly metallic silver white, crystalline, and brittle yet rather soft but is known also in black amorphous, unstable yellow, and explosive forms, that occurs in the free state but more often combined in minerals (as stibnite, kermesite, valentine, and ceylanite) and in ores of other minerals (as lead), that is prepared chiefly from sanite storage battery plates (4 to 12 percent), in lead for shrapnel (10 percent), and in various nonferrous alloys. Symbol, Sb; atomic weight, 120.2; specific gravity, 6.7; thombohedral.

anticline. Antimony. a. A trivalent and pentavalent metalloid element that is commonly metallic silver white, crystalline, and brittle yet rather soft but is known also in black amorphous, unstable yellow, and explosive forms, that occurs in the free state but more often combined in minerals (as stibnite, kermesite, valentine, and ceylanite) and in ores of other minerals (as lead), that is prepared chiefly from sanite storage battery plates (4 to 12 percent), in lead for shrapnel (10 percent), and in various nonferrous alloys. Symbol, Sb; atomic weight, 120.2; specific gravity, 6.7; thombohedral.

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antimony crucud

antimony crucud. The name given to the molten, high-grade sulfide that drains away from the metal (antimony metal) when it is poured. It is also known as antimony vitreous or antimony glass. It is used as a flux in the manufacture of lead glass and as a source of antimony trisulfide.

antimony glass. A glass obtained by the fusion of antimony metal with fluorine in a crucible. It is used as a flux in the manufacture of lead glass and as a source of antimony trisulfide.

antimony glass, antimony vitreous, antimony white, antimony yellow, antimony orange, antimony red. A variety of antimony compounds that are used in the production of glass and as a flux in the manufacture of lead glass.

antimony ocher. An impure product of the antimony ore, native antimony. It is used as a flux in the manufacture of glass and as a source of antimony trisulfide.

antimony ore. The mineral from which antimony is obtained. It is a sulfide, antimony(III) sulfide, or antimony(II) sulfide.

antimony oxide; antimony trioxide; antimony dioxide. A compound of antimony and oxygen. It is used as a flux in the manufacture of glass and as a source of antimony trisulfide.

antimony trisulfide. A compound of antimony and sulfur. It is used as a flux in the manufacture of glass and as a source of antimony trisulfide.

antimony yellow. A color obtained by the fusion of antimony metal with fluorine in a crucible. It is used as a flux in the manufacture of glass and as a source of antimony trisulfide.

antimony red. A color obtained by the fusion of antimony metal with fluorine in a crucible. It is used as a flux in the manufacture of glass and as a source of antimony trisulfide.

antimony orange. A color obtained by the fusion of antimony metal with fluorine in a crucible. It is used as a flux in the manufacture of glass and as a source of antimony trisulfide.

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anvil block. A massive block of cast iron which rests in a bed of steam and other heavy hammers, for the absorption of the vibration due to the blows struck into it by the iron anvils embedded in it. May be concrete. *Crispin.*

anvil jaw. See anvil. *Long.*


apachite. Suggested by U.S., from the Apache or Davis Mountains of western Texas. For a variety of phoniolite, that differs from typical phonolites. It has almost as much amphibole as pyroxene, whereas amphibole is rare in normal phonolite. The feldspar of the groundmass is generally microperthite. *Fay.*

apatic. A hydrous ferric sulfate, found in yellow nodules in clay. *Fay.*

apatic, a. Flanupatite, CaF(PO₄)₂; and 3Ca·PO₄·CaF₂; hexagonal; transparent to opaque; low gray polarization colors; Mohs' hardness; 5; specific gravity, 3.2. Rock phosphates ex guano deposits and beds of bone have not been defined by an optical composition. *Prior,* 3; Chlapartite, CaCl(PO₄)₂; and 3CaF·PO₄·CaCl₂; hexagonal; transparent to opaque; low gray polarization colors; Mohs' hardness; 5; specific gravity, 3.2. Phosphate content less than 90 percent. Rock phosphates ex guano deposits and beds of bone have no definite chemical composition. *Prior,* 3.


aperiodal damping. Case whereby damping is carried to the extreme so that the mass returns into the position of equilibrium without oscillating. *Prior,* 3; *American Petroleum Institute.*
apex a. The highest or uppermost point; the summit; the top; the peak. For example, the apex of a mountain. The end, edge, or crest of a mineral vein nearest the surface. *Webster* 3d b. The highest point of a stratum. *American Petroleum* 1964 c. The top of an anticlinal fold of strata. *Fay.* d. The point of highest elevation on an alluvial fan, usually at the point where the stream emerges from the mountain. *A.G.I.* e. In United States mining law used to designate the highest limit of a vein defined. *Fay.* f. The top of an inclined section. *Pryor,* 3.
apex angle. A right angle included angle measured between the slopes of the inside faces of a concave, nonconning bit, which may range from as small an angle as 70° to a maximum of about 120°. *Long.*
apex law. a. This law gives the owner of a properly located claim on a vein the right to an indefeasible right on the whole length of the vein beyond the vertical planes through the side lines of his claim. In order to secure the claim owner must clearly set off the ends of the claim parallel and of substantial length. A triangular claim would have no apex right and cannot be patented. A similar law of extralateral rights. *Levis,* p. 32 b. Obsolete mining law allowing the owner of a lode to follow it for a distance of 1000 feet on the vertical, the tension of the legal surface boundaries.


Apold-Fleissner process. An aplanate lens composed of three portions cemented together to eliminate spherical aberration. A more popular name for the aplanat. *Shipley.*
apoldite. See a. *A.G.I.*
apoplinite. A rock texture showing two generations of the same mineral but having no phenocrysts, Roosenbusch's incorrect porphyritic. *Fay.*
apo-plagioclase. See *felsite.*
apolymorphite. A rock containing phenocrysts in an aphanitic groundmass; some porphyric igneous rocks. *Fay.*
apoplasmonic. A lens free from both spherical and chromatic aberration. A more correct term for an aplanatic lens. *Shipley.*
apolytriplite. An aplanate lens composed of three portions cemented together to eliminate spherical aberration. A more popular name for the aplanat. *Shipley.*
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Apollon-Fleissner process

47

ore and as a preheating flue for the air, which rapidly oxidizes the ferrous oxide in the upper regions of the furnace. The quantity and temperature of the hot gases and cold air are carefully regulated, so as to keep the carbon dioxide constant, and so to ensure thorough roasting of the ore at the lowest possible temperature. A furnace roasting 200 to 450 tons per day requires about 160,000 to 200,000 kilogram-calories per ton, giving a heat efficiency of 71 per cent Osborn.

apophasitic. a. Applied to mineral deposit of magmatic origin developed in surroundings which do not reveal its immediate relationship to a body of parental eruptive rock: the existence of the latter may, however, still be determined from the occurrence of dikes, the phenomena of con act metamorphism, etc. Schielecker. b. Applied to deposit in the area surrounding the intrusive center at a moderate distance. A.G.I.

apophite. Calcium potassium silicate with water, color white to pink with strong pearly lustre on the face parallel to the cleavage plane; common in cavities in talc bodies. A.G.I.

apophysis. A branch from a vein or a dike to which it is attached. An epiphysis is the same, but it is not attached. Fay. A small dike is injected from a larger intrusive body into adjacent rocks. A.G.I.

apophyllite. A former felsite, the groundmass of which was once glassy but is now devitrified. A.G.I.


apulite. One of the gneis that were sometimes used to symbolize the apophyses in the Middle ages: Jasper, Petr.obsolete, St. Andrew; chalcedony, St. James; emerald, St. John; sardonyx, St. Philip; carnelian, St. Bartholomew; chrysolite, St. Matthew; beryl, St. Thomas; chrysoprase, St. Thaddeus; topaz, St. James the Less; hyacinth, St. Simeon; and amethyst, St. Matthias, Hess.

Apperson, see also. A large group of methods used to determine the density of a porous solid, particularly a refractory brick. It is defined as the volume of the solid material plus the volume of any sealed pores and also of the open pores. Dodd.

apparent specific gravity. a. The ratio of the weight in air of a given volume of the impermeable portion of a permeable material (for example, with all capillary pores and voids) at a stated temperature to the weight in air of an equal volume of distilled water at a stated temperature. ASCE P1826, b. This property is determined by the standard method of dividing the weight of a rock by the weight of an equal volume of water. The term apparent specific gravity is used because water cannot penetrate the closed pore spaces inside the rock, and hence the specific gravity measured by water displacement methods includes the effect of internal pore spaces as well as that of the constituent minerals. Lewis, p. 575.

apparent strain. The stress corresponding to a given unit strain on the assumption of uniaxial stress. It is calculated by multiplying the unit strain by the modulus of elasticity, and may differ from the true stress because the effect of transverse stresses is not taken into account. Re, apparent superposition. The actual or visible order in which strata lie in any locality. Standard, 1964.

apparent strain. The differential quotient of the distance along a line on the surface over the increase in time of arrival of a wave. Schielecker.

apparent volume. True volume plus closed-pore volume. FF.

apple coal. Scott. Soft or loose coal which is easily mined and breaks into small pieces. Lewis, p. 574.


applied pressure. Without a stated time, the pressure applied to the material (for example, the solid matter inside the rock, and hence the specific gravity measured by water displacement methods includes the effect of internal pore spaces as well as that of the constituent minerals. Lewis, p. 575.

apparent specific gravity. a. The ratio of the weight in air of a given volume of the impermeable portion of a permeable material (for example, with all capillary pores and voids) at a stated temperature to the weight in air of an equal volume of distilled water at a stated temperature. ASCE P1826, b. This property is determined by the standard method of dividing the weight of a rock by the weight of an equal volume of water. The term apparent specific gravity is used because water cannot penetrate the closed pore spaces inside the rock, and hence the specific gravity measured by water displacement methods includes the effect of internal pore spaces as well as that of the constituent minerals. Lewis, p. 575.

applied pressure. The apparent force of a surface or material divided by its exterior volume or apparent volume. A.S.M. Gloss.

apparent strength. The stress corresponding to a given unit strain on the assumption of uniaxial stress. It is calculated by multiplying the unit strain by the modulus of elasticity, and may differ from the true stress because the effect of transverse stresses is not taken into account. Re, apparent superposition. The actual or visible order in which strata lie in any locality. Standard, 1964.

apparent strain. The differential quotient of the distance along a line on the surface over the increase in time of arrival of a wave. Schielecker.

apparent volume. True volume plus closed-pore volume. FF.

apple coal. Scott. Soft or loose coal which is easily mined and breaks into small pieces. Lewis, p. 574.
apron. a. A canvas-coveled frame set at such
approved apparatus.
approvement scrawl. An account showing
appropriation. In the mining law, the posting
approach to
aoppropriation. A term for yellowish-red,
approval piste. A label which the U.S. Bu-
amoebas fabric; printery fabric. A primary

b. An amalgamated copper plate placed
an angle in the miner's rocker that the
english.
apricot-colored quartz pebbles from near
gaseous coal mines. Bureau of Mines Staff.
1965, sec. 7.
Quarries Act. 1954. or Regulations made
ister
safe, that has been approved by the Min-
not necessarily flameproof or intrinsically

designated by those adopting the rules;
equipment. By this means, the manufac-
attach to every completely assembled ma-
priory. 3.

prybou. A conduit for conveying water
from. with, or by means of water. Pro-
water. Webster 2d.

als and in etching. Webster 3d. It dissolves

ammonia by weight. Webster 3d.
acids, usually in the propor-

acid with 3

low liquid made by mixing nitric and
hydrochloric acids. Used in dissolving met-
able.

rhythm add. A very corrosive, fuming
hydrochloric acid. Used in dissolving met-
to trap

also conveyor-type feeder.
rate of feed is adjusted either by varying

such a conduit. Hem.

igneous meaning of water and heat. Web-
water.

b. Melted with water, changing physical and chemical environ-
genent artuakes in the

also conveyor-type feeder.

on stamp bat-

the marking of the

b. Pertaining to water; also, to sediment
from. with, or by means of water. Pro-
water. Webster 2d.

basis of aquifer description. Fay.

a. A gel-forming colloidal bentonite clay

pulp is caught by the quicksilver on the
part by volume of pure nitric

just, as did the an-

k. Where an ice

and spread their
drains in front of the terminal moram-
free or freemium.

Some greenish-blue,
sometimes pale blue tourmaline. Shipley.

a. A synthetic aqua-

a synthetic aqua-

an emerald, and often

greenish-blue, and sporad their

aquamarine emerald. Trade name for a
genuine-blue or aquamarine triplet. See
also emerald triplet. Shipley.

aquamarine glass. A term loosely used for
any light-blue or greenish-blue glass, regard-
less of its chemical composition or physical
properties. Shipley.

aquamarine sphalite. Pale blue sphalire.
Shipley.


aqueous homogeneous reactor

aquapling. A lightweight apparatus used for
underwater exploration. It consists of tans
of air or oxygen carried on

the back of a diver, a breathing tube, and
a face mask for breathing that per-

mits underwater observations to depths of
about 300 feet uncomplicated by an air

how leading to the surface. Also called
scuba or SCUBA, the letters of which
stand for self-contained underwater breath-

aq uamarine. Pale blue (green) variety of
beryl (BeAlSi3O6). Pryor 3.

aquamarine chrysolite. Greenish-yellow beryl
Shipley.
aquamarine triplet. A genuine triplet which
is used to simulate emerald, and often
incorrectly called an emerald triplet. It
consists of two portions of aquamarine with
a crinkled layer of green coloring matter
between them. Shipley.
aquarOMETRY. Analytical procedures used in
mineralogic or inorganic analysis. Fay.

1962 Add.

aqurose; nitrohydrochloric acid; nitrom-
plastic acid. A very corrosive, fuming yellow
liquid made by mixing nitric and
hydrochloric acids. Used in dissolving met-
tals and in etching. Webster 3d. It dissolves

aquaduct. A conduit for conveying water
over long distances; a bridge supporting
such a conduit. Hem.
aquadra. A combining form for aqueous,
denoting aqueous. And for example, aque-
ojenous meaning of water and heat. Web-
ster 2d.
aquadration. Of, pertaining to, or resulting
from the combined action of ice and
water. Webster 2d.
aquadraugmentation. Of, pertaining to or result-
ning from the joint influence of heat and
water. Webster 2d.
aquadraugmentation. Of, pertaining to or hav-
ing the characteristics of water: watery. Made
from, with, or by means of water. Pro-
duced by, with, or by means of water. Webster 3d.
b. Pertaining to water; also, to sediment
deposited by water. A.G.I.
aquadraugment. A Cf., relating to, or having the
characteristics of water; watery. Made
from, with, or by means of water. Pro-
duced by, with, or by means of water. Webster 3d.
b. Pertaining to water; also, to sediment
deposited by water. A.G.I.
aquadraugment. A combining form for aqueous,
denoting aqueous and. For example, aque-
ous cesium carbonate. Shipley.
aquadraugmented. Of, pertaining to, or result-
ning from the combined action of ice and
water. Webster 2d.
aquadraugmentation. Of, pertaining to or result-
ning from the joint influence of heat and
water. Webster 2d.
acquous homogeneous reactor

aquiclude. A formation which, although porous and capable of absorbing water slowly, will transmit it fast enough to furnish an appreciable supply for a well or spring.

Aquifer. A well, or a group of wells, that are so connected with a water-bearing stratum that they will yield water in sufficient quantity to be of value as a source of supply.

Aquifer. A stratum or bed of permeable rock or sediment, beneath the water table, through which a well may be drilled to obtain water. See Water table.

Aquifer. A rock or stratum that is capable of producing water, from which water may be supplied through a well.

Aquifer. A rock or stratum that is capable of producing water, which may be supplied through a well.

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Aquifer. A rock or stratum that is capable of producing water, which may be supplied through a well. arch girder
arch girder

architectural term castas. Plain or ornamented (machine-extruded or handmolded) hard fired clay building units, generally larger in size than brick and most facing tile, and having a crazed or unglazed ceramic finish in an unlimited variety of colors. See also ceramic veneer. AGSG.

arch kilns. Alternative name for muffle. See also muffle.


arch rib. The main load-bearing member of a ribbed arch. Ham.

arch steel. Steels and steels used to support mine workings. Pryor, 3.

arch structure. See abutment, a; pressure arch, N.B. See also arches a.

arch furnace. See imber furnace. Dodd.

arch melting. Melting metal in an electric arc furnace. AGSG.

arch welding. A group of welding processes wherein coalescence is produced by heating one or more parts, or without the application of pressure and with or without the use of filler metal. Coal Age, 3, May 1961, p. 91.

arc welding electrode. See electrode. AGSG.

arc welding. A group of processes wherein the arc is used to melt metal in the normal way. AGSG.

arc welding. A white or light yellow hydrous silicate of calcium, magnesium, and aluminum, possibly 11,(Ca,Mg)O·Al2O3·3SiO2. Dana. 6th ed., p. 713.

arc welding. The method by which the arc is used to melt metal in the normal way. AGSG.

arc welding. The space between arc terminals in which vapor is formed by the arc. AGSG.

arc welding. The space between arc terminals in which the arc is sustained. AGSG.

arc welding. A group of processes wherein coalescence is produced by heating one or more parts, or without the application of pressure and with or without the use of filler metal. Coal Age, 3, May 1961, p. 91.

area. The area of a surface or the area of a curved surface is the number of square units contained by the surface. AGSG.

area. A plane region bounded by a finite number of curves. AGSG.

area. Same as arc. Standard, 1954.

area 2. A word used in certain expressions. See also metal stock, wood stilt.

area of contact. The total area of the surface of a rock or rock unit in contact with the wall of the tunnel. AGSG.

area of settlement. The surface area affected by subsidence. Bridge, 23. p. 5.

area of a new. The area which it area. 2.

area. The area of a surface or the area of a curved surface is the number of square units contained by the surface. AGSG.

area. A plane region bounded by a finite number of curves. AGSG.

area. A word used in certain expressions. See also metal stock, wood stilt.

area of a new. The area which it area. 2.

area. The area of a surface or the area of a curved surface is the number of square units contained by the surface. AGSG.

area. A plane region bounded by a finite number of curves. AGSG.

area. A word used in certain expressions. See also metal stock, wood stilt.
arenaceous

angered. Reduced to or mixed with sand. Standard, 1964.


argentic. Of, pertaining to, or containing silver. A.G.I.

argentiferous. Containing silver. A.G.I.


argent aim. A yellow, brownish hydrous basic sulfate of iron and silver, AgFe(SO4)2. Small scales. Hexagonal. From Divad, Utah. English.

argentopigrite. A questionable silver iron sulfide said to occur in small six-sided twin crystals. Fay. argentous. Of, pertaining to, or containing silver. Used especially for compounds in which silver is in the univalent state; for example, argentous oxide (AgO). Webster 3d; CCD 6d, 1961.

argentile. Full of grit or fine sand; gritty. Standard, 1964.


arenaceous. Resembling sandstone; having the texture of sandstone; composed of sandstone. A.G.I.

arenite. A consolidated rock having the texture of sand regardless of its composition. A.G.I.

arenolite. An artificial siliceous-argillaceous calcareous stone. CCD 3d, 1942.

arenose. Full of grit or fine sand; gritty. Standard, 1964.

argal. See argol. Fay.

argin. Referring to movement whereby the ore is caused to move forward by the action of rabbles extending across the hearth. Fay.

argal. A variety of asphaltic sandstone. Fay.


argonite. A clayey sandstone containing a considerable proportion of clay. Fay.

argonite. a. A clayey limestone. A limestone with appreciable clay or sand as impurity. Certain varieties are useful as a material for cement manufacture and are called cement rock. CCD 6d, 1961.


argonite. a. Inorganic oxides. Iron oxides. In the chemical composition of pigments, the iron oxides are usually the principal constituents. Fay.

argonite. a. A silicate of calcium, iron, and magnesium, FeO, 0.02; MgO, 0.02. Monoclinic. One of the amphibole group. American Mineralogist, v. 43, No. 7-8, July-August, 1958, pp. 797- 798; Dan. 17.


argonite. A rock alteration in which certain primary and/or secondary minerals are converted to clay minerals. A.G.I. Supp.

argonite. Clay minerals. Minerals occurring in sulfide ore and that are characterized by a later formation than sericite. Chemical data indicates that calcium and sodium are generally removed from the rock to a significant degree. Water and silica remain constant or increase slightly. Leoni, p. 506.

arginite. A rock formed either from siltstone, claystone, or shale, that has undergone a somewhat higher degree of induration than exists in those rocks. Arginite is intermediate in composition between the rocks named and shale. Its cleavage is approximately parallel to its bedding, thereby differing from slate. An argilite may be argillaceous, bituminous, calcareous, carbonateous, ferruginous, siliceous, etc. A.G.I.

argonification. The replacement or alteration of feldspars to form clay minerals, especially in wall rocks adjacent to mineral veins. A.G.I.


argyrode. A double sulfide of germanium and silver, Ag2GeS4. Fay.

argyrargyrite. A clayey lime, clayey. Fay.

argyrargyrite. A clayey lime, clayey. Fay.

argyroplatiniferous. Composed of or containing germanium and silver. Fay.

aryodianized plaster. Plaster that has been treated, which being heated in the kiln, with deliquescent salt, for example, CaCl2; it is
claimed that this produces a strong plaster having more uniform properties. Dodd.
arithmetic mean. In statistical methods, the
average of a number of observations. pryer, 3.
arithmetic mean particle diameter. A measure
of the average particle size obtained by
summing the products of the size-grade
midpoint times the mass of particles in
each class, and dividing by the total
frequency. A.G.I.
Arizona perlite. Peridot from Arizona, usu-
ally found in small sizes and light tones.
Shipley.
Arkansas ruby. A pyrope from Arizona.
C.M.D.
Arkansas spinel. See Arkansas ruby. Hess.
arizolite. A name for a type of ore. The
principal vein mineral is micaceous iron,
iodide of silver, gold, sulfures of iron, and
antimony. Hey, M.M., 1961. A dike rock,
composed mostly of quartz, some ortho-
class, and with accessory mica and apatite.
Obsolete. A.G.I.
arkose. A rock in which coal was floated
down the rivers to tidewater. It made one
trip and was broken up at its destination,
the timber sold, and the hardware returned
to the point of origin. Korsen. A large
vat used in the pottery industry for the
mixing or storage of clay slip. Dodd.
Arkansas diamond. A rock crystal from Ar-
kansas. Shipley. A diamond from a mine
near Murfreesboro, Arkansas. Shipley.
Arkansas pearl. Freshwater pearls from rivers
in Arkansas, once a larger producer of
 pearls than any other state. Shipley.
Arkansas stone. A true novaculite used as
an oilstone for sharpening tools or instru-
ments. Found in the Ozark Mountains,
Ark. See also Novaculite, Fay.
arkansite. A brilliant, iron-black variety of
brookite from Magnet Cove, Ark. Fay.
arosite. The cubic phase of ZrO2. Hey, M.M.,
1964.
arosite. A rock of granular texture formed
largely of pseudoojite and nepheline, with sub-
ordinate melanite and pyroxene, and acces-
sory orthoclase, apatite, and sphenite.
The pseudoojite usually occurs as phenocrysts.
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A.G.I.
aromatic hydrocarbon

1 to 2 feet long with a ring at the other end and used in surveying; a thin metal pg. Mason.

1. Indian arrowheads mostly made of quartzite, more rarely of obsidian or other fine-grained rock. Schaller, arroyo. a. The channel of an ephemeral stream or an intermittent stream, usually with vertical banks of unconsolidated material 2 feet high, or higher. USGS Bull. 73, 1921; p. 82. b. Vertically-walled, flat-footed channel of an ephemeral stream in the semiarid southwestern United States. A.G.I. c. Sp. A small stream; a gutter. Usage varies and in some Latin-American countries arrow includes gorges of major proportions. McKinstry.

arsenagrite. Possibly a silver arsenide, AgAs. Dana 6d, p. 63.

arsenic, salt or ester of an arsenic acid; a compound containing one of the three radials in which arsenic has a +5 valence: AsO3 (orthoaesnate), AsO5 (metaaensate), or AsO5 (pyrosenate). A.G.I.; Handbook of Chemistry & Physics, 42 ed. 1964, p. B-100. b. An industrial term for an oxide of arsenic. ASTM C162-66.

arsenical copper. Copper containing up to about 0.6 percent arsenic. This element slightly increases the hardness and strength and raises the recrystallization temperature. Used for firebox stays, etc. C.T.D.


arseniochloride. See arseniochloride.

arsenokinetic. See arsenokinetic. Hay, 1925.

arsenolinite. A white, odorous, tasteless powder; AsO, Used in ceramics. C.C.D 6d, 1961.

arseniochlorido; arseno chlorido. A colorless or pale yellow, oily acid; AsCl3. Used in ceramics. C.C.D 6d, 1961.

arsenio trisulfido; white arsenic; arsénico trisulfuro. A white, odorous, tasteless powder; AsS3. Used in the manufacture of pigments, glass, and other arsenic compounds; ceramic enamels, aniline colors; and in the manufacture of. C.C.D 6d, 1961. b. Isometric and monoclinic crystals. Handbook of Chemistry & Physics, 45th ed., 1954, p. 51-3.

arsenio trisulfido: orpimento. AsS3; molecular weight, 246.04; yellow or red; monoclinc; specific gravity, 3.43; melting point, 300° C; boiling point, 707° C; and soluble in water and in ethyl alcohol. Bennett 2d, 1950.

arsenio, white. See arsenio trisulfido.

arsenio. A compound in which arsenic is the negative element; for example, cobalt arsenide (CoAs). Standard, 1964. Arsenic unites with most metals to form arsenides; for example, with iron to form diarsenic, FeAs. Arsenides are decomposed by water or by dilute acids with the formation of arsenic. C.T.D.

arsenious. Of, relating to, or containing arsenic. Used especially in compounds in which arsenic is trivalent. C.T.D.


arsenic. A salt or ester of the acid arsenious, AsO3 (OH)2; a compound containing the radical AsO3 or AsO55. A.G.I.

arsenio, orpimento. A white crystalline compound; AgAs. Standard, 1964.

arsenio, orpimento. A compound consisting of a certain oxide of mercury, mercury arsenide, AgAs. Standard, 1964. Arsenic unites with most metals to form arsenides; for example, with iron to form diarsenic, FeAs. Arsenides are decomposed by water or by dilute acids with the formation of arsenic. C.T.D.

arsenio, yellow. A yellow, strongly aromatic hydrocarbon; As(C2H5)3. Standard, 1964. Spectrographic analysis showed a mixture of tert. and secondary arsines. Standard, 1964. Arsenic unites with most metals to form arsenides; for example, with iron to form diarsenic, FeAs. Arsenides are decomposed by water or by dilute acids with the formation of arsenic. C.T.D.


arsenio trisulfurido. Orpimento. AsS3; molecular weight, 246.04; yellow or red; mono-clinic; specific gravity, 3.43; melting point, 300° C; boiling point, 707° C; and soluble in water and in ethyl alcohol. Bennett 2d, 1950.

arsenio, white. See arsenio trisulfuro.

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arsenurancorite. Synonym for heinrichite; it is not clear which name has priority as applied to a natural mineral. Hey, M.M., 1955.

arsenurane. The arsenate analogue of phosphurane, which it closely resembles except for some minor color differences. Coll. 1910.


arthritis. A Russian measure of volme equal to 12.7 cubic feet. Fay.


arsotracehyte. An olivine trachyandesite containing phenocrysts of sanidine, oligoclase, augite, and olivine in a trachytic groundmass containing interstitial glass. The lava of Ischia Island Italy. Holmes, 1928.

art. See airborne radiation thermometer. Hy.

arterial road. A main road with secondary roads joining it. Ham.

arterite. a. A migmatite that was produced by regional contact metamorphism in the course of which residual magmas were injected into the rock. See also migma-
tite; venite. A.G.I. b. A gneiss containing veins formed from the solutions rising from a deep-seated magma. A.G.I. c. A veined gneiss in which the vein material was injected from a magma. Venite is a veined gneiss of similar aspect and composition, but differs from arterite in that the vein material was derived by secretion from the rock itself. When it is impossible to distinguish between arterite and venite, the term phlebithe is used. A.G.I.

arterite migmatite. Injection gneiss supposed to be produced by the introduction of peg-matite, granite, or aplite into schist parallel to the foliation. A.G.I.

artesian. a. Refers to ground water under sufficient hydrostatic head to rise above the aquifer. a. Ground water that is under sufficient pressure to rise above the level at which it is confined by a well, but which does not necessarily rise to or above the surface of the ground. A.G.I. b. Ground water that rises in a permeable bed and that rises under pressure to ap-
proximately the height of the intake. If the point of intake is appreciably below the height of the intake, the water will flow out under pressure. If even with or above the height of the intake the water will rise in the well but it will not flow out. Bateman, 1964, sec. 2.

artesian well. a. A well in which the water level rises above the top of the aquifer, whether or not the water flows at the land surface. A.G.I. b. Formed, only applied to a well drilled to a depth where, owing to the structure of the strata, the water pressure is high enough to raise the water to the surface. Standard, 1964. c. Often applied to any deep well, even where pumping is necessary in an ordinary driven well. Standard, 1964.

arthropoda. Consist of animals divided into a number of parts in series, each equipped with a pair of legs. Crustaceans resemble lobsters and crabs, spiders and insects. The most important fossil type is the trilobite which has been variously lived in Paleozoic times only. It consisted of seg-
ments divided into three portions, the seg-
ments are joined to the head with jaws and antennae and the tail and chest portion have feet for swimming and gills for breathing. Fay.

arthritine. Thin apple-green crusts on quartz consisting of an intimate mixture of pharo-


artilaculine. Synonym for italcumite. A.G.I.

artificial. Aging above room temperature. See also aging; precipitation heat treatment. Compare natural aging. ASM Gloss.

artificial cementing. Consolidation of loose soils for which three methods are generally used: (1) cementation, (2) the Jooston process of chemical consolidation, and (3) freezing. Ham. See also soil stabilization. artificial earthquake. Resulting from indus-
trial or traffic commotion, explosions, etc. Schieferdecker.

artificial hatching. A harbor constructed by building breakwaters around an area of sea to provide protection for shipping. Ham.

artificial heavy spar. Sphalerite.

artificial horizon. In surveying, a surface of liquid mercury used in connection with measurement of height of run by means of sextant. Pryor 3.

artificial liquid fuels. Fuels created by the hydrogenation of coal, the destructive dis-
tillation of coal, lignite, or shale at low temperature, and by a recombination of the constituents in the presence of a suitable catalytic Bureau of Mines Staff.

artificial mineral; synthetic mineral. A min-
eral formed artificially (synthetically) in the lab-topasy, as distinguished from a

arsenic containing. a. A univalent aromatic radical of aryl. A.G.I.

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fibrous serpentine; amosite is fibrous antho- groups. The two main varieties are amosite and crocidolite, which have a fibrous structure, are heat resistant, and are used in the manufacture of asbestos cement and asbestos linings for furnaces.

asbestos minerals. Certain minerals which have a fibrous structure, are heat resistant, chemically inert and possess high electrical insulating qualities, and are of sufficient strength to be handled with ease. The asbestos minerals are serpentine and amphiboles.

Asbestos proper is actinolite. Chrysolite is fibrous serpentine; amosite is fibrous antho- phylite; crocidolite is fibrous soda-amphi- bole. Used in fireproof buildings, insulating, paint materials, rubber, plastics, clutches, in- solution against heat, electricity, and acid.

Asbestos is a yarn consisting of either asbestos fiber, asbestos and vegetable fibers; asbestos and vegetable fibers with an insert of asbestos fiber yarn reinforcement. Metallic asbestos yarn is yarn consisting of plain asbestos yarn twisted with brass, copper, or other wire. It is also called wire inlaid yarn. Plain asbestos yarn is

asbestos. a. A soft, earthy manganese dioxide, containing up to about 32 percent cobalt oxide. C.M.D. Some time, termed as earthy cobalt. Asbestos. See asbestine.

ascendant. The vector representing the rate of increase of a property. See also gradient.

ascensional ventilation; antidotal ventila- tion. A mine ventilation system in which the fresh intake air flows into the bot- tom end of the workings and then ascends along the faces to the main return. The air is heated as it travels along the face which assists its uphill flow. The system is advantageous in gassy mines as the fire- damp also tends to flow upwards. See also descensional ventilation. Nelson.

classy tumble. A mixture of small fragments of greenish clay quartz, etc. Fay.

ash bed. A deposit or a bed of volcanic ash. Ash bed. A deposit of volcanic ash forming the cone of a volcanic eruption. USGS Bull., 524, 1933, p. 68.

ash content. The percentage of incombustible material in a fuel; that portion of a laboratory sample remaining after heating under standard conditions to constant weight, that is, until all the combustible material has been burned away. See also ash yield. Nelson.


ash curve. A graph that shows a relation be- between the specific gravity of fractions of a coal sample floated in liquids of step-by- step increased density, and the percentage of ash in each such fraction. Pryor, 3.

ash drawers. Early name applied to tournai- line because of its electrical property. Ship- ley.

ash error. The difference between the per- centage ash of a product of a separation and that shown by the washability curve (based on the reconstituted feed) of a product with the same properties (usually percentage of ash). B.S. 3552, 1962.

ashes. The residue left after the fuel has been burned. Also called cinder. Muirton, P. 746.

ash fall. a. A rain of airborne volcanic ash falling from an eruption cloud. It is characteristic of explosive eruptions. A.C.I. b. A deposit of volcanic ash resulting from such a fall and lying on the surface of the earth. A.C.I. Supp. d. Tuff that, in color, texture, and general appearance resembles ashes. Also called volcanic ash.

ash field clay. A clay of Yorkshire, Eng- land. The raw clay contains approximately

be those prescribed in the Standard Meth- ods of Laboratory Sampling and Analysis of Coal and Coke (American Society for Testing and Materials. ASTM D212-62, b. The physical resistance to removal of coal to constant weight under standa- conditions. In general, it differs in weight and composition from the origi- nal mineral matter. B.S. 3618, 1964, sec. 5.

c. Volcanic dust and particles less than 4 millimeters in diameter. A.C.I. Supp.
ash field clay

57 per cent, SiO₂, 27 percent Al₂O₃, 1.7 per cent Fe₂O₃, and 1.3 percent alkalies. Dodd.

ash into a blob. Below.

ash, volcanic. An admixture of volatile ash. Generally, a highly heated mixture of volcanic gases and ash traveling down the flanks of a volcano or along the surface of the ground and produced by the explosive disintegration of viscous lava in a volcanic crater or by the explosive ejection of gas-charged ash from a fissure or a group of fissures. The solid materials contained in a typical ash flow are generally unsorted and ordinarily include volcanic dust, pumice, scoria, and blocks in addition to ash. A.G.I. In a deposit of volcanic ash and other debris resulting from such a flow and lying on the ground surface. A.G.I. c. Synonym for ignimbrite. A.G.I. Supp.

ash furnace. A furnace or oven for fritting materials for glassmaking. Also called ash oven. Webster 3d.

ash fusibility. A measure, in terms of temperature, of the ease of fusion of coal ash prepared and tested under standard conditions. B.S. 3552, 1962.

ash fusion temperature. Indicates the temperature at which a special test cone made from a known ash obtained from the coal will (1) begin to deform, that is, soften, or (2) completely deform or fuse according to the time of deformation. A.G.I.

Ashgillian. Upper Ordovician. A.G.I.

ashlar. a. A block of stone, as brought from ordinary sand and volcanic ash. A.G.I. Supp.

ashlar masonry. Masonry composed of rectangular units of ashlar clay or slate, or stone, generally larger in size than brick and properly bonded, having sawed, dressed, or rough-faced surfaces. BuMines Bull. 630, 1965, p. 877.

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asphalt. a. A bitumen of variable hardness and viscosity or solid, low gravity hydrocarbon. Fay.

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asphalt. a. A bitumen of variable hardness and viscosity or solid, low gravity hydrocarbon. Fay.
asphaltic pyrobiteumen

asphaltically hard, and nonvolatilizable solids, sub- 
stantially free from oxygenated bodies, in-
fusible and insoluble in carbon disulfide. It 
includes clasticite, wurtzilite, albrite, impomise, and asphaltic pyro-
bitumen. See pyrobiteumen. Shell Oil Co.

asphaltic sand. One of the solid hydrocarbons that differ 
from asphalt in being insulable and gen-
erally insoluble in carbon disulfide. A.G.I.

asphaltic sandstone. See sandstone; asphalt 
rock; asphalt stone. Limestone im-

asphaltite. a. Black to dark brown naphtha 
material; asphaltum. See asphalt, c. Fay.

asphalt mastic. The mixture of asphalt ce-
ment and mineral material which on heat-
ing becomes a thick mass and may be 
poured and troweled. Shell Oil Co.

asphaltness. The quantity of asphalt con-
tained in petroleums expressed as a per-
centage of the total mass. Petroleum Age, 
v. 1, February 1, 1923, p. 37.

asphalt oil. a. Containing asphalt or having an 
asphalt base, as distinguished from oil 
having a paraffin base. Crispin.

asphalt rock; asphalt stone. Limestone im-

asphalt snal. The creation of a trap by the 
decrease in permeability of a reservoir as 
the result of the transformation of petro-
leum into asphalt. A.G.I.

asphalt stone. See asphalt rock. Webber 3d.

asphaltum. See asphalt, c. Fay.

asphyxiate. To suffocate; to choke. Massa.

aspirate. a. An appliance, such as a suction 
pump, exhaust fan, or the friction of a 
water jet, for causing a movement of gases 
or liquids by suction. Hess. b. A device 
made of wire gauze, cloth, or of a fibrous 
material held between pieces of mesh 
metal; a filter used to filter the lungs or 
or having a canister of activated charcoal 
or other substances through which the air 
breathes must pass to prevent the passage 
of noxious gases into the lungs. Also 
called inhaler; muzzle. Hess.

assay, a. To test ores or minerals by chemical 
or blowpipe examination; to determine 
the proportion of metals in dust by smel-
ning in the way appropriate to each. Gold 
and silver require an additional process 
called cupellation, for the purpose of sepa-
rating them from the base metals. See also 
fire assay. Fay. b. An examination of a 
mineral, an ore, or an alloy differing from 
a complete analysis in that it deter-
mines only certain ingredients in the sub-
stance examined, whereas an analysis de-
termines everything it containing. Fay. c. A 
means of ascertaining the commercial value 
of a mineral substance, as, for example, 
ore or black sand, or the product of a 
mill or smelter, either by a fire or a wet 
process, and it is termed ordinary assays, 
commercial assays, specimen assays, control 
assays, and umpire assays. See also crucible 
assay; dry assay; scorification; wet assay. 
Ricketts.

assay balance. A very sensitive balance used 
in the assaying of gold, silver, etc., for 
weighting the breccias; usually has magnifi-

ing lenses for reading the graduations. 
Webster 3d.

assay, complete. One sufficiently detailed to 
show structural associations of required 
elements, or to account adequately for all 
the constituents of the ore. Pryor, 3.

assayer. One who analyzes ores and alloys, 
especially bullion, to determine the value and 
properties of their precious metals; 
separates precious metals from dross ma-
terials by solution, flotation, or other li-
quid processes, or by dry methods, such 
as the application of heat to form slugs of 
lead, borax, and other impurities; weighs 
residues on calibrated balances to deter-
mine the proportion of pure gold, silver, 
platinum, or other metals in the 

assay limit. The limit of an ore body estab-
lished by the low cost of valuable 
mineral as determined by assays. A.G.I.

assay master. A chief or official assayer. 

assay office. A laboratory for examining ores, 
usually gold and silver ores, in order to 
determine their economic value. Standard, 
1964.

assay plan. Map of a mine showing the assay 
stop, width, etc., of samples taken from 
positions marked. Used to control grade 
quality of ore mined and milled. Pryor, 3.

assay plan factor; correction factor. In 
sampling, a term used to describe the 
rate which the head value bears to the 
mass sampling. This percentage figure is 
useful in reducing any extant or frequent 
mine-scale variations in the mass sampling 
which, if in actual production it will likely prove 
to be. In South Africa this is generally known as 
the "mine call factor." Truscott, pp. 
98-99.

assay pound. A varying weight, sometimes 

half a gram, used by assayers as propor-
tionately representing a pound. Standard, 
1964.

assay split. Agreed average value between 
the buyer's and seller's assayers, used as a 
price-fixing valuation of mine products. 

assay ton. For a long ton (2,240 pounds 
avoidopus) 32,667 grams, and for a 
short ton (2,000 pounds avoidopus) 
29,166 grams. The number of milligrams 
of bullion obtained from one assay ton 
equals determined from assays. Hess.

assey. a. The amount of the gold or 
silver, in ounces per ton of ore, as shown 
by assay of any given sample. An average 
assay value is the weighted result obtained 
from a number of samples, by multiplying 
the assay value of each sample by the 
width or thickness of the ore face over 
which it is taken, and then dividing the 
totals of these products by the total width 
of cross section sampled. The result ob-
tained would represent an average face 
value sample. Fay. b. The average value of gold 
everywhere. An average assay value of 
several samples cannot be taken as an 
absolute mathematical demonstration of the 
value of an ore body nor is the assay 
return necessarily conclusive of the value 
of the thing assayed; it may, however, tend 
to prove discovery. Ricketts, i. e. The per-
centage of a specified element or compound 
in a given sample. Trace values may be 
reported in other ratios, for example, parts 
per million. Pryor, 3.

assessable. That ore to which an ore body 
can be profitably mined, the limiting fac-
tors being the metal content of the country 
and determined from assays. Hess.

ASSE Abbreviation for the American Society 
of Safety Engineers, Williams.

assemblage zone. A stratigraphic unit de-

nominated and identified by a group of associ-
ated fossils rather than by a single index 
faunal. Synonym for cenozo. Compare 
range zone; faunzone; florzone. A.G.I.

assay split. See dry assay; scorification; wet assay.

assay walls. The planes to which an ore body 

is taken, and then dividing the 

assay value of each sample by the 

a number of samples, by multiplying 

assay value is the weighted result obtained 

as the application of heat to form slags 

of pure gold, silver, platinum, or other metals in 

the laboratory sample. D.O.T. 1.

assay foot. The area multiplied by the 

number of feet across which the sample 

is taken. Fay. Compare assay inch. 

assay grade. The percentage of an element 
or compound in a representative sample, 
as found by analytical test (assay). Pryor, 3.

assay inch. In valuation of an ore body, the 

assay value multiplied by the number of 

inches along which a sample of ore has 

been cut by grooving or channeling. The 

distance is normal to enclosing rocks so 
as to refer the sample to true width of 

the assay value of each sample by the 

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of cross section sampled. The result ob-
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assessable. That ore to which an ore body 
can be profitably mined, the limiting fac-
tors being the metal content of the country 
and determined from assays. Hess.

assessment work. a. The sum that the officers 
of a mining company levy on the stock held 
by shareholders. Fay. b. See assessment 
work, Fay.

assessment drilling. Drilling done to fulfill 
the requirement that a proscribed amount 
of work be done on an unpatented mining 
claim to retain title. Long.

assessment labor. Refers to the annual labor 
required of the locator of a mining claim 
after discovery and not to work before 
discovery. Ricketts, 1.

assessment work. The annual work upon an 
unpatented mining claim on the public 
domain necessary under the United States 
low to maintain the maintenance of the 
title thereto. Same as annual labor. Fay. 
After filing location notice and performing the 
required discovery work within a few months 
from the date of discovery, the locator must 
perform two more years of work to prove that he has the 
right to a mining claim. The land must be 
it. In the first year, the locator is 
required to bring in per ton of ore. Pryor, 4.

assessment value. a. The amount of the gold 
or silver, in ounces per ton of ore, as shown 
by assay of any given sample. An average 
assay value is the weighted result obtained 
from a number of samples, by multiplying 
the assay value of each sample by the 
width or thickness of the ore face over 
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assessment. The value to which an ore body 
can be profitably mined, the limiting fac-
tors being the metal content of the country 
and determined from assays. Hess.
must be done each year if the claim is to be held without patenting. Lewis, p. 27.

asbestos. A mineral with high tensile strength and very low friction. It is used in building materials and as a fireproofing material. See also asbestos cement.

asset. Property with cash sale value. In mining, the dominant asset is the proved ore reserve. Pryor, 3.

assignment. Transfer by deed of asset from one person to another. See also assignment.

assimilation. a. The process by which rock from the containing walls of an intrusion is absorbed by solution in the invading magma, either in situ (or nearly so) at the contacts; or in depth, by the sinking into the magma of blocks or fragments of country rock stopped from the roof above the intrusion. Hess. b. The incorporation of a magma of material originally present in the wall rock. The term does not specify the exact mechanism or the results. The assimilated material may be present as crystals from the original wall rocks, newly formed crystals including wall-rock elements, or as a solution in the liquid phase of the magma. The resulting rock is called a hybrid. Also, the process is termed magmatic assimilation. A.G.I.

assistant mine foreman. An official appointed at many large collieries in Great Britain with a status between the undermanager and manager. The assistant mine foreman is not a foreman, although he has no legal authority over the undermanager. He is often delegated to give concentrated supervision to any special operations, thus allowing the undermanager to carry on with his routine duties. He is often a graduate with a first-class certificate of competency who may be in need of managerial experience. Nelson.

asthenosphere. The hypothetical, concentric, spherical shell within the earth, tens of kilometers below the surface and of undefined thickness, which is a shield of weakness where plastic movements take place to permit isostatic adjustments. Asthenosphere.

astic. Not taking a fixed or definite position or direction; as, an instrument in which a negative restoring force has been applied so as to aid any deflecting force, thereby rendering the instrument more sensitive and/or less stable. A.G.I.

astic gravimeter. A gravity meter or gravimeter constructed so that a high sensitivity is achieved at the positions of the elements of the system employed, that is, the equilibrium becomes neutral at such positions. See also gravimeter. A.G.I.

astic pendulum. Having almost no tendency to take a definite position of equilibrium. Schieferdecker.

astatic. A rare radioactive element in group VII (halogens) of the periodic table. atomic number 85, first announced by Allison and Murphy as alabamine in 1929. Renamed astatine by Segre, McKenzie, and Corson who produced astatine 211 in 1940 by a bombardment of bismuth with high-energy (32 mev) alpha particles. Symbol, At; valences, 1, 3, 5, and 7; and the mass number of the most stable isotope, 210. Gaynor.

astatization. The application of a negative restoring force to a moving element of a physical system in such a manner as to drive the moving element away from its rest position and to deflecting force, so as to increase sensitivity. A.G.I.

astatum; ostatil. A Russian name for a petro- leum rock. Until about 1870 it was considered a useless article, and was disposed of by burning in open pits near the refineries. Gaynor.

aster. A precious stone which, when cut en cabochon, displays a 6- or 12-rayed star due to asterism. Star sapphire and star ruby display this character. C.T.D.

asteriated. Like a star, with rays diverging from a center. Shipley.

asteriated beryl. A variety of beryl which in thin sections exhibits asterism. As yet of no geological importance. Shipley.

asteriated quartz. Quarts having whitish or colored radiations within the crystals. Standard, 1964.

asteriated stone. A stone, such as asteriated ruby, sapphire, etc., exhibiting a star by either reflected or transmitted light. See also star stone. Shipley.

asteriated topaz. A yellow topaz, usually yellow cornudum, called Oriental topaz. Schaller.

asterism. a. Starlike rays of light observed in some minerals when viewed from certain directions. Often the mineral is cut en cabochon. Minerals having this feature are called asteriated or star. Asteri- ated or star beryl, chrysoberyl, crocidolite, emerald, quartz, ruby, and topaz are known. Hess. b. A starlike effect observed in certain minerals either by transmitted or reflected light.


asthenosphere. The hypothetical, concentric, spherical shell within the earth, tens of kilometers below the surface and of undefined thickness, which is a shield of weakness where plastic movements take place to permit isostatic adjustments. Asthenosphere.

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astral. Applied to the stage in the formation of the earth when it glowed with incandescent light like a molten globe.

Astrall, an. A noun of astrally.

Astrallite. A mineral, CuCl(OH),; blackish-green color, orthorhombic. A.G.I.; Dana 17. Also called green sand of Peru. Fay.

Astrallite. An igneous rock with a glassy base; containing small quantities of sillimanite, and locally cordierite. Orthoclase, augite, and biotite occur as microscopic crystals; from the Monashee Mountains, southern British Columbia. U.S.S.R. Holmes, 1928.

Atactic. Proposed by Keyes (1901) to be applied to unstratified ore deposits, as contrasted with ore deposits that are stratified, or eutaxic. Holmes, 1920.

Ataxite. A brecciated, or irregularly mot ted, composite volcanic rock in which the broken fragments of one lava flow are irregularly distributed in another. A similar term may also be applied to occur in certain minor intrusions. Holmes, 1928. b. A general term for varieties of igneous rocks which contain less nickel than hexahedrites or more nickel than octohedrites, and in which the structure of the lamellae is interrupted. Holmes, 1928.

Atectonic. Applied to a geologic event that occurs when orogeny is not taking place. Synonym for nontectonic. A.G.I.

Atectonic pluton. A pluton that is emplaced after orogeny is not occurring. A.G.I.


Atlas. A general term for varieties of igneous rocks which contain less nickel than hexahedrites or more nickel than octohedrites, and in which the structure of the lamellae is interrupted. Holmes, 1928.


Atlas spar. Same as satin spar. Shipley.


Atlasses. A. Malachite. Shipley.

Atlantic type of coastline. The trend of the folded mountains before the appearance of the mid ocean. Compare Pacific type of coastline. A.G.I.

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Aquatic. Proposed by Grabau for a rock fragment broken in situ either by chemical or mechanical means. A.G.I.

Atmospheric rock. A rock fragment broken in situ by chemical or mechanical atmospheric influences. Synonym for atmolastic. Schieferdecker.

Atmospheric. Applied to rocks of atmospheric origin, whether derived by condensation (as snow, névé, and glacier ice), by wind action, or by deposition by volcanic vapors; used chiefly for rocks and minerals. Stokes and Vernes, 1925.

Atmosphere. A rock precipitated from the atmosphere; for example, snow, névé or frrn, and snow ice. A.G.I.

Atmosphere. An instrument for measuring the evaporation of water, ice, and snow. Oberson.

Atmosphere. Proposed by Grabau for a rock fragment broken in situ either by chemical or mechanical means. A.G.I.

Atmospheric. Proposed by Grabau for a rock fragment broken in situ either by chemical or mechanical means. A.G.I.
atmosphere. a. The gaseous envelope surrounding the earth. The atmosphere is odorless, colorless, tasteless; very mobile, flowing readily under even a slight pressure gradient; elastic, compressible, capable of unlimited expansion, a poor conductor of heat, but able to transmit vibrations with considerable velocity. Its weight has been calculated at 5.9 x 10^14 tons. One-half the mass of the atmosphere lies below 3.46 miles above sea level. The ordinary term for the mixture of gases comprising the atmosphere is air, which also includes water vapor and solid liquid particles. A.G.I. b. A unit of pressure. A normal atmospheric pressure is equal to the pressure exerted by a vertical column of mercury 760 millimeters in height at 0° C, and with gravity taken as 980.665 centimeters per second squared. 1 torr equals 14.696 pounds per square inch. A.G.I. c. The entire continuous spherical layer of air surrounding the earth. The atmosphere contains the earth's waters in the gaseous, liquid, or solid state. A.G.I. d. In a furnace, the mixture of gases resulting from combustion. Kinney.

atmospheric water. Water which exists in the atmosphere in the gaseous, liquid, or solid state. A.G.I.

atomic mass unit. A unit of mass for expressing the mass of an atom. A.G.I.

atomic number. The number of particles in an atom's nucleus. Pryor, 3. A total of 100 elements is known. Each element is designated with its atomic number, which is equal to the number of protons in its nucleus. A.G.I. Supp.

atomic orbit. A region in space where the probability of finding an electron is high. A.G.I.

atomic plane. Any one of the layers into which the atomic structure of a crystal may be divided. A.G.I.

atomic radius. The distance from the center of an atom to the surface of the atom. A.G.I. Supp.


atomicity. A. Of an element or compound, the number of atoms contained in its molecules. Cooper.

atmospheric pressure. a. The force per unit area exerted by the atmosphere in any part of the earth's atmosphere. Some of the expressions for the normal value of the atmospheric pressure at sea level are: 76.0 centimeters of mercury; 29.92 inches of mercury; 760 millimeters of mercury; 1,013.25 millibars for the weight of a vertical column of air, corrected back to a detector tube, thus providing a continuous measure of moisture content. This meter will permit the moisture content of coal to be measured instantaneously, continuously, and automatically. Bureau of Mines Staff.

atomic number. A. The number of protons in the nucleus of an atom. Each chemical element has its own atomic number and together the atomic numbers form a complete series from 1 (hydrogen) to 103 (lawrencium) in order of increasing atomic weight. There are several exceptions. See atomic power. L&L. b. The number of an element which when arranged with others forms a periodic table. See atomic number. Pryor, 3. A total of 100 elements is known. Each element is designated with its atomic number, which is equal to the number of protons in its nucleus. A.G.I. Supp.

atomic orbit. A region in space where the probability of finding an electron is high. A.G.I.

atomic power. The thermal capacity of an atom, that is, the product of the atomic weight and specific heat of an element. Cooper

atomic hydrogen welding. An arc-welding process wherein coalescence is produced by heating with an electric arc are maintained between two metal electrodes in an atmosphere of hydrogen. Shielding is obtained from a gas mixture of 75% hydrogen and 25% carbon dioxide. Pressure may not be used and filler metal may or may not be used. Coal Age, v. 66, No. 3, Mar. 1961, pp. 91-92.

atomic mass. The mass of any species of atom usually expressed in atomic mass units. Webster 3d.

atomic mass unit. A unit of mass for expressing the mass of an atom. A.G.I.

atomic moisture meter. A device designed by the U.S. Bureau of Mines to monitor the moisture in coal passing through a preparation plant, by using radiation that is sensitive to hydrogen atoms. The coal is bombarded with neutrons, some of which strike hydrogen atoms and bounce back to a detector tube, thus providing a continuous measure of moisture content. This meter will permit the moisture content of coal to be measured instantaneously, continuously, and automatically. Bureau of Mines Staff.

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atomic power

clear power. See also nuclear energy. NRC-ASA No. 1-1957.

atomic proportions; atomic ratios. The proportions or ratios in which the various atomic species occur in a substance. It is obtained by dividing the total weight of each substance by the atomic weight of that substance. When recalculated to atoms per 100 atoms total, the values are atom-percent. A.G.I.

atomic radius. The radius of an atom or the average distance from the center to the outermost electrons of the neutral atom. It is commonly expressed in angstrom units (10^-10 centimeters). A.G.I.

atomic scattering factor. Mean amplitude of wave of X-rays scattered by atoms in a crystal lattice plane. Fryer, J.

atomic structure. The arrangement of atoms in a substance. Shipley

atomic theory. The theory that all substances are composed of infinitesimally small particles or atoms. Crispin

atomic volume. a. The space occupied by a quantity of an element as compared with its atomic weight. Obtained by dividing the specific gravity of the element by its atomic weight; also called specific volume. Standard, 1964. b. The volume occupied by 1 gram atom of an element. C.T.D.

atomic weight. a. The average relative weight of an element as it occurs in nature referred to some element taken as a standard. Hydrogen is sometimes assigned an atomic weight of 1 but oxygen with an atomic weight of 16 is usually taken as a basis. Houtermans 2d, 1954.

The average relative weight of the atoms of an element referred to an atomic weight of 16.0000 is usually taken as a basis. Hydrogen is sometimes assigned an atomic weight of 1.

atomic weight or the most abundant oxygen isotopic factor ascribed by A. Atterberg. Dodd.

attached carbon dioxide. Carbon dioxide dissolved in water and in equilibrium with the dissolved carbon dioxide not contained in carbonate ions. A.G.I. Supp.

attached crystal. One which is attached to the mother rock, usually singly terminated. Shipley

attached dune. A drift of sand which the wind adds or attaches to an obstacle in its path to make the shape of the obstacle less resistant to the wind. Such a dune, which may occur on the windward and/or leeward sides of the obstacle, may range widely in size and form. A.G.I.

attached ground water. That portion of the subsurface water adhering to the pore walls. It is assumed to be equal in quantity to the pellicular water, and it is measured by specific retention. A.G.I.

attached island; land-locked island. An island which has become attached to the mainland by temporary connections or by sediments filled with water. A.G.I.

attack rate. Planned rate of ore extraction from mineral deposit. Fryor. 3.

attial. See ial

attapulgite. A light green, magnesium-rich clay mineral, named from its occurrence at Attapulgus, Ga., where it is quarried as fuller’s earth. Crystallizes in the monoclinic system. Also called palgorskite. A.G.I.

attitude. The angle of inclination of a bed of strata or of the surface of a rock or other planar feature with respect to the horizontal plane. The attitude of planar features (bedding, foliations, joints, etc.) is described by the strike of the horizontal projection of the plane and the dip. The attitude of a linear feature (fold axis, lineation, etc.) is described by the strike of the horizontal projection of the linear feature and its plunge. A.G.I.

attitude. a. Point that revolves. Denny.

attenuation. a. The fractional decrease of the intensity of an energy flux, including the reduction of intensity resulting from geometrical spreading, absorption, and scattering. ASTM Gloss. b. All losses in sound intensity of an energy flux, including the energy absorbed or scattered by a material. A.G.I.

attrition. The relation of some directional feature in a rock to the horizontal plane. The attitude of planar features (bedding, foliations, joints, etc.) is described by the strike of the horizontal projection of the linear feature and its plunge. A.G.I.

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attrition. A method for determining the plasticity of clay in terms of the difference between the plastic limit and the liquid limit. See A. Atterberg test. Dodd.

Atterberg test. A method for determining the plasticity of clay in terms of the difference between the plastic limit and the liquid limit. The test was first proposed by A. Atterberg. Dodd.

Atterberg scale. A proposed particle-size scale or grade classification for the sediments based on a decimal system beginning with 2 millimeters. The limits of the subclans are obtained by taking the square root of the product of the upper and lower grade limits. The subdivision thus made follows the logarithmic rule. This is the accepted European standard for classification of sediments. A.G.I.

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attritional coal. A bright coal (composed of anthracites and of anthracite) in which the translucent cell-wall degradation matter or translucent humic matter predominates) in which the ratio of anthracene to attritus is less than 1:3. Compare anthracite-coal. A.G.I.

attrition. a. The act of wearing down together or of wearing down. The condition of being worn down or of being ground down by friction. The wear of the solid surface of a particle moving along the boundary between the solid and liquid state. Also, the removal of ice from a glacier by melting or evap-
attrition. *Webster* 3d. b. The act of wearing and smoothing of rock surfaces by the passage of sand drifts, the descent of glaciers, etc. See also corrosion. A.G.I. c. The wear and tear that rock particles in transit undergo through mutual rubbing, grinding, knocking, scraping, and bumping with resulting comminution in size. Compare abrasion. A.G.I.

attrition mill. a. One which grinds abrasively, using rubbing action to disintegrate material, not impact battering. Pryor, J. A. A disintegrator depending chiefly on impact to reduce the particle size of the charge. Attrition mills are sometimes used in the clay building materials industry to deal with the tailings from the edge-runner disintegrator. Dodd.

attrition milling. Milling which reduces the gangue, including a large percentage of heavy minerals present in disseminated concentrates, to slimes or sizes smaller than the diamond particles to be recovered. As much as 90 percent of the gangue can be removed as slime by attrition milling without any noticeable loss of diamond due to comminution. Attrition milling is also reported to clean the diamond and make it easier to recover in subsequent steps. The mills are run at about one-third to one-half the critical speed to avoid cascading of the grinding media. A.G.I.

Auger. A general term for enditic achondrites (meteorites) consisting almost wholly of crystalline glassy enstatite (and diopside) low in calcium and practically free from ferrous oxide, with accessory diopside. A.G.I.

Auger. a. A drill for seismic shotholes or geophone holes modeled after the conventional carpenter's screw auger. Hence, any seismic shothole or geophone hole in which the cuttings are mechanically continuously removed from the bottom of the bore during the drilling operation without the use of fluids. A rotary drilling device used to drill shotholes or geophone holes in which the cuttings are mechanically removed without the use of fluids. A.G.I. b. Any of various augerlike tools designed for boring holes in wood or for boring into soil. Hard steel or tungsten-carbide-tipped cutting teeth used in an auger run in a torque box or backhoe. An auger head run on a continuous-flight auger. Long.

Auger. b. Boring. The hole and/or the process of drilling a hole using auger equipment. Long.

Auger-drill head. Tool that holds the auger bits (cutting teeth), run on continuous-flight auger. Long.

Auger fork. A tool used to span the top of an auger-drill hole and engage and support the weight of a string of continuous-flight augers. Long.


Auger hole. A hole drilled with powered-auger equipment. Long.

Auger mining. a. A machine for the manufacture of xicodistillation retorts. Similar to machines used for manufacturing drain pipes. Fay. b. In ceramics, a machine for extruding plastic clay through a die by means of a revolving auger or screw to form clay products such as brick, sewer pipes, drain tile, etc. *Bureau of Mines Staff*.

Auger tasting. A mining method often used by the mining operator when the burden gets too thick to be removed economically. Large-diameter, spaced holes are drilled up to 200 feet into the coal bed by an auger. Like a bit used for boring holes in wood, this consists of a cutting head with screw-like extensions. As the auger turns the head breaks the coal and the screw carries it back into the open and turns the coal into fine particles. This, in turn, carries the coal to an overhand bin or loads it directly into a truck.
auger mining

Auger mining is relatively inexpensive, and it is reported to recover 60 to 65 percent of the bed of the coal. See also auger, borehole. Bureau of Mines Staff.

auger-nose tool. Eng. A clearing tool used in boring for coal, etc., having an auger or tube which is wobble. Fay.

auger stem. The iron rod to which the bit is attached in rope drilling. Standard, 1964.


aura. A solid-white solution of gold and osmium in cubic iridium (as distinct from a solid solution of iridium, etc., in hexagonal osmium). Isometric. Grains. From the Uralis, U.S.S.R. English.

auriferous. Of, pertaining to, or containing gold in the univalent state; for example, aurous chloride (AuCl). Standard, 1964.

aurum. The element, atomic number 79, with an atomic weight of 196.9665. It is regarded as the precious metal and is symbolized Au. Institute of Metals.

aurichalcite. A carbonate of zinc and copper in the hexagonal system. It is normally of a yellowish green and contains zinc and copper up to 20 percent nickel. Bolivian origin. Holmes, 1928, b. Applied to a mineral formed by a sedimentary process as a crystallographic unit at the place of its occurrence. A.G.I. c. Applied to a mineral which originated in sediments at the time of, or after, their deposition. The term indicates local derivation rather than from transported matter. A.G.I. d. Applied to growth in the place of occurrence. Secondary enlargement is included. A.G.I. e. Pertaining to a mineral that was formed, at the location where it now occurs, before the burial and consolidation of the containing sediment. An authigenic mineral is the product of chemical and biochemical action. A.G.I. f. The original mineral in which the mineral now occurring was formed prior to its burial by another material. A.G.I.

auriferous pyrite. Iron sulfide in the form of pyrite, containing gold, probably in solid solution. C.T.D.

aurigean. Gold-bearing; auriferous.


authigenic. a. Generated on the spot. Authigenic minerals are those that are generated on the spot, and which were formed in situ. Liddell 2d, p. 493.


aurorubidite. A. A zone in the country rock surrounding an igneous intrusion, and in which zone, contact metamorphism of the country rock has taken place. Also called a contact aureole or a contact zone. A.G.I. b. In some thin sections of rocks, an outer zone of a mineral or of minerals that surrounds another mineral. Bureau of Mines Staff.


auric. Of, pertaining to, or containing gold in the univalent state; for example, auric chloride (AuCl). Standard, 1964.

aurichalcite. A basic carbonate of zinc and copper in the hexagonal system. It contains CO3-3 (Zn, Cu) (OH); monocline; green to blue color. Danz 17.


auriferous. Containing gold. Fay.

auriferous deposits. Gold-bearing deposits; localities, grades, and their oil saturated equivalents, which contain gold in detrital grains or nuggets. See also banket; placer deposit; saddle reef. Nelson.


authigenous; authigenic

ed with that of some other minerals which may have been brought from a distance. Part of the mineral constituents of any rock that have formed in place, as in an igneous rock. Compare allochogenic. Johannesen, n. 1, 2d, 1939, p. 167.

autoclaviform. A constituent of a metamorphic rock which, in the formation of the new rock, had its crystal outlines or boundaries altered. Johannesen, n. 1, 2d, 1939, p. 167.

authorized. In Great Britain, the regulations made by the Minister (Smoke Control Areas) for authorized Fuel-Consumptions, 1956, authorized fuels include coke of all kinds, anthracite, low volatile steam coals, bituminous, coalled, R exco, etc., as well as oil, gas, and electricity. Nelson. 

authorized person. An authorized person is either one appointed or permitted by the official designated by State mining laws to be in charge of the operation of the mine or one appointed to perform certain duties incident to generation, transformation, and distribution of electricity in the mine. This person shall be familiar with construction and operation of the apparatus and with hazards involved. A.J.A. M.1-1963.

to. A combining form meaning self, from the Greek auto. Webster 2d.

autoclave. A closed strong vessel for conducting chemical reactions or sterilization under high pressures. Benett 2d, 1962.

autoclad. A special form of highly hydrated dolomite, largely utilized for structural purposes, that has been hydrated under pressure in an autoclave. Boynton.

autoclastic. a. In Alpine geology, a succession of beds which was moved comparatively little from the original site of formation. A.G.I. Supp.

autoclastic schist. A schist that was formed in place from massive rocks by crushing and squeezing. Automatic describes a rock which has been brecciated in place by mechanical processes. See also augen gneiss; augen schist; cataclasite; crushed breccia; crushed conglomerate; mylonite; phylolite; protoelastics. A.G.I.

autoclar. A cleared strong vessel for conducting chemical reactions or sterilization under high pressures. Benett 2d, 1962.

autoklava. A revolving cylinder with no balls or bars for the crushing of rocks or clays. See also kulikov. Letouzey. 1956.

autochthon. Applied to a rock that has been brecciated in place from massive rocks by crushing and squeezing. Automatic describes a rock which has been brecciated in place by mechanical processes. See also augen gneiss; augen schist; cataclasite; crushed breccia; crushed conglomerate; mylonite; phylolite; protoelastics. A.G.I.

autochthony. a. In the dense-media separation process, the term itself can be distinguished between terrestrial and aquatic. Also called indigeneous; authigenic; authigenous. a. In Alpine geology, a succession of beds which was moved comparatively little from the original site of formation. A.G.I. Supp.

autogenous. a. In the dense-media separation process, the term itself can be distinguished between terrestrial and aquatic. Also called indigeneous; authigenic; authigenous. a. In Alpine geology, a succession of beds which was moved comparatively little from the original site of formation. A.G.I. Supp.

authogenic; authigenic

autochthonous. Applied to a rock that has been brecciated in place from massive rocks by crushing and squeezing. Automatic describes a rock which has been brecciated in place by mechanical processes. See also augen gneiss; augen schist; cataclasite; crushed breccia; crushed conglomerate; mylonite; phylolite; protoelastics. A.G.I.

automaton. A case which is constantly changing because its course is dependent upon the slopes of the alluvium the stream deposits itself as fans or alluvial plains, for example. A.G.I.

autoregressive. Pertaining to a rock metal cylinder by the use of momentary internal pressure exceeding the yield strength. ASM Gloss.

autogenetic. a. Drainage by streams the courses of which have been determined solely by the conditions of the land surface over which they flow rather than their earliest late stream. Webster 2d. A self-established drainage system developed solely by headwater erosion. A.G.I.

autogenous. a. In the dense-media separation process, the term itself can be distinguished between terrestrial and aquatic. Also called indigeneous; authigenic; authigenous. a. In Alpine geology, a succession of beds which was moved comparatively little from the original site of formation. A.G.I. Supp.

auxiliary controller. A device used with certain types of belt conveyors for the taking up or storage of belt during reversible operation. Jones.

automotive. a. A device other than a manually operated device other than a manually operated device other than a manually operated device other than a manually operated device other than a manually operated device other than a manually operated device other than a manually operated device other than a manually operated device other than a manually operated device other than a manually operated device. Nelson. 1928.

automotive anal. A. A. L. a. An automobile analysis which is primarily intended for the analysis of X-rays by the combustible and noncombustible components of the sample. The reflection is compared photoelectrically with a reference sample. Nelson.

automotive belt takeup. A device used with certain types of belt conveyors for the taking up or storage of belt during reversible operation. Jones.

automotive clip; automatic coupling. An appliance for attaching and detaching mine cars or cars without manual effort. They are generally attached at inbye cleating stations and detached at the shaft bottom. See also haulage clip. Nelson.

automotive-closing door. A wooden separation door arranged to close automatically when released by setting the hanging post with a slight pull of the rope. Nelson.

automotive clutch. A clutch whose engagement is controlled by centrifugal force, vacuum, or other power without attention by the operator. Nicholls.


automotive controller. In flotation, a device which operates automatically to regulate a current of water on the basis of some command and a feedback signal. Fuerstenau, p. 541.
automatic control system


automatic counter. A device that automatically couples cars when they bump together. Zern, See also Alliance coupling; Wilson coupling; A.S.F. coupler. Sinclair, V, pp. 278-279.

automatic cutting table. A table upon which a column of clay travels and is cut automatically into bricks by descending wires. Mersereau, 4th, p. 260.

automatic cycle winding. A system of automatic winding in which the complete installation operates without human aid and winding is automatically started by a preset signal. Long. A. automatic dam. In placer mining, a dam that operates automatically to retain water after the trip has passed. These dams are automatically operated by a pass-through mechanism. Nelson.

automatic dryer. A dryer that automatically sets in and forwards through the ore stream at predetermined interval. The time interval is controlled by an electronic timer, and the amount of ore loaded on each cut is governed by the speed of the cut which is controlled by restricter valves. Nelson.

automatic door. A mechanism which maintains a predetermined tension in a conveyor belt. The most common type is the gravity takeup in which a weight acts upon a takeup pulley. NEMA MB1-1956.

automatic press. A press in which the work is fed mechanically through the press in synchronism with the press section. An automatic press is an automatic press which, in addition, is provided with built-in electrical and pneumatic control equipment. ASM Gloss.

automatic pump control. The starting and stopping of a pump, a mechanism actuated by the level of water in the suction well or pump, or by the level or pressure of water in a discharge tank. B.S. 3618, 1963, sec. 4.


automatic reclosing relays. These are used to automatically close circuit breakers. The time interval between reclosures is predetermined. Locked-in means that after the third attempt fails to keep the breaker in, the relay will not function until it is reset manually. Such relays can be designed to operate more than three times before locking out, with the number of reclosures depending on the requirements and design of the system. Coal Age, v. 66, No. 3, Mar. 1961, p. 91.

automatic sampling. Removal from a passing stream of ore, pulp, or solution of a sample at timed intervals and under controlled conditions by means of automatically operated devices. Pryor, 3.

automatic sampling. Snagging by use of semiautomatic grinders where pressure between wheel and work and traverse over work is controlled. One such wheel is hydraulic in action and is actuated from a station removed from the wheel. See also snagging. A.C.S.G., 1963.

automatic splicer. This type is actuated by hydraulically actuated drill-rod clamping device similar to a Wommer safety clamp. See also Wommer clamp. Nelson.

automatic sparkle. A foot and/or hydraulically actuated feed mechanism. Long, b. A pneumatic device used at mill feeds and other operations where pressure between the machine and the work is controlled. Nelson, b.

automatic strake. Sloping deck, around which timbered bottoms, sometimes by legal requirements. Zern.

automatic strake. Sloping deck, around which an endless band of corduroy is moved, the concentrate being washed off as the corduroy is moved around. Words are at the departure end. Pryor, 3, p. 109.

automatic takeup. Any mechanism which maintains a predeter-
autometasomatism

b. The process of alteration in a newly crystallized igneous rock by its own last, water-enriched, liquid fraction which is trapped in the rock, or in an impervious chilled border zone. A.G.I. Supp.

auxetic. A dark green to nearly black zinc spinel. Schaller.

automorphic. Applied to those minerals of igneous rocks that are bounded by their own crystal faces. Rocks that are composed predominantly of an automorphic mineral assemblage have an automorphic-granular or panidiomorphic-granular texture. Contrasted with allotriomorphic, xenomorphic, and ashedral. Synonym for idiomorphic; euhedral. A.G.I.

autometasomatized. Applied to a solidified igneous rock that is metamorphosed by solutions from its own hot interior. A contraction of automatismophen. Huit.

auto-oxidation. Oxidation of minerals on exposure to atmosphere without use of auxiliary reagents. Pryor, 3.


autopinacoid. Stream capture that only involves the parts of a single stream which generally shortens its course, as in the cutting off of a meander. A.G.I. Supp.

autopneumatolysis. A subdivision of the term autometamorphism. It probably should be restricted to metamorphic changes occurring in the pneumatolytic stage of a cooling magma, when the temperatures are approximately 400° to 600° C. A.G.I. A. The development of late minerals in an igneous rock by the action of its own gaseous mineralizing agents; for example, the formation of sanidine, soda-lime, biotite, etc., in the leucite tephrites of Mount Vesuvius, Italy. Halmay, 1920.

autoradiography. An inspection technique in which the radiation spontaneously emitted by a material is recorded pictographically. The radiation is emitted by radioisotopes that are produced in or added to a material. The technique is used to locate the position of the radioactive element or compound. ASM Gloss. See also radiography.

autosite. A rock similar to kersantite (a dark plagioclase-biotite rock) but without feldspar.

autospary. A device for spraying dust carried by loaded conveyors. A liquid medium is sprayed on the conveyor load only when moving and not when stationary, or when the belt is running unloaded. The spray control is placed centrally beneath the conveyer belt and a load causes the belt to deflect and rotate the driving pulley which causes the controller valve to open. A belt stoppage or no load causes the valve to deflect and rotate the driving pulley which causes the controller valve to open. Available Energy. That part of the total energy which can be usefully employed. In a perfect engine, that part which is converted to work. Strock, 10.

available lime. a. Those constituents of a lime which are made available for reaction under the conditions of a specific method or process. ASTM C51-47. b. Represents the total free lime (CaO) content in a quicklime or hydrate and is the active constituent of a lime. It provides a mean of evaluating the concentration of lime. Boynton.

available lime index. The calcium-oxide fraction that is available for immediate chemical reactivity, as in a neutralization reaction. Bennett 2d, 1962 Add.

available moisture. The moisture in soil that is available for use by plants. A.G.I. Supp.

available nitrogen. Water-soluble nitrogen compounds plus that which is rendered soluble or convected to free ammonia. Bennett 2d, 1962 Add.

available nutrients. Consist of ions that are either dissolved in the soil moisture or that are absorbed on the clay minerals of the soil in readily exchangeable form. These nutrients constitute the mineral content of the soil that is immediately available for uptake by the plant. Hawkes, 2, p. 291.

available power. The rate at which a given source would deliver energy to a load if there were no impediment which is the conjugate of the source impedance is designated as the available source power. Horig.

available power for. The available power loss of a transferer connecting an energy source and an energy load is the transmission loss measured by the ratio of the source power to the output power of the transferer. HBG.

available relief. a. The vertical distance between the altitude of the original surface and the flat upland. Bennett, 257. b. The relief that is first attained. A.G.I. The relief that is available for erosion. Bureau of Mines 57.

available silica. Refers to the amount of silica present in a flux which is not slagged by
avalanche. a. A falling mass of snow which, having been detached from a great height in the mountains, acquires enormous bulk by fresh accumulations of snow as it descends. When it falls into the valleys below, it often causes great destruction. Fay, b. An accumulation of snow or of snow and ice, which descends from precipitous mountains like the Alps into the valleys below. An avalanche originates in the higher regions of a mountain and begins to descend when the gravity of its mass becomes too great for the slope on which it rests, or when thawing destroys its adhesion to the surface. A.G.I. c. A large mass of snow or ice, sometimes accompanied by other material, that moves rapidly down a mountain. Avalanche protector. Guardplates that prevent loose material from sliding into contact with the wheels or tracks of a digging machine. Nicholson.

avalanching. In ball avalanches, a falling mass of snow which, having been detached from a great height in the mountains, acquires enormous bulk by fresh accumulations of snow as it descends. When it falls into the valleys below, it often causes great destruction. Fay.
axes

crystal; used as lines of reference. *Huribut.*

*axes, fabric.* In structural petrology, three mutually perpendicular directions in the rock that are the axes of reference in determining the position and symbols of the crystal planes.

*axes of reference.* The coordinate axes to which crystal faces are referred. *Fay.*

*axes, reference.* In structural petrology, three mutually perpendicular axes to which structural measurements are referred. The a axis is the direction of tectonic transport, the b axis is perpendicular to the plane along which the differential movement takes place, and the c axis lies in this plane but is perpendicular to a.* *A.G.I.*

*axes elements.* The a, b, and c fabric axes or coordinates used by structural geologists and petrologists. *A.G.I.*

*axis.* a. The acute angle between the two optic axes of a biaxial crystal; its symbol is ZV. *A.G.I.* b. The angle in a given system between two lines which are, in general, the optic axes; also the angle between the two sets of principal planes. *A.G.I.*

*axis compression.* f. Experimental work with cylinders; a compression applied parallel with the cylinder axis. It should be used in an appropriate sense only in the interpretation of deformed rocks. *A.G.I.*

*axis cut in.* The distortion of a fold axis upward in a form similar to an anticline. *A.G.I.*

*axis elements.* The axis ratio and the angles between the axes of a crystal. *Fay.*

*axis figure.* The interference figure that is obtained in convergent light when an optic axis of the mineral b is observed in thin section or as a fragment coincides with the axis of the polarizing microscope. When a thin section of a uniaxial mineral that was cut at right angles to an optic axis is examined between crossed nicols (that is, between two polarizers, the polarization planes of which are at right angles to each other) as seen in a thin section and as seen in a shadowy cross and a set of spectrally colored, circular bands are seen. If the mineral is biaxial, two shadowy prisms are called isogyres and opening away from each other in a set of spectrally colored, oval bands appear. *Hess; Bureau of Mines Staff.*

*axis flow.* In pummeling or in ventilation, the use of a propeller or impeller to accelerate the load (as against displacement pumps). *Pror.*

*axis-flow compressor.* One in which air is compressed in a series of stages as it flows axially through a decreasing tubular area. *Pror.*

*axis-flow fan.* a. A modern type of mine fan in which the mine air enters along the axis and continues in this direction outward to the atmosphere. The axis-flow fan may have fixed blades (fixed pitch fan) or adjustable blades (variable pitch fan). Two, four, or six axial section blades (like an airplane wing) are usually employed. Also called screw fan. *Compare radial-flow fan.* See also *Axen fan; fan, a.*

*axis-flow turbine.* A modern type of mine turbine in which the auxiliary fan consists essentially of a single-stage axis-flow fan in which the rotor also forms the stator of a compressor-turbine combination. The exhaust of the turbine is added to the ventilating air. The result is a light and very compact ma-

*axonometric projection.* A method of projecting a three-dimensional figure onto a two-dimensional plane. The angles are chosen so that the projected figure is a true scale projection of the original figure. It is often used in engineering and architecture to show the true size and shape of objects. The method is also known as isometric projection.

*axes, fabric.* In structural petrology, three axes of reference in a crystal which are used as coordinate axes in determining the position and symbols of the crystal planes. *Fay.*

*axes, of symmetry.* a. An imaginary line in a crystal about which it may be supposed to rotate; a straight line with respect to which a body, figure, or system of points is either radially or bilaterally symmetrical. *Webber 3d.* b. In crystallography, one of the imaginary planes in a crystal which are used alongside the coordinate axes of reference in determining the positions and symbols of the crystal planes. *Fay.* c. Often used synonymously with anticlinal; thus, the Brady's bend axis for Brady's bend anticlinal. *See also, anticlinal axis.*

*axis, of vibration.* The imaginary line about which all the parts of a rotating body turn. *Fay.*

*axis, of weld.* A line through the length of a wheel perpendicular to the cross section at its center of gravity. *ASM Gloss.*

*axis, of symmetry.* a. An imaginary line in a crystal about which it may be supposed to rotate; a straight line with respect to which a body, figure, or system of points is either radially or bilaterally symmetrical. *Webber 3d.* b. In crystallography, one of the imaginary planes in a crystal which are used alongside the coordinate axes of reference in determining the positions and symbols of the crystal planes. *Fay.*

*axis, of rotation.* The imaginary line about which all the parts of a rotating body turn. *Fay.*

*axis, of weld.* A line through the length of a wheel perpendicular to the cross section at its center of gravity. *ASM Gloss.*

*axis, of symmetry.* A direction through a crystal about which the crystal is symmetric. *Huribut.*

*axis, a.* A transverse bar or shaft connecting the body of the vehicle to the chassis; a line along which the body of the vehicle is supported and moved. Also called axle-tree arm. *Hess.*

*axetrite arm.* See axle, b.* Hess; Hess.*


*axzone; axstone.* A species of jade. It is a sialite of magnesia and alumina. *Fay.*

*axonometric projection.* A method of projecting a three-dimensional figure onto a two-dimensional plane. The angles are chosen so that the projected figure is a true scale projection of the original figure. The method is also known as isometric projection.

*axes.* a. A straight line about which a body or a three-dimensional figure rotates or a three-dimensional figure rotates about a line.
atomoxenous. In crytallography, having clean-
gle, or pependicular to an axis; said of min-

Ayrshire bauxite clay. A nonplastic fire clay
formed by laterization of basalt and occu-
pied in the Millstone grit of Ayrshire,
Scotland; there are two types, the one
formed in situ, and the other being a see-
mentary deposit. Chemical analysis (aw): 42
percent SiO₂, 38 percent Al₂O₃, 3 to 4
percent Fe₂O₃, 0.5 percent FeO, and 0.2
percent alkali. Dodd.

Ayr stone. A fine-grained stone used in pol-
ishing marble and giving a fine surface to
metalwork, particularly iron and steel, also
as a whetstone. Also called Scotch stone.

azotobacter. Mexican name for pitch
coal or jet. Tomkjeff, 1954.

azimuth a. The azimuth of a body is that arc
of the horizon that is included in the me-
ridian circle at the given place, and a ver-
tical plane passing through the body.
It is measured (in surveying) from north
to north or from the horizontal plane
through an heavenly body, or from the
direction of the magnetic meridian. Stand-
ard, 1964.

azimuth b. A horizontal circle divided
into 360, or 4 sets of 90, major divisions,
due of distillation; distillation waste. Zim-
merman, p. 189. f. Symbol for r: or rect-
barometer reading; barometer.

azimuth c. As a subscript, a or b, the sym-
bol for the direction of the axes; (a, b, c).
Bureau of Mines Staff. c. Symbol for the
minimum axis of an ellipse.

azimuth compass. A magnetic compass sup-
plied with sights, for measuring the angle
between a known direction and a line on
a magnetic profile of the earth's surface.
Dodd.

azimuth circle. An instrument for mea-
suring azimuth, having for its chief characteris-
tic a graduated horizontal circle. Standard,
1964.

azimuth compass. A magnetic compass sup-
plied with sights, for measuring the angle
between a known direction and a line on
a magnetic profile of the earth's surface.
Dodd.

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plied with sights, for measuring the angle
between a known direction and a line on
a magnetic profile of the earth's surface.
Dodd.
bacca

bacina

cal basin. Fay.

bacine. A basin or deep dish of or resembling Italian breadcrasted, lustered pottery. Standard, 1964.

bacil. A rodlike crystalline made up of a number of parallel longitudinal. Johannisen, 1, 24, 1939, p. 168.

bacillus coll. An organism found in potable water, originating from sewage pollution. Hen. 55.


back. a. The rod or upper part in any under-ground mining cavity. Fromkel, b. The ore body between a level and the surface, or between two levels. Higham, p. 35. c. A system of joiins in coal oblique to the bed-ding at an angle from 35° to 70°. They are usually perfectly tight and close and have polished cheeks which suggests a cer-tain amount of friction. The term back is sometimes also applied to the principal cleat. Arkell, d. That part of a lode which is situated on the side nearest in relation to any portion of the workings of the mine; thus the back of the level or stop is that part of the unstoped lode which is above, Fay. e. A stoped back. Nichols. f. A plane of cleavage in coal, frequently a smooth parting and some sooty coal included in it. Fay. h. Back of a heading. Fay. i. Leic. To throw back into the gob, or waste, the slack, dirt, etc., made in holling. Fay. j. Leic. To roll large coal out of waste for loading into trimmers. Also called bact-
n. K. Applied to an arch, in the interior or upper surface, A.G.I. l. The pav-
vion of a gem stone. Shipler, m. To drive, force, or cause to move or act backward; to cause to retreat, or recede. Webster 2nd.

back act. Front-end equipment fitted to an excavator, comprising a jib with an arm and bucket. Although designed primarily for vertically sided trenching, it is also useful for bulk excavation below treck level. Nelson.

back amcrate turns. Those in the armature of a motor which exercise demagnetizing action on the field poles. Prior, 3.

back and underhand stoping milling system. See combined overhand and underhand stoping milling. Fay.

back arch. A concealed arch carrying the backing or inn. r part of a wall where the exterior facing material is carried by a lintel. ACSG.

back balance. a. A kind of self-acting incline of a thin high, wall well lined with Bobbitt. The bronze shell is called the backing of the backing, and the Bobbitt is thus said to be a bronze backed. Petroleum Age, v. 1, 1920, p. 39.

back electromotive force. Sometimes used for counter electromotive force. It refers to that electromotive force which opposes or tends to set up a current in the reverse direction to the impressed current. Critchin.

backen. S. Staff. See back, j and m. Fay.

back end. a. Newer. The part of a judd remaining after the stump has been removed. See also sump, g. Fay. b. Synonym for barrel head. Long, c. Synonym for thrust yoke. Long. d. Eng. The coal in a place remaining to be worked after stuffing in. SMRD, Paper No. 61.

back-end man. A man who works behind the coal-cutter as it moves along the face. His duties include maintaining the stuffing from behind the machine and setting props to support the roof or overhang of coal. See also stuffing.

back entry. The air course parallel to and below an entry or the entry used for sec-ondary purposes in two-entry system of stoping. Locally, any entry not having crack in it. B.C.I.

backhaul cable

in a cable excavator, the line that pulls the bucket from the dumping point back to the digging. Nichola.

backhaul cable. A companion place to a main winning. SMRB, Paper No. 61.

back leads. Applied to black sand leads on coastlines which are above high-water mark. Fay.

backing strip. A strip of metal welded to the back of a metal panel prior to its being enamelled; the purpose is to prevent warping. Dodd.

backing-out switch. A switch applied to windsers and man-riding haulages which allows the control circuit to be energized, in order to move the conveyance out of an occupied point, provided that the winder control lever or other operating mechanism is moved in the appropriate direction. See also overwind, B.S. 3618, 1954, sec. 71.

backing sand; filler sand. Reconditioned sand used for supporting the facing sand, and forming the main part of the mold. Osborne.

backing-up switch. A switch applied to the taking down of a thick-walled pipe, or to unscrew or disconnect.


backing deal. A joint plane more or less parallel to the strike of the cleavage, and frequently vertical. Zero. A rabble or chase left to receive a permanent slab or other filling. Webster 3d.

backjoint. a. A joint plane more or less parallel to the strike of the cleavage, and frequently vertical. Zero. A rabble or chase left to receive a permanent slab or other filling. Webster 3d.

backing-up switch. A switch applied to windsers and man-riding haulages which allows the control circuit to be energized, in order to move the conveyance out of an occupied point, provided that the winder control lever or other operating mechanism is moved in the appropriate direction. See also overwind, B.S. 3618, 1954, sec. 71.

backbone. See also backset.

backs. The seaward return of the water following the uprush of waves. For any given tide stage, the point of farthest return seaward of the backwash is known as the limit of backwash or limit of non-wash. A.G.I.

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backs and cutters. Jointed rock structures, the backs (joints) of which run in line parallel to the strike of the strata, the cutters (cross joints) crossing them at about right angles. Standard, 1964.

back. The emergence of radiation from that surface of a material through which it entered. Also used to denote the actual backscattered radiation. NCB.

backset bedding. Inclined bedding that dips into the current. Said to occur at the front of an anticline. Also used for the beds deposited on the windward side of a transverse dune. Pettijohn.

backset beds. Inclined layers of sand developed on the gentler dune slope to the windward. These beds may constitute a large part of the total volume of a dune, especially if there is enough vegetation to trap most of the sand before it can cross over the slip face. Leith.

backshod. Black corrugated sheets sometimes placed behind the skeleton tubing to conduct water leakages down to the shaft bottom and prevent it running to conduct water leakages at all times with the dense-medium process, since none of the lumps of mined coal and fills the tubs at the coal face. C.T.D.

backstop. To mine a stope from below. Fay.

back stopes. Overhead stopes; stopes worked by putting in overhead holes at blasting down the ore body. Nelson.

back stoping; back stopes. See overhand stoping. Fay.

back stroke. A weld deposited at the back of the belt and the belt support between the belt and its backup. Johnson.

backwash ripple marks. Ripple mark on the back of the belt and the belt support. Fay.

backwash ripple marks. Ripple mark on the back of the belt and the belt support between the belt and its backup. Pettijohn.

backwash ripple marks. Ripple mark on the back of the belt and the belt support between the belt and its backup. Johnson.

badenite. A worn condition on the back of an abrasive belt due to high speed and/or high pressure, both of which cause friction between the belt and its backup. Wear may be reduced by the use of graphite or by using the friction between the back of the belt and the belt support at the point of contact with the workpiece. ACSG, 1965.

back weld. A weld deposited at the back of a single-groove weld. ASM Gloss.

back work. a. Any kind of operation in a mine not immediately concerned with production or transport; literally work behind the face; repairs to roads. Macon, b. Scot. See back coming; back splinter. Fay.

back working. Scot. Working a coaled back or toward a shaft. Johnson.

backwash. Eng. Fibre of carbonite, also known as beef and horseflesh; Isle of Portland. Arkell.


backstop. Eng. Hard, creamy, and flabby limestone above the Ash; Lower Purbeck beds, Isle of Portland. Either so called from sometimes containing bacon, or because of a streaky appearance, as in the striped Purbeck Cliffs of Bacon Hole near Lulworth. Arkell.

backtan. bakor. A Russian corundum-zirconia refractory for use more particularly in the glass industry. The name is derived from bakelite and corundum. There are various grades, for example, bakor-20 (62 percent Al₂O₃; 18 percent SiO₂); and bakor-33 (50 percent Al₂O₃; 30 percent ZrO₂; 15 percent SiO₂). Dodd.


bacula bed. A bed of filter media such as rock or clinker which will expose effluent from the sewage to the air and thus to the action of micro-organisms which oxidize it. Johnson.


baculite. Crystals appearing as dark rods. Hess.

bad air. A, vitiated by powder fumes, noxious gases, or insufficient ventilation. Weed, 1922.

baddeleyite. A weakly radioactive, colorless, yellow, brown, or black zirconium dioxide, ZrO₂, with some hafnium oxide. Monoclinic: tabular crystals, also nodules with perfect cleavage. Found in Bakwans, Minas Gerais and San Paulo, Brazil; Alno, Sweden; and near Bozeman, Mont. U.S. See also English. Monocl. 8075, p. 117.

baffling

baffle. The application, usually by transfer or silk-screen, of crests, trademarks, etc., to a bottle or glassware. See also back-stamp. Dodd.

bad. a. Soft, highly fractured, or cav-

cous; a borehole is a slow procedure involving

time-consuming cementing or caising opera-

tions. Long. b. Rock formations in which

monitor breakouts are usually not safes maintained

unless heavily timbered or supported in

some manner. Long.

badland. A region nearly devoid of vegeta-

tion where erosion, instead of cutting hills and

canyons, has cut into an inclined mass of narrow

ravines and sharp crests and pinnacles. Traveling across such a region is almost impossible, heavy in name. Specifically, the badlands of the Dakotas. Fay.

bad place. Within the meaning of a contract

between the United Mine Workers and an

Employers' Association, a place in which

the roof cannot be made reasonably safe by

the ordinary procedures usually done by

the miner. Fay.

bad top. A coal mining term indicating a

weak roof. Bad top sometimes develops from

breaks in the overburden of Kentucky, p. 185.

baeumlerite. A colorless chloride of potassium and

calcium, KCl·CaCl₂. Intergron with baeumlerite and itanoboric.

Identical with chlorocalcite or hydrophil-

ite. From Leintal, Germany. English.


baft. a. Mid. To brush out- or mix fire-

damp with air. Fay. b. In a hydraulic or a

rake classifier, a vertical plate set across and

dipping into the pool of pulpored ore, to

prevent it from streaming along the

to the flame from striking

and tripping the lever. D.0.7' ..1.

and tripping the lever.

bail. a. Mid. To brush out- or mix fire-

damp with air. Fay. b. In a hydraulic or a

rake classifier, a vertical plate set across and

dipping into the pool of pulpored ore, to

prevent it from streaming along the

to the flame from striking

a baffle plate. Fay.

baffle tube. A pipe of sufficient length to

lower the temperature of hot gases before

they enter a furnace. C.T.D.

baffled wall. A refractory wall used to deflect

gases or flames from the ware and to pro-

tect the flame from striking

the side of a water swivel, or. (2) a U-shaped

open-sided, latch-tquipped, circular

sides of a water swivel. Both types of

bails are designed to permit circulation of

gas or water. Tomkeieff, 1954. c. A

bail of gas. Eng. A gas-filled cavity found

in seams of coal. See also bag, b. Fay.

bail filter. An apparatus for removing dust

from dust-laden air, employing cylinders of

closely woven material which permit

passage of air but retain solid particles. B.S. 3552, 1962. See also filter, b.

bail of foulness. N. of Eng. A cavity in a coal

seam filled with gas or coal, and sometimes

of liquid or gas, formed by a pressure

which, when cut, is

given off with much force. See also bag, b. Fay.

bail of gas. Eng. A gas-filled cavity found

in seams of coal. See also bag, b. Fay.

bail powder. Originally applied to black pow-

der loaded in bags, but now applied to

a number of explosives to pack them.

the bags are long, cylindrical units about 6

inches in diameter and weighing 121/4


bail process. A method of recovering flue

dust and also sublimed lead whereby fur-

nace gases and fumes are passed through

bags suspended in a baghouse. The fur-

nace gases are thus filtered and the parti-

cles in suspension collected. Fay.

baggroon. A dust chamber in which bags are

suspended for filtering the furnace gases in

the bag process. See also baghouse. Fay.

bagnet. A vessel or tank used for holding

liquids and also sublimed lead whereby fur-

nace gases and fumes are passed through

bags suspended in a baghouse. The fur-

nace gases are thus filtered and the parti-

cles in suspension collected. Fay.

bag. a. A paper container

baggroon. A dust chamber in which bags are

suspended for filtering the furnace gases in

the bag process. See also baghouse. Fay.

bagement. One type of revetment. It consists

of closely woven material which, permit-

ing the passage of air but retains solid par-

ticles. The bags are usually made of

domestic or foreign cloth, or paper, single or double, depend-

ing on the local conditions, and are constructed

for placing an inert material, such as sand,

clay, etc., into a borehole for stemming or

tamping. Also called a tamping bag. Fay.

b. S. Staff. A quantity of findrnd reduced
depently given off by the coke seam. Fay. or

Scot. To swell or bulge. Also called baggit. Fay. d. A cavity in coal containing

gas or water. Tomkeiif, 1954. e. York.

bail of foulness. N. of Eng. A cavity in a coal

seam filled with gas or coal, and sometimes

of liquid or gas, formed by a pressure

which, when cut, is

given off with much force. See also bag, b. Fay.

bail of gas. Eng. A gas-filled cavity found

in seams of coal. See also bag, b. Fay.
or while the rods are being raised or lowered a few feet with the hoisting cable.  
Long.  b. As used by the churn drillers, to remove the cuttings from a borehole by use of a tubular container attached to a wire line.  See also bailer, a. Long.  c. The handle on or skip by which withdrawal of which may be lifted or lowered.  Long.  d. A large elevus.  Long.  e. To unwater a mine with a skip or bailer.  Bureau of Mines Staff, 1. Hoop or arched connection between the crane hook and lade or between crane hook and mold foundations.

**ASM Gloss.**

**bailiff.** Eng. A name formerly used for man-

**bain.** Scot. Old form of ben, a. Fay.

**balling reel.** Synonym for bailing drum. Long.

**balling.** a. Removal of the cuttings from a bailing tub. A container into which the contents of a bailer are emptied. Long.  

**bailing tub.** A container into which the contents of a bailer are emptied. Long.

**bailing machine operator.** See bailer, d. D.O.T.

**bailing reel.** Synonym for bailing drum. Long.

**bailing rope.** A bailing line constructed of fine wire also sandline. Fay.

**bailing tub.** A container into which the contents of a bailer are emptied. Long.

**bail.** a. Eng. A bag for carrying a miner's lunch. Fay.

**bait.** b. N. of Eng. Mealtime during a shift. First.

**bajada.** A. ladderway. Fay. b. A broad alluvial slope extending from the base of a mountain range out into a basin and formed by coalescence of separate fluvial fans. Webster 3d, c. Compound alluvial fans. A.G.I.

**baja de metales.** Peru. Unwatering of ores from mine to mill. Fay.

**bal.** a. Eng. A Cornish name for a mine; a cluster of mines. Fay.  

**bal.** b. A metal tank, or skip, with a valve in the bottom, used for unwatering a mine. Fay.  

**bal.** c. See sludger, c. Nelson.  

**bal.** d. A laborer who scoops water from drainage ditches in a mine with a bucket and empties it into a water car, a ditch flowing to a natural outlet, or to a pumping station. Also called water bailer. D.O.T. 1.

**bailer line.** Wire, rope or line attached to a bailer and only used to raise and lower a bailer in a borehole. Long.

**bailer shop.** A term used in all Russian oilfields, for a shop in which bailers are made and kept in repair for use at oil wells. Fay.

**bailiff.** Eng. A name formerly used for manager of a mine. Fay.

**bail.** a. Removal of the cuttings from a well during cable-tool drilling or liquid from a well by means of a bailer. Institute of Petroleum, 1961. b. Unwatering a mine. See also bailer, b and e. Fay.  

**bailing.** a. A stage in the heating of a clay to a low temperature in order to remove gases. ASM Gloss.  

**bakerite.** A white, compact, nodular, hydrous solid, tenacious, and heavy peat forming a body coincides with its rotational axis. ASM Gloss.  

**bake.** To dry, harden, or vitrify by exposure to heat, as in a furnace or kiln; as, to bake pottery or bricks. Standard, 1964.


**bakedclay.** A form of clay made from sand pump or an American pump. Loy.

**baked tonge valve at closing end of the bailing line, and downhill. Fay. b. A small weighted truck mounted upon a short inclined track, and carrying a sheave around which the rope of an endless haulage system passes as it winds off the drum. Zern.

**balanced core.** A core which is supported only at one end. Gristin.

**balanced cutter chain.** A cutter chain which has the same number of bottom and top picks. It usually cuts more freely in hard material and is often used for cutting at higher than floor level. See also unbalanced cutter chain. Nelson.

**balanced direct-rope haulage.** A modified form of direct-rope haulage. C.T.D. A power-driven reversible pulley (surge pulley) is used instead of a drum. The full trams are hauled up on one end of the rope while the empties go down on the other end. It involves a double track or conveyor with the haulage plane. The descent of the empty tram lasts in balancing the load being hauled upwards. Nelson.

**balanced draught.** Applied to combustion units in which forced and induced draughts are adjusted to give atmospheric pressure in the combustion chamber to avoid the infiltration of unwanted cold air. Nelson.

**balanced earthworks.** The ideal in excavation and filling work. In order to achieve maximum economy of construction, the excavation should as far as possible be equal to the embankment. Ham.

**balanced holding.** Arrangement of cages or skips in mine shaft in which the winding drum is raised or lowered at the same time lowers the other, thus reducing power consumption. Pryor, S.

**balanced ventilation.** A system of ventilation in which the districts (each with its separate split) are so arranged with regard to length and resistance, that the use of ventilation regulators is unnecessary. Regulators, although sometimes unavoidable, reduce the efficiency and increase wear required to ventilate the mine. Nelson.
balanced vibrating conveyor. A vibrating conveyor in which the center of gravity of the complete assembly is held constant by balance plate movement of the end offset by opposite movement of some other element. ASHA V.1-1958.

balanced winding. The conventional method of winding in a mine shaft. As the cage containing the loaded cars ascends, the other cage containing the empty descends; and thus the cages and cars are balanced. Balanced winding also implies the use of a balance rope, and thus, ignoring friction, the only load to be hoisted is the coal or mineral. See also winding. Nelson.

balance sheet. A record showing the present value of all assets and the liability to creditors of a company, in terms of cost or book value. Hooe. p. 448.

balance shot. In coal mining, a shot for which the drill hole is parallel to the face of the coal that is to be broken by it. Fay. balancing. a. A term used in surveying for leveling adjustment. Ham. b. Testing for balance; adding or subtracting weight to a grinding wheel to bring it into balance. Fay.

balancing a traverse. Adjusting the observed measurements to conform to the geometrical requirements of the traverse. Syllye, 2.

balanzon. Mex. Main beam or balance bob. Fay.

balance plate. Eng. A pit or shaft in which a balance (counterweight) rises and falls. Fay.

balance plane. An inclined plane up which empty cars are hoisted by the weight of descending loaded cars. Also called balance brow. Fay.

balance rope. A steel wire rope, generally of the weight per foot as the main winding rope, which is attached to the bottom of the cages, and extends down to form a loop in the shaft bottom or sump. Its function is to balance out the difference in weight of the upgoing or downgoing mine ropes during the wind. See also winding. Nelson.

balance sheet. A record showing the present financial obligations and resources of the company, in terms of cost or book value. Hooe. p. 448.

ball coal. A variety of coal made of spherical masses, which were probably formed by later deposition. Same as scalped anticline. A.G.I.

ballast. A very dark grayish or black, dense, igneous rock consisting essentially of pyroxene in a groundmass of anakrite, augite, and iron oxide. Johanssen. v. 4, p. 637.

ballastite. See ballastite. Fay.

ball. a. Eng. A more or less rounded mass of spongy iron, prepared in a puddling furnace; a lump. Also called balsite. Fay.

ball-and-socket reamer. A borehole-reaming device consisting of a bit attached to a ball-and-socket or a knuckle-joint member, which in turn is connected to the drill rods and used in borehole-deviation drilling. Also called arc cutter. Long.

ball and seat. a. A hard, spherical aggregate of many very small diamond crystals, usually cryptocrystalline in structure, relatively and more or less concentrically, around a central point. Because of their structure, balls are classified as polycrystalline. They are occasionally used in diamond-drill bits and other diamond tools. Also incorrectly used as a name applied to rounded, single-crystal forms of diamond. Also called shot bort. Long.

ballast. a. Heavy material, such as water, sand, or iron, which has no function in a railroad, except increase of weight. Nichols. b. A very long piece of gravel as used to form the bed of a railway or as substructure for new roads. Artell.

ballast car. A freight car (as for carrying ballast) that may be unloaded from the side or bottom. Webster 3d.

ballast engine. A steam engine used in excavating and for digging and raising stones and gravel for ballast. Webster 3d.

ballast hammer. A hammer with a long handle and two faces, used to break stone ballast. Fay.


ball bearing. A friction-reducing device consisting of hard steel balls in a circular race; also applied to some pieces of equipment, such as a swivel-type double-tube core barrel, using ball bearings as load-bearing members on rotating parts. Long.


ball breaker. a. A steel or iron ball that is hollowed by a chisel or drilled. Fay. Also called ballat. Fay.

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ball coal

some process of joining. Perhaps the same as coal apple. Tomskia, 1954.

ballcoater. See battery-coater II. D.O.T. 1.

ballers. White sand with large spheroidal masses of calcareous sandstone known as sandballer-out. See battery-coater II. D.O.T. 1. The operation of forming balls in a puddy furnace. C.T.D.

balling. a. A process that occurs in the cementation of steel on prolonged annealing at 650° to 700° C. C.T.D. b. The operation of forming balls in a puddy furnace. C.T.D.

balling formation. Rock or formations that, when drilled, produce cuttings and sludge, which tend to collect on, and adhere to, borehole wall or drilling equipment in sticky or gummy masses. Compare gummy; sticky; long.

balling furnace, a. A kind of reverberatory furnace used in alkali works. Fay. b. A furnace in which piles or fagots of wrought iron are placed to be heated preparatory to rolling. Fay.


balling tool. A tool used in collecting the iron in the direction of one member, partly spherical and fits to taking it to the hammer or squeezer; a rabble. Fay.


ballistic test. The throwing of rock to a distance from the exploded charge, a thing to be avoided in rock blasting. Stauffer.

ballistic mortar. Heavy pebble mortar in which a standard explosive charge is fired and the angle of recoil is measured; testing device for explosive power. Bennett 24, 1962. 

ballistic pendulum test. A test for measuring the strength of explosives. It consists of measuring the energy of a pendulum, produced by the explosion of a weighed charge of material. Higham, p. 36.

ballinette; ballisite. A rockless powder consisting essentially of soluble cellulose nitrate and nitroglycerin approximately in equal parts. Webster 3d.

ball jasper. Jasper showing a concentric banding of red and yellow. C.M.D.

ball joint. A connection in which the end of one member partly spherical and fits into a corresponding spherical cavity in the other, thus permitting relative angular movement.

ball mill. A rotating horizontal cylinder with a diameter almost equal to the length supported by a frame or shaft in which non-metallic materials are ground using various types of grinding media such as quartz pebbles, porcelain balls, etc. Ball mill is used for grinding materials for whiteware, electrical insulation, etc., has a suitable cement to produce containers consisting of hardened cement and the material may be ground wet or dry. Bureau of Mines Staff.

ball mill grindability test. A test in which a crushed specimen of a given size range of particles is placed in a ball mill, and the reduction in size of particles for a given number of revolutions of the mill is interpreted in terms of a grindability index. Lewis, p. 574.

ball milling. A method of grinding and mixing material, with or without liquid, in a rotating cylinder, the material partially filled with grinding media such as balls or pebbles. ASTM C242-60T.

ball mill method. A grindability method based on the principle that all coals are ground to the same fineness, about that required for pulverized fuel, and then using the relative amounts of energy required for this reduction in size as a measure of grindability. Mitchell, p. 62.


ball mine. Same as ball ironstone. b. Fay.

Ball-Norton magnetic separator. Dry separator for coarse ore, in which one or two magnetic drums rotate in a series of fixed magnetic circuits, alternating in polarity. Pryor, 3.


ballooch being. A ball with about 15 percent larger than standard bricks but perforated to reduce their weight. Meritense, 4th, p. 260.


ballotini. Transparent glass spheres less than about 1.5 millimeter diameter; presumably a derivative of the Italian ballotta, a small ball used for balloting. Dodd.

ball phyllos. A variety of quartz phyllites in which all of felsicale are developed. Fay.

balls. a. Common name for nodules, especially of ironstone. Arkell. b. In fine grinding, crushing bodies used in a ball mill. Cast or forged iron or steel, or alloys of iron with molybdenum or nickel, are used. Spherical balls are mainly used, but various shapes are favored locally, for example, concaved. Pryor, 3.

ball sizing. Sizes and finishing a hole by forcing a ball of suitable size, finish, and hardness through the hole or by using a burning bush, or broach consisting of a series of spherical bands of gradually increasing size coaxially arranged. Also called ball burnishing, and sometimes ball broaching. ASM Gloss.

ball stamp. A stamp for crushing rock, operated directly by steampower, the stem of the stamp being at the same time the piston rod of a steam cylinder. Fay.


ball structure. A primary structure characteristic of some limestones and sandstones; also applied to the ball structure of coal, called ball coal. See also ball-and-sillow structure; armored mud balls; lake balls; sea balls. Pettijohn.

ball test. See Kelly ball test. Dodd.

balliff. See tiff, b. Fay.

ball valve. A device allowing liquids to flow unimpeded in a direction opposite to the direction of the ball toward the opening, the ball is pushed against the seat and seals the opening. If flow is from the opening toward the sphere, the ball is pushed away from the opening allowing the liquid to pass. Long.

ballast. a. A stratum in which siderite concretions occur; also, the ore itself. Hess.

bally seating. Underlay with nodular concretions. Arkell.


banakite. A variety of alkalic andesite consisting of plagioclase, sanidine, and biotite with minor olivine and calcic. Small amounts of other plagioclase or leucite may be present, and anatekite is also a common accessory. Banakite, in a series with shoshonite and abarokite, is transitional into shoshonite with decreasing amounts of sanidine and biotite, and increasing amounts of olivine and augite. A.G.I.

banasite. A bariumfeldspar with sodium, BaNaAlSiO6, as orthorhombic crystals from Benallt mine, Wales. Named from the chemical formula. Spenser 17, M.M., 1946.

banartite. A name describing the dioritic rocks connected with a series of ore deposits in the Austrian Province of the Banat. Accurate microscopical study has shown them to be of such varying mineralogy, that the name has now slight definition. The rocks are largely quartz-diorites. Fay.

bansal. A sandbank, bed, terrace, or stratum. Mex.

banco. a. Sp. B. de piedra, any one bed or stratum of stone in a quarry. Fay. b. Mex. A hard rock which narrows a vein or makes it change its course. Fay.

band. a. Slate or other rock interstratified with coal. Commonly called middle band in Arkansas; also, dirt band, sulfur band, or other band, as the case may be. Fay. b. Applied to a stratum or lamina consisting of a zone consisting of different and adjacent layers; a group of layers displaying color differences is described as being banded. A.G.I. c. Corn. A bed or seam of coal. Fay. d. Staff. A winding rope or chain. Fay. e. Any well-defined and widespread thin rock deposit which may or may not be fossiliferous, and is of value in correlation. Nelson f. Synonym for band. Long. g. A flexible ribbon of steel. Long.


bandaiite. A fine-grained goethitic rock with microcrystalline, labradorite, dacites, that is, for quartz basalts which in texture, resemble dacites or andesites; from Bandai San, Japan. Holmes, 1928.
band brake

A flexible, circular ribbon of steel lined with wooden blocks or asbestos-impregnated material that, through a band brake, is band or mechanically actuated lever, can be brought to bear on the surface of a projecting flange on a hoisting drum. A band brake is the drum, and, through friction, control the rotation of the drum, capstan, or wheel. Long.

band conveyor. A belt conveyor. See also steel conveyor band. Nelson.


banded. The property of rocks having thin and nearly parallel bands of different textures, colors, or minerals. Johannsen, 1, 2, 1912, p. 263. Banded coal has alternating bands of different types. Pryor, 3.

banded agate. Agate with colors usually disposed in parallel bands, which are more or less wavy. Mook agate in the trade is dyed and bands are of differing tones due to their coloring action on the silica sol or dye. See also agate; onyx. Chalcédon onyx. Shipley.

banded coal. a. The common variety of bituminous and subbituminous coal. It consists of a sequence of irregularly alternating layers or lenses of homogeneous black material having a brilliant vitreous luster, grayish-black, less brilliant, striated material usually of silty luster, and generally, thinner bands or lenses of soft, powdery, and fibrous particles of mineral charcoal. The difference in luster of the bands is greater in bituminous than in subbituminous coal. Common-banded coal.

banded quartz-hematite ore. Banded hematite of the Italica Region of Minas Geraes, Minas, specular hematite forming alternate bands with sugary quartz. Some of the bands are auriferous and contain gold-palladium alloys with manganese oxides, native copper, and talc. Writers have given the rocks various names, such as iron-glance schist, quartz, quartz itabirite, and banderita. Hess.

banded structure. a. A term applied to veins having distinct layers or bands. This may be due to successive periods of deposition or replacement of some earlier rock. Fay.
b. A structure developed in many igneous and metamorphic rocks owing to layers which differ noticeably in mineral composition or texture. Tomkeieff. c. A segregated structure of nearly parallel bands aligned in the direction of working. A.G.I.

banded texture. See banded ore. A.G.I.

banded vein. A vein made up of layers of different minerals parallel with the walls. Also called ribbon vein. Fay.

bандиул. Staff. A cage, or strictly speaking, a rope load; for example, bandiul of men. Compare band. Fay.

banding. The application, by hand or machine, of a band of color to the edge of a plate or cup. Dodd.

banded saw. An endless saw running on revolving pulleys, used for cutting wood in the lumber industry. Dobbs.

banded scale. An arrangement under which coils are placed an agreed sum for removing a dirt band, in addition to the usual tonnage rate. The payment varies with the thickness of the band. Nelson.

banded screen. In hydraulics, an endless band of wire mesh. Its purpose is to remove solids from the water at the intake point in hydroelectric generating schemes. Hess.

banded wonder. In concentration on shaking a dirt band, in addition to the usual tonnage rate. The payment varies with the thickness of the band. Nelson.

banded ironstones. Ironstones which are made up of bands of different composition, frequently alternating between two varieties. They have been attributed to crystal settling during convection, with rhythmic effects due to cooling and injection. A.G.I.

banded ingredients. a. The four distinctive and visibly differing portions forming the mass of an ordinary bituminous coal which can be readily separated macroscopically by hand, and microscopically in thin section, and which are not, in themselves, chemical entities that is, vitrain, chert, shale, and durain. See also rock type; primary type; variety. A.G.I. b. The same as banded coal. Tomkeieff, 1954.

banded ironstone. S. Afr. A rock consisting essentially of iron oxides and cherty silica, but possessing a prominent layered or banded appearance in shades of brown or red and black. Beerman.


banded ore. Ore composed of bands that may range from the same minerals differing in color, textures, or proportions, or they may be composed of different minerals. Synonym for banded texture. A.G.I.


banded quartz-hematite ore. Banded hematite of the Italica Region of Minas Geraes, Minas, specular hematite forming alternate bands with sugary quartz. Some of the bands are auriferous and contain gold-palladium alloys with manganese oxides, native copper, and talc. Writers have given the rocks various names, such as iron-glance schist, quartz, quartz itabirite, and banderita. Hess.

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bank boss. Arkell.

bang-bang control. A method of operating a control system in such a way that correcting signals always provide actuation of the servomechanism to the full extent. N.C.R.


banging piece. Eng. A catch or rest to hold a cage when stopped at any landing. Hess. See also catches, s.

banjo. Scot. An iron frame for carrying a false clerk or Vive. Fay.

bank. a. The top of the shaft, or out of the shaft. Zern. b. The surface around the mouth of a shaft Zern. c. To manipulate coals, etc., on the bank. Zern. d. The whole or sometimes only one side of one entire face of a working place underground. Zern. e. A large heap of mineral on the surface. Zern. f. Derb. The face of the coal at which minerizing were working. Fay.

banded coal. A large heap of mineral on the surface. Zern. f. Derb. The face of the coal at which minerizing were working. Fay.

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bank boss

face or underground operations at a mine.

D.O.T. 1. See also foreman; mine foreman.

bank chain. A chain that includes the bank of a stream. Fay.


bank coal. Coal contained in and sometimes salvaged from the bank. B.C.I.


banker off. Aust. The man who attends to taking skips off the cage. Fay.

bank a. Originally applied by the Dutch settlers to the gold-bearing conglomerates of the Witwatersrand. It is now used more widely for conglomerates and conglomeratic quartzites. C.T.D. b. Eng. A stonemasons' or bricklayers' bench, on which to trim stone or brick. Standard, 1964.

bank gravel. Gravel found in natural deposits, usually more or less intermixed with fine material, such as sand or clay, or combinations thereof; gravelly clay, gravelly sand, clayey gravel, and sandy gravel, indicate the varying proportions of the materials in the mixture. Stokes and 3d.

bank head. a. The upper end of an inclined plane, next to the engine or drum, made nearly level. Zern. b. The mouth and immediate environs of a coal mine. See also bank or island shelves or offshore island, situated on locally unrimmed continental shelf or rise.

c. Mid. Sorting and loading coal on the bank of a stream or a lake and used to pump water to a distant drill. Also called bankings, by growth of vegetation, and by changes in particle size and composition.

d. The vertical height of a bank as measured from the ground water which tend to cause sliding or caving.

bank level; pit bank. The angle, measured in degrees of deviation from the horizontal, at which the earthy or rocky material will stand in an excavated, terrace cut in an open pit mine or quarry. Bureau of Mines Staff.

bank slope; bench slope. The angle between the base of an open-hearth steel furnace and the bank and front walls. They are constructed of refractory bricks covered with fritted sand (acid open-hearth furnace) or burned-in magnesite or dolomite (basic open-hearth furnace). See also benches.

bank slope stability. A slope is subject to the influence of gravity and possible pressure of ground water which tend to cause sliding or caving. It is also subject to surface erosion from running water, wind, and alternate freezing or thawing, or wetting and drying. Weathering causes changes in particle size and composition. Bank slope stability can be attained by benching, by growth of vegetation, and by artificial protections, such as masonry walls, drainage systems to intercept or remove ground water, and fences to catch rolling pieces. See also slope failure; stability.

bank water. In placer mining, applied to water at the surface when short of wagons, or cars. Fay.

banking. a. The bringing of a cage to a banking transformers. The grouping of transformers in one horizontal plane and will in consequence carry the load of superimposed sagger uniformly. Dodd.

banking yards. Yards of soil or rock measured in its original position, before digging.

bank yards. See also bank, or island shelves or offshore island, situated on locally unrimmed continental shelf or rise.

bank boar. See tail. Schieferdecker.

banking. Doubling the rim of a sagger (before it is fired) by means of flat metal or a wooden board, to ensure that the rim lies in one horizontal plane and will in consequence carry the load of superimposed sagger uniformly. Dodd.


bankax. An amorphous metasuphosphate compound, used as a preliminary treatment before wire drawing. It is found to have excellent rust-resisting properties, and to act as a lubricant when wire is coated, by dipping with baxox before liming, it is found that the amount of lime applied is not critical. It can also be used with wire flash-coated with copper, where it assists rust proofing. Ochone.

banking rolls. A roll or bundle, a thick bed of blocks of granite, schists, and quartz. Fay.

bank. A certain number of men, usually three or four, who, prior to the introduction of cages, use: to ride up and down a shaft sitting h. u., to load loose pieces of chain attached to a hemp rope, with their knees pointing inward toward the center of the shaft. There were usually two bantz, the lower or bottom bant which was composed of men, and the upper or foaky bant which was made up of lads a few feet ahead of the men. Compare bont, a; tacklers. Fay.

bantams. Small pebbles of a banded garnet-quartz rock, which usually are associated with diamond in the concentrate obtained when washing the diamond-bearing gravels from the Vaal River in the Republic of South Africa. The occurrence of bantams in a gravel deposit is considered a good indicator of diamond. I.C. 8200, 1964, p. 45.


bar a. A drilling or tamping rod. Fay. b.
A vein or dike crossing a lode. Fay. c. A bank of sand, gravel, or other matter, especially near a river or harbor, often obstructing navigation. Webster 2d. d. A placer deposit, generally submerged, in the slack portion of a stream. Accumulation of gold along the banks of a stream, and, which, when worked by the miners for gold, are called bar diggings. Fay. e. A length of timber placed horizontally for supporting the roof. Fay. i. See sinker bar. Fay. g. Any band of hard rock crossing a lode. Bar of ground, and intersecting vein. See also cross course. Arkell. h. A strap or beam used to support the roof between two props or other supports. Mason. i. A length of steel pipe equipped with a flat cap at one end and a jack screw on the opposite end, by means of which the pipe may be wedged securely in a vertical or horizontal position across an underground workplace to serve as a base on which a small diamond or rock drill may be mounted. Also called drifter bar; drill bar; drill column. Long. j. A heavy used with either pointed or flattened ends used as a pry or as a tool by miners to dislodge loose rock in roof or sidewalls of an underground workplace. Long. k. A piece of material thicker than sheet, long in proportion to its width or thickness, and whose width-thickness ratio is much smaller than sheet or plate, as low as unity for squares and rounds. ASM Gloss. l. An offshore ridge or mound of consolidated material submerged at least at high tide, especially at the mouth of a river or harbor, or lying a short distance from and usually parallel to, the beach. HBG. m. A unit of pressure equal to 1,000,000 dynes per square centimeter, 1,000 millibars, or 29.33 inches of mercury. HBG. barbacoa. A monadnock which has been buried by a series of strata and subsequently re-exposed by the partial erosion of these younger strata. Fay. barbed wire. A piece of wire making up a continuous coiled wire consisting of a blended mixture of barium octohydrate and calcium hydroxide. It is used as a carbon dioxide extinguishing method in rebreathing (diving) systems. HBG. barlithe. A hexagonal fluorosilicate of ammonium, (NH4)12SiF6, occurring with cryptocrystalline, barabite. A discredited term for a type material from Kragelod, Norway, that has been shown to be finely twinned microcline with about 20 percent of unmixed albite. The name monolist is suggested for the high-temperature monoclinic modification of NaAlSiO4, not yet found in nature. American Mineralogist, v. 60, No. 2, October-December, 1975, p. 105. barbou quartzite. A quartzite of the Devil's Lake region of Wisconsin, used in silica brick manufacture. A quoted analysis: 98.2 percent SiO2, 1.1 percent Al2O3, 0.2 percent Fe2O3, and 0.1 percent Na2O + KO2. Dodd. barbotinite. a. A thin clay paste used in low relief ornamentation of pottery. Standard, 1964. b. A term applied to vases and other pieces decorated with flowers, leaves, etc., in high relief and colored in different enamels. C.T.D. barboun. A disc-shaped quartz crystal of low cinnabar. Fay. h. A term applied to vases and other undecorated pieces used at the bottom of a clay body in the drawing of the wire. Coal Age, v. 66, No. 3, March 1961, p. 91. barcart. A motor without a pulley, belt, tightening base, or slide rails. NEMA MB1-1961. barcree. Colom. In placer mining, to extract much of the gravel as possible, without method, leaving the underlying untouched. Fay. barcroqu. Colom. Extracting the rich ore by side methods. Fay. barrero. Colom. A placer miner who uses crude methods of sluical washing. A spiller. Fay. barr. A workman who removes surface soil or overburdens in a quarry. Arkell. barge Saturday. N. of Eng. The Saturday on which wages are not paid. Fay. barge. v. Flight conveyor. See draw-crest conveyor; flight conveyor. ASA MH41-1958. barge. A machine in which a folding bar or wing is used to bend a metal sheet whose edge is clamped between the upper folding leaf and the lower stationary jaw into a narrow, sharp, close, and accurate fold along the edge. It is also capable of making rounded folds such as those used in wiring. A universal folder is more versatile in that it is limited to width only by the dimensions of the sheet. ASM Gloss. bargain. a. Portion of a mine worked by a gang on contract. Zern. b. N. of Eng. An inclusive agreement made between a set of men and the management to complete a specified job; for example, removing a small area of coal, driving a new roadway, winning out a new face, or taking a newing. Bargains are not subject to caviling. Trist. bargain work. v. To cut coal by hand; to hole by hand. Mason. b. The unceded portion of borehole. Also called barefoot; blank; naked; open. Lang. c. To remove overburden. Arkell. d. Eng. To strip or cut by the side of a fault, boundary, etc.; to make a horizontal cut. Fay. e. A wire or conductor not covered with insulating material. Also called bare wire. Nelson. bare electrode. A filler-metal electrode, used in arc welding, consisting of a metal wire with no coating other than that incidental to the drawing of the wire. Coal Age, v. 66, No. 3, March 1961, p. 91. barefoot. Said of an oil well without a liner in a well. N. of Eng. bare golven. One. A term applied to vases and other undecorated pieces used at the bottom of a clay body in the drawing of the wire. Coal Age, v. 66, No. 3, March 1961, p. 91.
barghe loader

barghe loader. In the quarry industry, a laborer who controls the movement of a barge in a river as it is loaded with crushed stone. 421-1. 1

barges. Scot. Sheets of iron, zinc, or wood, used in wet shafts or workings for diverting water to one side. 2

bar grizzly. A series of spaced bars, rails, pipes, or other members used for rough sizing of bulk material passed across it to allow smaller pieces to drop through the spaces. ASA MH4.1-1958.

bar-heating furnace. A furnace to heat iron bars preparatory to rolling. Hess.

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barium. An impure sodium carbonate and sulfate obtained by burning various species of land or marine plants; soda ash. Used in making glass, soap, etc. Standard, 1964.

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England, where J. Y. M. Halsall was General Manager and which was at the time associated with the Purrit pottery. Dodd.

barrel. a. A piece of small pipe inserted in a barrel. The removal of surface excrescences on pieces of a product to be sorted out by hand in sufficient purity for smelting without mechanical concentration. Also called barrel copper. Fay.

barrel finkhing. Improving the surface finish of a product to be sorted out by hand in sufficient purity for smelting without mechanical concentration. Also called barrel copper. Fay.

barrel vault. A plain arch of semicircular cross section which is generally much longer than its height. Reinforced concrete barrel vaults are used for shell roofs of factories where open floor space is essential. Traditional barrel vaults are also constructed in both masonry or as reinforced concrete. Ham.

barrel washer. A washer comprising a cylinder rotating slowly about an axis which is fixed in the horizontal. A continuous stream of water, into which the raw coal, with a current of water or of a suspension, is fed near its upper end. The current of water or suspension to the lower end of the cylinder over a scroll which conveys the reject to the upper end of the cylinder. B.S. 3552, 1962.

barrel work. Biscuit-fired ceramic ware. Dodd.

barrenar. Mex. To drill; to fire a round of powder. Fay. Compare barren ground.


barrenf. Mex. To drill; to fire a round of holes. Fay.

barrenar. Mex. To connect with each other (as two mines or workings). Fay.

barren block. The block bounded by the vertical planes passing through the traces of the fault planes. Fay. Am. oilfield such a block is barren of oil, the oil sand being faulted out. Schieffelen.

barren contact. A contact vein, or a place in the contact vein, which has no mineral. Fay.

barren ground. Strata containing seams of coal that are not of a workable thickness. In metal mining, ground that does not contain ore. Fay. Compare dead ground. See also disturbed ground.

barren hole. Synonym for blank hole. Long.

barren measures. Materials such as lead and concrete which are used for protection from X-rays or gamma rays in radiographic installations. Osborne.

barren reef. a. A coral reef which extends above high water. K.G.

barren pillar. a. A solid block or rib of coal, etc., left unworked between two collieries or mines for security against accidents arising from an influx of water. Zern. b. Any large piece of a vein which has not been broken by roadways or airways that is left around a property to protect it against water or airways which subsequently may be develop ed or to protect the latter property in a similar manner. Zern. c. Incorrectly used for a similar pillar left to protect a body of water or airway, or group of roadways or airways, or a panel of rooms from a squeeze. Zern.

barren reef. a. The term barrier reef has been generally applied to that vast reef which fronts the northeastern shore of Australia, and by most voyagers likewise to that on the western coast of New Caledonia. At one time, it was thought convenient to restrict the term to the reefs which are in structure and position relative to the land, like a wall with a deep moist within, enclosed by many smaller islands which have been classed together. A.G.I. c. The name given to those coral reefs that run parallel to the shores of the islands and which are separated from the coastal reef by a lagoon channel, more or less extensive. A.G.I. c. A reef which runs more or less parallel with the coast but at some distance from it, so as to leave a broad channel between the two. A.G.I. d. A coral
barium zirconate. BaZrO₃; melting point, above 1,500° C. Used as an additive to barium uranophane. A silicate of barium and zirconium. BaZrSiO₂; white; used in the production of electrical resistor ceramics; glaze opacifiers; and as a stabilizer for colored ground coat enamels. 


Baroid. Brand name for a weighting material used in drilling muds to increase the unit weight of the mud. It is a complex of Ba₀₂, Zr₀₂, and S₁₀. Used to prevent the walls of the well from collapsing. 

Barolite. Wadsworth’s name for rocks composed of amphibole near arvedsonite in composition. Fay.

Baroque. Any pearl of very irregular form. Shipley.

Barometer. A measuring instrument for atmospheric pressure. There are two general types: (1) mercury barometer, and (2) aneroid barometer. 

Barometer holiday. Derb. Any day on which no work is carried on underground, owing to the very low state of the barometer. 

Barometric leg. In filtering system, use of a vacuum box sensitive to external pressure whose expansion or contraction is indicated on a graduated dial by means of an inclined plane. Also called bullfrog; groundhog; larry; ram; mute; truck. Fay.

Barometric leveling. The density of the atmosphere varies with altitude, hence by suitable graduation of barometer can be used to record difference in height. Two instruments should be used to record the change in pressure at the datum point and the other taking levels at the required positions. These levels are later corrected by comparison with the first barometer. The barometer cannot be used directly for the determination of levels underground owing to the artificially reduced air pressure. The readings taken with a barometer when used underground for ventilation surveys must be corrected for differences in level. These have to be taken with a level or theodolite. G. J. Barker and E. Traog for the treatment. 


Barratt-Halsall firemouth. A design for a stoker-fired firemouth for a pottery bottle oven; a subsidiary flue system links all the flues to the curved around the oven wall to assist in temperature equalization. The design was patented by W. G. Barratt and J. Y. M. Halsall (British patent 566,838; 16-1-45). Also known as the Gatter Hall device because it was first used at the factory of Gater Hall & Company, Stoke-on-Trent.
barrier reef

reef separated from the coast by a lagoon that is too deep for coral growth. Generally, barrier reefs follow the coasts for long distances with only short interruptions termed passes. A.G.I.


barrilla. Colom. In gold mining, wooden bar rig.

barrowman. In mining, one who pushes shal-

barrow. Webster 2d.

barrow. Webster 2d. c. A vehicle in which ore,

barrow. Webster 2d. c. A vehicle in which ore,

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basaltic ware

(Often called Egyptian black or balalite ware). Bureau of Mines Staff.

basaluminite. Hydrous basic aluminum sulfate, 2Al₂O₃·SO₄·10H₂O, as white compact ratarial lining crevices in ironstone from Orchester, Northamptonshire. This material with the same formula has a different X-ray pattern. So named because more basic than alunite. See also hydrobasaluminite, Elephant 19, M.M., 1949.

basanite. An extrusive base charge. a. The charge or tariff made by base bullion. Crude lead containing recoverable base metal. b. Inferiority, due to alloy. ASM Gloss. g. A base metal or alloy (as zinc, lead, or brass) of which was not melted. ASM Gloss. f. The groundmass or magma of a rock. Standard, 1964. See also base.

base. a. Foundation or supporting structure on which a drill or other tool rests. b. Inferiority, due to alloy. ASM Gloss. g. A base metal or alloy (as zinc, lead, or brass) of which was not melted. ASM Gloss. f. The groundmass or magma of a rock.

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base exchange. a. The clay particle with its cations may be regarded as a kind of salt in which the colloidal clay particle is the anion. Certain cations may replace others, making the clay more flocculent. The cation replacement is known as the base exchange. Synonym for ion exchange. A.G.I. f. The physicochemical reactions by which one species of ions adsorbed on soil particles is replaced by another species. ASCE 1926.

base exchange capacity. The number of milliequivalents of NaOH required to neutralize the exchangeable cations adsorbed onto 100 gms of dry material. VV.

base fracture. In quarrying, used to describe the condition of the base after a blast. It may be a good or bad base fracture. A.G.I. c. A metal more precious than gold and silver (commonly restricted to gold and silver, and more particularly to gold) as used by householders, absent owners, and in industry. A.G.I. d. A metal or alloy (as zinc, lead, or brass) of which was not melted. ASM Gloss. g. A base metal or alloy (as zinc, lead, or brass) of which was not melted. ASM Gloss. f. The groundmass or magma of a rock.

base goods. Generally used to denote a material made by treating phosphate rock of underground sources. Pryor. 3.

base level. a. The lowest level to which a land surface can be eroded by running water. Mather. b. To reduce by erosion to or toward a base level. Standard, 1964.

base line. A line taken as the foundation of operations in trigonometrical and geological surveys. See also base, g. Fay.

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base metal. a. Any of the nonprecious metals. Mather, 1922. b. A metal inferior in value to gold and silver (commonly restricted to the ore metals). A.G.I. c. A metal more precious than gold and silver, and more particularly to gold) as used by householders, absent owners, and in industry. A.G.I. d. A metal or alloy (as zinc, lead, or brass) of which was not melted. ASM Gloss. g. A base metal or alloy (as zinc, lead, or brass) of which was not melted. ASM Gloss. f. The groundmass or magma of a rock.

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base price

base price (of pearls). The price of a single pearl is computed by squaring its weight in grains and multiplying the result by the base rate. This scheme of establishing the price of a pearl takes into consideration the fact that the pearls which are many times more common than large ones and that their value therefore increases as the square of their weight. Expressed as a formula, it is the average size, times the total weight, times the base rate equals the price of a group of pearls. Skiplay.

base rock. a. As used by some drillers, the solid rock immediately underlying the overburden material. Long. b. As used by drillers in the Midwestern United States, the igneous rock formations underlying the sedimentary rocks. Also called basement; parent rock; pavement. Long.

base station. Station belonging to the wide-meshed net of stations whereby the acceleration of gravity is determined with particular care and to which the field stations are tied in. Schiefler-decker.

basin. 1. A hollow which is expected to fill with rubbish the spaces from which the coal has been mined. Fay.

basin. To build walls and nonporous stoppings for the complete isolation of a district of a mine in which a fire has occurred; the complete stowing of old workings or roadways after all equipment has been removed. Nelson.

basic. a. In furnace practice, a slag in which the basic constituents are present in the amount required to form a neutral slag with the silica present. Fay. b. In geology, a general descriptive term for those igneous rocks that are comparatively low in silica. About 50 or 50 percent in the sub ogólny meaning one of the (1) an igneous rock containing calcium, magnesium, bronze or iron oxide. Cooper.

basic refractory lining. A furnace lining, especially for a copper converter or for an open-hearth steel furnace, which is composed of material low in such acid minerals as silica and high in such basic minerals as lime, magnesite, or magnesia. Bureau of Mines Staff.

basic rock. a term rather loosely used in lithology generally meaning one of the following: (1) an igneous rock containing less than 55 percent of silica, free or combined; (2) an igneous rock in which minerals comparatively low in silica and rich in the metallic bases, such as the amphiboles, the pyroxenes, biotite, and olivine, are dominant; or (3) an igneous rock composed chiefly of dark-colored minerals. In all three senses contrasted with acid. The term is misleading, undesirable, and becoming obsolete. As used in the first sense above, it is being replaced by sub-silicic and as used in the second sense, it should be replaced by mafic or by some term denoting the dominant mineral or minerals. See also basicity.

basalt. a salt in which the acid part of the compound is not sufficient to satisfy all the bonds of the base. Fay.

basalt. See Thomas steel.

basin. See bismuth nitrate. See bismuth subnitrate.

basin. See basic refractory lining.

basin. See basic refractory lining.

basin. See basic refractory lining.

basic. a. In process of smelting, the pig iron and keep it out of the hearth steel processes, and, from the quantity of phosphorus contained in it, valuable as an artificial fertilizer. Standard, 1964.

basin. One which accepts protons from solute. Pryor, 3.

basin. Steel melted in a furnace with a basic bottom and lining and containing an excess of a basic substance, such as magnesia or lime. *A.S.M. Gloss.*


basalt. The beveled edge of a drill or chisel. *Crispin.*

basalt. In diabase, the partial or entire enclosure by augite of plagioclase crystals. *Johnston*, 1. 1. 2. 1939, p. 168.

basal. a. The lowest part of a mine or area of coal lands. *Hudson*. b. A general region with an overall history of subsidence and thick sedimentary section. *Wheeler*. c. A large or small depression in the surface of the land, the lowest part often being occupied by a lake or pond. *Webster*. d. A broad area of the earth beneath which the strata dip usually from the sides toward the center. *Webster*. e. A natural depression of strata containing a coalbed or other stratified deposit. *Fay*. f. The deposit itself. *Fay*. g. A depression of the sea floor more or less edimentional in form. When the length is much greater than the width, the feature is a trough. *H.W.G*. h. An area in a tidal region in which water can be kept at a desired level by means of a gate. Also called tidal basin. *H.W.G*. i. A relative or small cavity in a rock mass usually created or enlarged by excavation, large enough to receive one or more vessels for a specific purpose. *H.W.G*. j. Same as pouring basin. *A.S.M. Gloss.*

basin. In geology, a settlement of the
basin

ground in the form of basins, usually due to the removal by water of soluble, underlying strata; also, deformation of strata into a fold or flexion in which the bed- 
dip from all sides toward the center; opposite of doming. Standard, 1964.

basin plot. Same as local plot. Tomkeieff, 1954.

basin range. A kind of mountain range character- 
ing the Grand Basin province and formed by a faulted and tilted block of strata. Standard, 1-64.

basin base. A term used to describe that part of a failed rock magma that in cooling fails to crystallize as recognizable minerals, but chills as a glass or, related amorphous 
eggerate. It differs from groundmass, which is the relatively fine portion of a porphy- 
ritic rock, as distinguished from the pheno-
crysts. Fay.

basin metal. The original metal to which one or more coatings are applied. ASM Glass.

basket. Synonymous with basic rock. Bureau 6, Mines Staff.

basket. Eng. Old cloth used to cover wet holes to prevent splashing while drilling. Fay.

basket. a. A type of single-tube core barrel made from thin wall tubing with the bore-
end notched into points, which are intended to pick up a sample of granular or plastic rock material by bending in on striking the bottom of the borehole or a solid layer. Also used as a fishing tool to recover an article lost or dropped into a borehole. Also called basket barrel; basket tube; saw-
tooth barrel. Long. b. Wire-mesh strainer in the top of a core barrel to strain out bits of debris, which might clog up the water ports in the core barrelhead. Long. c. Syn-
onym for basket core lifter. Long. d. S. Staff. A shallow part into which small coal is raked for loading into cans. Fay, e. Leic. A measure of weight (2 hundredweight) occasionally used in east Lancashire. f. A group of several wooden stakes placed in the form of a small circle to mark and protect an inside diameter slightly larger than 
the core size being cut. Also called basket ; 
basket core lifter. Long. g. A hole made in the 
core barrel for work in clay. ACSG, 1963. h. A plate 
used for drying clay or as a platform for work in clay. HPH. b. A broken, burned brick or shape. A.R.I. c. A slab or disk of plaster or fired clay used for drying clay or as a platform for work in clay. A.S.G. 1963. d. A plate of gelatin used in printing on pottery or porcelain over the glaze. Webster 3d. e. Any part of a brick intentionally or accidentally broken off; a piece of broken brick. A.I.S.I. No. 24. f. E. Leic.; S. Staff.) Batting out gas was formerly a regular though unsafe thing to do. See also bafile, a. Fay, g. Eng. A contact black, butuminous shale which splits into fine laminae. It is often inter-
stratified in layers with coal. Also spelled blank; Fay.

basinweave. A hydraulic silicate of magnesium and 
aluminum, approximately 4H2O·4MgO· 
Al2O3·4SiO2. Micaceous scales of hexagonal outline. A decomposition product perhaps related to the micas or chlorites. From Pas-

cuá, Bavaria, Germany, English.

batch. a. Corn. The quantity of ore sent to the surface by a pair of men. Also called batch of ore. Fay. b. A quantity of material described for the refining; Webster 2d. c. A quantity of material produced at one operation. Webster 3d. d. The mixture of raw materials from which glass is produced in the furnace. A proportion of cullet is either added to the mixture or placed in the furnace previous to the charge. C.T.D.

batch charger. A mechanical device for introdu-
ing batch to the furnace. ASTM C102-66.

batch distillation. A distillation in which a given quantity of material is charged into a still, and the distillation is conducted without additional charge to the still. N.R.C.-A.S.A. N-1.1-1957.
batch feeder. See batch charger. ASTM C162-66.
batch force. One in which each charge is placed, heated and withdrawn on completion of work. Pryor, 3.
batch grinding. In laboratory, paint, and ceramic work and in other special applications, the grinding of a charge of mineral (dry or wet) in a closed ball mill. Pryor, 3.
batch house. The place where batch materials are received, weighed, and mixed for delivery to melting units. ASTM C162-66.
batching plant. A concrete mixing plant which measures accurately the different ingredients in a concrete mix. ASTM C236-65.
batch mill. A grinding mill, usually cylindrical, in which the feed is processed to completion of the required comminution. Pryor, 3.
batch mixer. One who mixes various kinds of dry clay, according to formula, into a tank which mixes clay before addition of water. Nelson. Also called clay pddlder; mixer man. See also mixer. D.O.T. 1.
batch of ores. The quantity of ore sent to bank, by any pair of workmen. Nelson.
batch oil. A pale, lemon-colored neutral oil having a viscosity of about 80 Saybolt at 71°F. Used to keep molded materials from sticking to the molds and as a lubricant in cordage manufacture. Porter.
batch process. A process in which the feed is introduced as discrete charges, each of which is processed to completion separately. N.R.C.-A.S.A. W.1-1.577.
batch sintering. Preparing or sintering in such a manner that the products are furnace treated in individual batches. Osborne.
batch smelter. A smelter that operates as a periodic unit being charged, fired, and processed in such a manner that the products are sent to the melting units. Osborne.
bath. a. A medium as water, air, sand, or oil for treating or otherwise processing of products or batches. Pryor, 3.
bath. a. To enlarge a colliery road by lowering a drift or road. See bating.
batical variation. One found when examining the bottoms of the oceans. Webster 3d.
batholith. A huge, domed, intrusive igneous body of at least 40 square miles in extent whose sides are so closely cored as to render it undivided by fluvial erosion. See also batholith.
batholith. A drier in which ware remains until ware becomes heated. AIME, p. 17.
batholite. A term applied by Suess to an older division of magmas solidified as coarse crystalline rock in the deep horizons of the crust. See also batholith.
bathomile. A gelatinous substance precipitated from mud dredged from various depths from a moving ship. Applied in oceanography, of, relating to, or living in the deeper waters of the sea, especially those parts between 100 and 1,000 fathoms deep. Webster 3d.
bathymetric chart. Chart showing depths of water by means of contour lines or by color shading. Hy.
bathymetry. In oceanography, the measurement of depths of water, especially those several hundred feet below the surface. DAC, 1964. Webster 3d.
bathygraphic. In oceanography, or relating to ocean depths and mountain heights. Webster 3d.
bathylogie. In oceanography, of, relating to, or living in the deeper waters of the ocean, especially those several hundred feet below the surface distinguished from the surface and pelagic. Webster 3d.
bathyphotometer. In oceanography, an instrument designed to record the current velocity and water temperature at indicated depths below the surface of a sea or lake. Compare bathythermograph. Webster 3d.
bathyphotograph. An underwater photograph of a submersible ship that is used for deep-sea exploration, has a spherical watertight cabin attached to its underside, and uses gasoline and shot for ballast. Webster 3d.
bathyseism. In oceanography, an earthquake of deep origin recordable at seismographic stations on the earth's surface. Webster 3d.
bathyseism. In oceanography, or relating to the bottom of the deeper parts of the sea, especially those parts between 100 and 1,000 fathoms deep. Webster 3d.
bathysonic. In oceanography, or relating to a knowledge of the depths of the sea or of the things found there. Webster 3d.
bathythermograph. In oceanography, a spherical diving apparatus, made large enough to contain two men and instruments; capable of resisting tremendous pressure, and therefore of descending to great depths; it is used in oceanography for the investigation of deepwater fauna. C.T.D.
bathythermograph. In oceanography, a coin for a permanent sea floor installation. HBG.
bathythermograph. In oceanography, a record obtained with a bathythermograph. Webster 3d.
bathythermograph. An instrument, which may be lowered into the sea on a vessel at anchor or underway, to record temperature as a function of depth. The temperature sensing device is a Bourdon tube, the depth finder is a bellows system. Accuracy of temperature is ±0.1°F; depth ±10 feet. Abbreviation, bt. Hy.
bathythermograph. In oceanography, or relating to oceanography. Webster 3d.
bathythermograph. In oceanography, a ship (as a submarine or bathysphere) designed for exploration or navigation in water far below the surface of a sea or lake. Webster 3d.
batter. A company of miners working a set of products or batches. Pryor, 3.
batter. A. To enlarge a colliery road by lowering a drift or road. See bating.
batter. A medium as water, air, sand, or oil for regulating the temperature of something or of the atmosphere around it; also, a vessel containing such a medium. Webster 3d.
batter. B. The molten material in a reverberatory furnace. Standard, 1964. c. Any solution, or the vessel containing it, in which articles of any kind are immersed to expose them to its effects; as, the baths used in the concrete industry. Standard, 1964.
bathtub. An abrasive made from a very fine-ground, quartz-rose clay found along the banks of the Mohawk River in South- west England. Used for scouring steel utensils. AIME, p. 17.
bathtub. A term applied by Suess to an older division of magmas solidified as coarse crystalline rock in the deep horizons of the crust. See also batholith.
bathymeter. This instrument measures temperature, pressure, and sound velocity to depths up to 200,000 feet. In oceanography, the device is completely transistorized and uses frequency modulation for telemetering HBG.
bathymeter. A device used in oceanography for the measurement of depths of water in oceans, seas, and lakes. Webster 3d.
bathyscape. In oceanography, a ship (as a submarine or bathysphere) designed for exploration or navigation in water far below the surface of a sea or lake. Webster 3d.
bathos. A. A deep sea. Webster 3d. A. A deep sea. Webster 3d.
bathyseism. In oceanography, or relating to oceanography. Webster 3d.
bathyseism. In oceanography, or relating to oceanography. Webster 3d.
bathyseism. In oceanography, or relating to oceanography. Webster 3d.
battens. A strip of wood used for nailing or tying together or to cover a crack. Webster 3d.

batter boards. Horizontal boards placed to widen the area of support and to resist sinking or sloping a wall back in succession. Fay.


battery assay. An assay of samples taken from a battery wall. The wall between two furnaces, built across the chute to hold back blasted coal. Hess.

battery locomotive. A locomotive powered by a storage battery. The term comprises all electric motive power by conducted electricity. It may be used for a considerable time as a source of similar machines or similar pieces of equipment. Pryor, 3.

battery ore. See manganese dioxide. Bennett.

battery ore storage. A series of stamps, usually five, operated in a groundmass of augite, magnetite, and ironstone. Hess.

battery wall. The wall between two furnaces, built across the chute to hold back blasted coal. Hess.

battery starter. In anthracite and bituminous coal mining, one who charges and sets off explosive charges. Hess.

battery type. A number or group of ovens for making coke from coal. See also bank of ovens. Bureau of Mines Staff.

battened. A set of mine timbers in which the posts are inclined. Fay.


batter-out I. One who prepares bat (flat piece of pliable clay) to be formed into dish, plate, or similar ware by jiggerman. Also called batterer. D.O.T. 1.

batter-out II. One who prepares web of clay for forming in molds of wares, such as bowls and cups. Also called baller; bailer-out; ballemaker; batter; cup bailer. D.O.T. 2.

batter pile. A pile driven at an angle to the vertical. Ham.

batter printed. A former method of decorating pottery; it was first used in Stoke-on-Trent, England, in 1810, when W. Wedgwood patented it in 1817. A bat of solid glue or gelatin was used to transfer the pattern, in oil, from an engraved copper plate to the glazed ware, colorless then bluing doped on. The process was still in use in 1890 and has now been developed into the Murray-Curves machine. Dodd.

batter printing. A method of decorating pottery; it was first used in Stoke-on-Trent, England, in 1810, when W. Wedgwood patented it in 1817. A bat of solid glue or gelatin was used to transfer the pattern, in oil, from an engraved copper plate to the glazed ware, colorless then bluing doped on. The process was still in use in 1890 and has now been developed into the Murray-Curves machine. Dodd.

battend. a. Thin partings of clay such as used in laying bricks, between 2 and 4 inches in thickness and from 5 to 8 inches in width. Used for flooring or as a support for laths. C.T.D. c. A bar fastened across a door, or anything composed of parallel boards, to secure them and to add strength and/or to reduce warping. C.T.D.

batterer. a. To reduce the width of brickwork with horizontal courses. ARJ. b. Receiving or sloping a wall back in successive courses; opposite of corbel. ACIG. c. A piece of pliable clay) to be formed into slips. Thom.

battery. a. A network of cells; storage battery. Long. b. A battery of solid glue or gelatin was used to transfer the pattern, in oil, from an engraved copper plate to the glazed ware, colorless then bluing doped on. The process was still in use in 1890 and has now been developed into the Murray-Curves machine. Dodd.

battery rule. An instrument consisting of a rule or frame and a plumbline and bob and used to regulate the batter of a wall in building. Webster 3d.

battersea. Brand of cups, scoops, crucibles, muffin sleeves, and similar assay equipment. Prype, 3.

battery, s. a. A bulkhead or structure of timber for keeping coal. Hess. b. A wooden platform for masons to stand upon while at work, especially in steeply dipping coalbeds. The plank closed at the bottom of a coal chute. Fay. d. In steeply pitching seams, a wooden structure built across the chute to hold back blasted coal. Korson. e. A blasting machine or exploder. Nelson. f. A number of stamps for crushing and pulverizing ores. Nelson. g. A series of stamps, usually five, found in one box or mortar, for crushing ores; also, the base on which they are operated. Hess. h. A Stamper mill for pulverizing stone. Gordon. i. A series or row of coke ovens. Mercereau, 4th, p. 552. Section of ore dressing (reduction) plant. Pryn. j. k. Timbering in which the stanchions are placed from foot to hanging, touching each other, in a solid mass of from three to twelve or more. The battery may be further strengthened by binding around with wire. Spalding, 3rd. l. A number of similar machines or similar pieces of equipment placed side by side on a single or separate base and operated by means of common connections as a unit. Long. m. A combination of chemically activated accumulators, which, after charging, may be used for a considerable time as a source of direct-current electricity. Also called storage battery. Long.


battling block. A plaster slab on which plastic modeling is done. Bureau of Mines Staff.

battered. a. A dark leucite basalt containing phenocrysts of augite and fewer of olivine in a groundmass of augite, magnetite, and olivine; from Batuku, Celebes, Indonesia. Holmes, 1928.

baudolier cooler. An arrangement of pipes one above another through which refrigerant flows and is vaporized as it absorbs heat from the water being cooled by trickling over the tubes. Stock, 10.


bauman print. Sulfur print, made to test concentration of sulfur on metal surfaces. The metal is dampened with dilute sulfuric acid, and pressed against photographic bromide paper. A staining of silver sulfide is produced by H2S liberated from the metal. Nelson.

baunehuerite. A lead- to steel-gray sulfarsenide of lead, 4PbS.3As3S; complex crystal systems: monoclinic; metallic luster; perfect cleavage; conchoidal fracture. From Binnewalz, Switzerland. English.

bauschinger effect. Usually refers to the phenomenon by which plastic deformation of a polycrystalline metal, caused by stress applied in one direction, reduces the yield strength where the stress is applied in the opposite direction. Sometimes used in a broad sense to include all changes in the structure of a polycrystalline or single crystal metal, whether or not the polycrystalline or single crystal and polycrystalline metals that may be ascribed to changes in the microscopic stress distribution within the metals as distinguished from those caused by strain hardening. ASM Gloss.
bauxite. a. A rock composed of aluminum hydroxides. Especially, Al₂O₃·2H₂O. The principal ore of aluminum; also used collectively for similar aluminium ores. Fay. Composed of aluminum hydroxides and impurities in the form of free silica, clay, tilt, and iron oxides. A.G.I. A nearly horizontal portion of the uprush and backwash of waves where the waves play only at high stages of the tide. Among the minor forms of the shore zone none has proved more popular in puzzling out the origin of beach material built by wave action along the shore. Sand, gravel, or coarse cobbles or pebbles may be scattered uniformly spaced ridges which trend at right angles to the sea margin, tapering out to a point near the water's edge. These beach cusps have attracted the attention of many students. A.G.I. Beach deposits. Alluvial concentrations of mineral formed by the grinding action of natural forces (wind, wave, or frost) and the selective transporting action of tides and winds. Fryar. Beach drift. drift. Beach drifting. See beach 

bauxite brick. A firebrick composed essentially of hydrated alumina and ferric oxide. Such bricks are used for the lining of furnaces where a neutral material is required. Osborne.

bauxite cement. A cement made from bauxite and lime in an electric furnace; hardens rapidly. Sometimes called cement foun, Nelson.

bauxite clay. a. A clay consisting of a mixture of bauxitic minerals, such as gibbsite and diaspor, with clay minerals, the former constituting not over 50 percent of the total. The opposite of this would be an aglaioclase bauxite, A.C.S.E. b. A natural mixture of bauxite and clay, containing not less than 47 percent nor more than 5 percent alumina on a calcined basis. H.W.


bauxitland cement. See Kühl cement. Dodd.

Bavarian cat's eye. Quartz cat's eye, from bauxitic clay. a. A clay consisting of a mixture of bauxitic minerals, such as gibbsite and diaspor, with clay minerals, the former constituting not over 50 percent of the total. The opposite of this would be an aglaioclase bauxite, A.C.S.E. b. A natural mixture of bauxite and clay, containing not less than 47 percent nor more than 5 percent alumina on a calcined basis. H.W.

bay. a. An open space for waste between two bodies of water partly surrounded by land. It may be shallow or deep, the resulting form having a nearly square cross section. Standard, 1964.

bay bar. A bar extending partially or entirely across the mouth of a bay. A.G.I.

bay mouth bar. See baymouth bar. Schiedercker.

bayou. a. A sluggish or stagnant inlet or outlet from a lake or bay, or one connecting two bodies of water; also, a branch of the stream flowing through a delta; a gut. Standard, 1964. b. See oxbow. Fay.

bay salt. A coarse-grained variety of common salt obtained by evaporating seawater in shallow bays or pools by the heat of the sun. Standard, 1964.

bayshon. Som. An air stopping, Fay.

B. bit. A nonstandard core bit no longer in common use except in drilling longwall working. See also BuMin Style Guide, p. 58.

Be Chemical symbol for beryllium. Hand.
beach mining
beaches, coastal plain, and deposits located inland from the shoreline. High-grade con-
centrates is usually obtained from low-grade material by the use of suction dredges and spiral concentrators. Nelson.

beach ore. A concentration of heavy minerals on a beach by selective action of the surf. See also black sands. A.G.I.

beach placers. Placer deposits either on a present or ancient sea beach. There are three series of these at Nome, Alaska, known as first, second, or third beach, etc., due to change of shoreline. Fay. See also black sand; placer deposit.

beach profile. The intersection of the ground surface with a vertical plane; may extend from the top of the dune line to the seaward limit of sand movement. H&G.

beach ridge. An essentially continuous mound of beach material behind the beach that has been heaped up by wave or other action. Ridges may occur singly or as a series of approximately parallel deposits. In England, they are called fulls. A.G.I.

beach scarp. An almost vertical slope along the beach. See also beach ridge. H&G.

beach width. The horizontal dimension of the point measured normal to the shoreline. H&G.

bead. a. The globule of precious metal obtained by the crystallization process in pouring. Webster 3d. b. A glassy drop of flux (as borax) used as a solvent and a color test for metallic salts (as of iron or manganese) that is formed by fusion in the loop of a usually platinum wire. Webster 3d. c. Prill. Pryor, J. d. An enlarged, rounded edge of a tumbler or other glass article, or any raised section extending around the article. ASTM C162-66. e. A piece of glass tubing used around a lead wire. ASTM C162-66.

bead enamel. A special type of porcelain enamel used for building purposes. Hansen.

beading. Off. Wiping off enamel on head preparatory to applying beading. Bryant.

beads. a. In ion-exchange, sized resin spheres, usually + 20 mesh so constituted as to capture ions from pregnant solutions under loading conditions, and to retain them under other (eluting) conditions. Two types are anionic and cationic. See also permutes; resin. Pryor, J. b. Test in mineral identification, borax is fused to a transparent bead by heating in a blowpipe flame in a small loop formed by platinum wire. When suitable minerals are melted in this bead, characteristic glassy colors are produced in an oxidizing or reducing flame, and serve to identify elements. Pryor, J. c. Weld. A weld composed of one or more string or weave beads deposited on an unbroken surface. ASM Gloss.

beader. a. A glass container for chemical work. It is generally round, flat-bottomed, with parallel sides, somewhat taller than wide, has a flared rim and a pouring lip, and ranges in capacity from a few milliliters (cubic centimeters) to 4 liters. Hess.

beaker. a. A vessel having a short cylindrical form, with a long neck, or with a short neck and a flared rim. Fay. b. A cleaned and screened anthracite coal or series of anthracite coals that will pass through a 1/2-inch screen or mesh. Fay. c. A cleaned and screened anthracite about 1/2 by 1 inch. Walker.

beaker septum. A small rubber loop used to support a stopper in a round-bottom flask. Ginn.

beaker stopper. A rubber or plastic ring used to support a stopper in a round-bottom flask. Ginn.

beaker test. A method of measuring the modulus of rupture of concrete or mortar by casting a standard beam, without reinforcement. The beam is supported and loaded in a standard way, the bending moment at the point of failure being recorded; from this the maximum tensile stress is calculated. It is a cheap and efficient test for concrete and mortar. Hess.

beak. a. A straight or curved point. Ast. b. A beak-like part of a bird. Ast. c. A lifting device, used to lift the pump rods or sacked rods. Hess.

beaker and bar. A special type of porcelain bead used for building purposes. Hansen.

beak. a. A species of small bee that constructs a beehive resembling a beehive. b. A beak-like part of a bird. Ast.
beche; biche

grate bars in a furnace. Fay.
bearers. a. S. Staff. Women formerly em-
ployed to carry coal out of the mines.
Fay. b. Slimmers, fat men, placed in a shaft
at intervals of 30 to 100 feet to support
shaft sets. They are usually put beneath
the end plates and dividers, and carry the
hit-and-miss charge. Also used to sup-
port pumping gear. Fay. c. Porters, such as
those used on prospecting trips in many
countries.
bearers' way. Scot. An underground load
bearing-in shots. Borcholes tending to meet
bearing-in. The depth of an undercut, or
bearing road. Scot. See bearers' way. Fay.
bearing pit. Scot. A shaft up which coal was
bearing piles. Piles to transmit the load of a
bearing metal. Metal employed for axle bear-
bearing seal. A device on the *outer side of
bearing pressure. The load on a bearing sur-
facing which has been selected as the most suitable to
support a given load. Hem.
bearing strength. In a mine shaft, a specially
substantial set of timbers used at intervals to
support the linings and ordinary bearers.
They are tied into the surrounding rock to
give extra strength. Pryor, 3.
bearing stake. A pole or a line in indi-
cate the horizontal direction an inclined
boorehole is to be drilled. Long.
bearing stratum. The earth formation which
bearings. a. Eng. The surface outcrop of a lode
bearing test. Same as azimuth test. Long.
bearing-up pufuhy. A pulley wheel fixed in a
frame and arranged to tighten or take up
the slack rope in endless-rope haulage. Fay.
bearing-up stops. a. Partitions or brattices of
blank that serve to conduct air to a face.
Fay. b. Keps or catches used to support
a cage at the end of a hoist during load-
ing or unloading. C.T.D.
bearing wall. A wall which supports a vertical
load in addition to its own weight. ACSG.
bear. Derb. Calcareous nodules of clay iron-
bearing strata. a. Scot. A mine with hard rock
bearsite. The arsenic analogue of mornesite,
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6 pounds. The hollow part extends to five-eighths of an inch at the upper end and tapers to three-eighths of an inch at the lower end and tapers to five-eighths of an inch at the upper end. It is used for extracting the bottom portion of broken sets of rods from a borhole, Fay.

beckite. A brown resin, found at the boric acid lagoons of Tuscany, Italy. Standard, 1964.


Becke method. Becke. In optical mineralogy, a method or test for determining relative indices of refraction. The Becke method determines microscopically the index of refraction of a mineral compared with that of an oil or another substance, such as Carbon tetrachloride, in which it is immersed, or of two adjacent minerals in a microscopic thin section. If the mineral grain under investigation has an index of refraction lower than that of the enclosing medium or that of an adjacent mineral grain with which it has a nearly vertical contact, a line of light (called the Becke line) will move outward into the medium or into the adjacent mineral grain of higher refractive index as the barrel of the microscope is moved upward from the position where it first moves inward from the mineral being investigated if the barrel of the microscope is moved downward. If the mineral grain under investigation has an index of refraction that is higher than that of the enclosing medium or that of the adjacent mineral grain with which it has a nearly vertical contact, the Becke line will move inward into the mineral grain under investigation from the boundary with the enclosing medium or inward from its nearly vertical contact with the adjacent mineral grain of lower refractive index as the barrel of the microscope is moved upward from the position of focus, and it will move outward from the microscope until it reaches the mineral grain under investigation if the barrel of the microscope is moved downward. Bureau of Mines Staff.

beckite. A brown resin, occurring with amber. English.

Becket loop. A loop of small rope fastened to the end of a large wire rope to facilitate installation. Ham.

beckite. See becket. C.T.D.

beckite. A brown resin, occurring with amber. English.

1. A passage usually wide and high and used for traveling from one side of a cave to the other. Necle.

2. The solidified core of a kettle at the bottom of a cupula. The first charge of iron is also called a bed charge. Origin. British. Fay.

bed. a. The smallest division of a stratified series and marked by a more or less well-defined upward and downward trend, and may be regarded as a local plane in its neighbors above and below. Fay. b. A deposit, as of ore, parallel to the stratification, later in origin than the rock below, and older than the rock above, thus constituting a regular member of the series of formations, and not an intrusion. Standard, 1964. c. The portion of an outcrop or face of a quarry which occurs between two bedding planes. Fay. d. The level surface of rock upon which a curb or crib is laid. Fay. e. The bottom of a watercourse or of any body of water. Webster 3d. f. A mass or heap of anything (as ore), arranged in layers. Webster 3d. g. All the coal, partings, and seams which lie between a distinct roof and floor. Bed is preferred by the U.S. Geological Survey, state geologists, coal authorities, and the U.S. Bureau of Mines. Seam or vein should be used instead of bed if the coal bed is worked in benches, use the term bench (upper, middle, or lower), not seam, or bed. Webster 3d. h. S. Afr. The hard solid rock underlying alluvial deposits. Also called bedrock. Waller. i. Perhaps the most common term in geology meaning layer or stratum. Quarrymen usually mean by bed not the strata beds in the geologist's sense but the partings between Arkell. j. A stockpile, as of ores, concentrates, and fluxes, built up of successive longitudinal layers so that transverse cutting yields a uniform mixture for furnace feed until the material is all consumed. Bureau of Mines Staff. k. The stationary portion of a press structure which usually rests on the floor or foundation, forming its base. Webster 3d. l. Moisture that is small compared with the mass or heap of anything (as ore), arid, consisting a regular member of the series of deposits. Schieferdecker.

bed. a. The layer of heavy and oversize material placed between the corrugated loading to the stream of ore being treated, for example, between bottom of thickener and its rakes. Fay.

bed. Applied to rocks resulting from consolidated sediments and accordingly exhibiting planes of separation designated bedding planes. Fay.

bed. A term usually applied to mineral deposits that are found parallel with the stratification of sedimentary rocks and usually of contemporaneous origin. The term is used by some writers to describe layer-like deposits of replace- ment origin. Steckel and Vane 1955. See also bedded formation. Fay. b. In economic geology, a synonym for blanket deposit. Nichols.

bed. A formation which shows successive beds, layers, or strata due to the manner in which it was formed. A bedded deposit. Fay.

bed. Ore aggregates occurring between beds or in sedimentary rocks. Schieferdecker.

bed. Ore which occurs as beds or layers. The ironbearing ore in Great Britain are the iron ores of the Jurassic. Another bedded ore is that of manganese, found in the Cambrian and Ordovician rocks of North Wales. See also Frodingham ore; manganese ore; Northampton sand ironstone. Nelson.

bed. One of the two subdivisions of the period named for the rocks within each bed, in addition to being elastically perfect, isotropic, and homogeneous, must have a thickness large enough for the stress that is applied on the bed to be significant compared with the effective stress across the bed. See also bedded volcanos. Webster 3d.

bed. A thin layer differing in composition with the beds between which it occurs. Schieferdecker. b. A joint paral-
bedding joint

lel to the bedding plans formed by tection processes. Schieredercker.

bedding plans a. In sedimentary or stratified rocks, the division planes that separate the individual layers, beds, or strata. A.O.G.I. b. A rock-bedding forming mineral has been deposited. Pryor, 3. c. A separation or weakness between two layers of rock, caused by changes during the building up of the rock-forming material. Nichols. 


bedford limestone. One of the finest and best known building stones to be found in the United States. It gets its name from its shipping point, Bedford, Ind. Crispin.

bed joint a. A horizontal crack or fissure in massive rock. Webster 3d. See also bedding plane. Fay b. One of a set of tracing fissesures parallel with the bedding of a rock. Webster 3d. c. A horizontal joint between courses of brick. A.R.I. d. The horizontal of mortar on (or in) which a masonry unit is laid. ASCG. 

bedfoid. Sediment that moves on or very near the bottom and in almost continuous contact with the bed. It moves by skipping, sliding, and rolling. Motion is derived from gravitational and gravitational forces. USGS Prof. Paper 462-F. 

bed material. The material composing the channel bed. USGS Prof. Paper 462-F. 

bedplate. A plate of iron, copper, or other metal, fastened to the bottom of a furnace. Webster 2d. 

bedrock. a. Any solid rock exposed at the surface of the earth or over lain by unconsolidated material. A.G.I. Supp. b. In Australia, the stratum upon which the wash dirt rests is usually called bedrock. It usually consists of granite or boulder clay (or pebbles in a stratum), and more rarely, basalt. When the strata consists of slates or sandstones (Silurian or Ordovician), it is usually called reef strata. Engineering and Mining Journal, v. 139, No. 4, April 1938, p. 55. 

bedrock (ledge). Rock of relatively great thickness and extent in its native location. ASCE P1826. 

bedrock test. A borehole drilled to determine the character of bedrock, and separate the char-acter and depth of overburden overlying such bedrock. Long. 

bed rubber. In the concrete products and stonework industry, one who rubs down and finishes stone, sandstone, or rough stonework. Shell Oil Co. 

bed separation. The thin processes. Schieferdecker. 

bed stone. In milling, the lower or stationary beds of passage. Beds in which the fossils or rock below, indicate the transition character of the deposit. Standard, 1964. 

bed stone. In milling, the lower or stationary millstone. Fay. 

bed vein. a. Following the bedding planes in sedimentary rocks or a mineralized permeable stratigraphic horizon developed below an impervious bed. Synonym for blanket vein; mant as; sheet ground. Schieredercker. 


beech coal. Charcoal made from beechwood. Fay. 


beef. Eng. Fibrous carbonate of lime, so called by the Purbeck quarrymen and now in general use. It is called on the continent bacon and homeflesh. Arkell. 


beehive coke. Coke manufactured in beehive rectangular, or similar forms of ovens in a horizontal bed, where heat for the coking process is securd by combustion within the oven chamber. ASTM D121-62. 

beehive coke oven. Oven, brick, brick bottom, side walls, and a domed roof. Bureau of Mines Staff. 

beehive kiln. See round kiln. Dodd. 

beekmantown limestone. A magnesian lime- stone, 1,800 feet in thickness and charac-terized by curved nautiloid cephalopods, occurring in the Canadian series of North America; of Arenig age; equivalent to part of the Durness limestone of the Highlands of Scotland. C.T.D. 


beerkhuite. This rock was originally de-scribed as a basic igneous rock but it is now known to be a hornfels with a layer of olivine. See also hornfels. A.G.I. 

beer stone. Eng. An agglutinated and sili-cous material obtained from quarries at Beer, 10 miles west of Lyme Regis, at the pass-ing of the chalk into the greensand. Fay. 

beerstone. A sedimentary rock containing connected nes-sicators in tunneling and quarrying. See also exploder. Nelson. 

beetle. a. A powerful rope-hauled propulsion unit, operated under remote control, for moving a train of wagons at the mine surface. A beetle runs on a narrow-gage track set within the main track, and moves wagons by passing with them and exerting pressure with idler rollers on arms which are extended by a forward motion of the tongs to engage the trolley treads. See also charger. Nelson. b. Eng. A small compressed-air locomotive. Fay. 

beetlestone. A nodular, dense, ironstone, so named from the resemblance of the en-closed coprolite to the body and limbs of the beetle. Beet. 

bedding stones. Flat stones on which clothes were beaten. Arkell. 

before breast. Rock or vein, which still lies ahead. Zern. 

beginners. Points (and, may be, crossings) in a roof or roadway. 

behead. In geology, to cut off and capture by erosion an upper portion of (a watercourse); see the development of a higher stream upon a weaker one. Standard, 1964. 

beheaded stream. The lower section of a stream that has lost its upper portion through stream piracy. Leet. 

beidellite. A white, reddish, or brownish-gray component of bentonite, an aluminum montmorillonite clay, Al2(Si205)OH2·12H20. Minute plates, probably orthorhombic. Previously described as purekaite. Found in Beidell, Colo., and Owhey County, Idaho. English; Dana 17; A.G.I. 

beige. A color. An oil well is said to "be in" when it is in. Shell. 


bein. An oil well is said to be "in" when it begins to produce. Heiss. 


Bel. A unit of level when the base of the logarithm is 10. Use of the bel is restricted to levels of quantities proportional to powers of 10.

Belinite. An extinct type of cephalopod known from cigar-shaped fossils. A.G.I. Staff.

Belinite marls. Calcareous clays characterized by the occurrence of plentiful belemnites, occurring in the English Chalk. See also Flints. Pet.

Belfast truss. A bowstring design of girder fabricated entirely from timber components. Ham.


Belgian kiln. A type of annular kiln patented by D. Enghiens. It is a longi-
tudinal arch kiln with grates at regular intervals in the kiln bottom; it is side-fired on the grates. Sigillaria, or the roots of trees. See also Belemnites. C.T.D.

Belgian sliez. A very hard, tough, more or less shaped to fit the curve of a coal seam. See also Belemnites. Arkell. b. A form of lead poisoning to which miners are subject. Fay. c. A gong used as a signal at mine shafts. Fay. d. An expanded part at one end of a pipe section, into which the next pipe is inserted when laying. The shaft is made of lead, rubber, or other suitable substance other than iron. Fay. e. A gong used as a signal at mine shafts. Fay. f. A gong with a bell-like flaring mouth. Fay. pearl. A bell or pear-shaped pearl. Shipley.

Belgian zinc furnace. A furnace in which zinc ore, mixed with a reducing material, is placed in retorts which consist of cylindrical pipes of refractory material closed at one end, of a length and diameter convenient for charging and cleaning them. A number of these retorts are placed slightly inclined in a properly constructed furnace. The open ends of these retorts are covered with a sheet-iron hood to which are connected short, conical, sheet-iron pipes discharging the molten zinc downward. Fay.

Belgian slite. A very hard, tough, more or less shaped to fit the curve of a coal seam. See also Belemnites. Fay.

Belgian process. A process most commonly employed in the smelting of zinc. Roasted zinc ore, mixed with a reducing material, as coal, coke, is placed in retorts which contain of phosphorus from molten pig iron in a puddling furnace, lined with a caldron bottom. Fay.

Belgian zinc furnace. A furnace in which zinc ore is reduced and distilled from calcined ores in tubular retorts. These furnaces may be classified as direct-fired and gas-fired, but there is no sharp division between these systems, which merge into one another by difficulty definable gradations. Each class of furnace may be subdivided into recuperative and non-recuperative, but heat recuperation in connection with direct firing is rare. Fay.


Bell damper. A damper of the sand-seal type, originally made from Belleek, Ireland. ASTM C242-60T.

Bell jar. Synonym for jar collar. Long.

Bell jar. See bell jar. Long.

Bell jars. Trays, used in connection with the miner's lamp, for holding the powder used in the lamp. Long.

Bell's dephosphorizing process. The removal of phosphorus from molten pig iron in a puddling furnace, lined with a sheet-iron bottom and fitted with a mechanical rabble to agitate the bath. Red-hot iron ore is added. See also Kropp's washing process. Fay.

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bell tap
the upper end of lost, cylindrical, downhole drilling equipment and turned, the telescope of a bell tap cuts into and grips the outside surface of the lost equipment. Also called bell; bell screw; belt; box bell; die; die collar; die nipple. Long.
bell top. Term used to describe a good roof that has a clear ringing sound. Kentucky, p. 133.
bellwork. A system of working bell helve. Eng. A forge hammer, lifted by a bellboy in a forge and used to drive the bell. Long.
bell top. Term used to describe a good roof that has a clear ringing sound. Kentucky, p. 133.
belly helve. Eng. A forge hammer, lifted by a bellboy in a forge and used to drive the bell. Long.
belly pipe. A flaring-mouthed blast pipe in a drill tripod or derrick. Long.
belongs. A white transparent magnesium molybdate, MgMoO₄, crystallizing in a tetragonal system. Fay.
belonesite. A white, transparent magnesium nodule, Mg₂Co₄, crystallizing in the tetragonal system. Fay.
belote. A red- or club-shaped microscopic embryonic crystal in a glassy rock. Fay. Longitudinal, clavilites, and spiculites are included under this term. A.G.I.
belotite. A nodule; a globular nodule. Fay. A globule of coals or peat, consisting of a mixture of peat and dust, which lies on the surface. Fay.
belphosphate. The mineral reported by E. I. Nefedov, 1953, with the formula, Ca₃(Ca₃Mg)(AsO₄)·2H₂O. Near moselite, Nevada, 20, M.M., 1953; Spencer 17, M.M., 1946.
belonite. A white, transparent magnesium molybdate, MgMoO₄, crystallizing in the tetragonal system. Fay.
belonite. A red- or club-shaped microscopic embryonic crystal in a glassy rock. Fay. Longitudinal, clavilites, and spiculites are included under this term. A.G.I.
belrade. The difference in speed between the inner and outer drums of a belt conveyor. Fay. Bell alip. The difference in speed between the terminal drums and the intermediate drums. Fay.
the driving drum and the belt conveyor. Belt slip at the drivehead can cause heating of the driving drum. Devices are available which measure the belt slip and which cut off the power when a predetermined amount of slip takes place. See also slip.

devices. A device fitted to a belt conveyor to give an alarm or to cause the conveyor to stop if the amount of belt slip exceeds a predetermined amount. B.S. 3618, 1965, sec. 7.

device. An assembly which causes the power to be disconnected if the belt slips excessively on the drive pulley. NEMA MB1-1961.

table. A table incorporating a belt-slip device. A table designed for measuring the belt slip and which provide working space on one or both sides of the belt. ASA MAH-1-1958.

takeup. A mechanism which operates and includes a takeup pulley carrying one end of a belt loop in such a way as to provide suitable operating tension. It may also serve as a means for storing extra belt.

tensioning. A mechanism which operates on a takeup pulley carrying one end of a belt loop in such a way as to provide suitable operating tension. It is commonly known as a belt takeup. NEMA MB1-1956.

trainer. A device used for training a belt or to assist it in running in a central position. It consists of a roller, either of metal or hard wood, supported at one of the frames which likewise supports the tugging idler, or idlers. Jones.

tipper. A device or mechanism which causes the conveyor belt to pass around pulleys for the purpose of discharging material from it. ASA MAH-1-1958.

geologic classification. A name based upon the Beluga River, Alaska, and suggested by J. E. Spurr for a transition group of plagioclase rocks between his diorites and diaspars. Spurr restricts the name dionic to those plagioclase rocks (without regard to the dark silicate) whose plagioclase belongs in the andesine-oligoclase series. The diabase group, on the other hand, contains those whose plagioclase belongs in the labrador-ite-anorthite series. Belugites with a porphyritic texture and a fine-grained or aphanitic groundmass are called aleutites. Fay.


m. A salmon-colored feldspar from Denis, Me. Schaller.

. Inward toward the workings; the workman's right to enter the pit. Fay. b. The day's work of a youth, indicating the proportion of a man's task which he is able or allowed to put out, is called quarter-man, half-man, three-quarter man. Fay. c. The live or productive part of a lode. Arkell. d. A mountain peak; a word occurring chiefly in the names of many of the highest summits of the mountains of Scotland, as Ben Nevis. Fay.

b. A finely ground plastic clay prepared from a deposit in Essex, England, used as a bond in foundry sand mixtures. Osborne.

d. One of two or more divisions of a coal seam, separated by slate, etc., or simply separated by the process of cutting the coal, one bench being cut before the adjacent one. Fay. b. To cut the coal in benches. Fay. c. A terrace on the side of a river or stream formed at one time by a river which has since been abandoned. B.S. 3618, 1965, sec. 7.

d. A group of retorts in an oven or furnace; also, the complete oven or furnace containing a set or group of retorts for generating coal gas. Webster 3d. h. Eng. A ledge left in tunnel construction work, on the edge of a cutting in earth or in rock. Fay. i. Scot. A landing place. Fay. j. The horizontal step or floor along which coal, ore, stone, or overburden is worked or quarried. See also benches; opencast. Nelson. k. A stratum of coal forming a part of the seam; also, a flat place on a hillside indicating the outcrop of a coal seam. B.C.I. A tunnel excavation, where a top heading is driven, the bench is the mass of rock left, extending from about the spring line to the bottom of the tunnel. Steauffer. m. Any coal mine, a long horizontal face or ledge of ore in a stope or working place. C.D. A ledge, which in open-cut work forms a step from which excavation will take place at constant level. Austin. n. A part of the face of a large excavation which is not advanced as part of the round but as a separate operation. B.S. 3618, 1964, sec. 6.

m. A ledge, which, in open-cut mines and quarries, forms a single level of operation above which mineral or waste materials are excavated from a contiguous bank or bench face. The mineral or waste is removed in successive layers, each of which is a bench, several of which may be in operation simultaneously in different parts of, and at different elevations in an open-cut mine or quary. Compare bench, a. A level or gently marked by a characteristic mineralogy or structure. A.G.I. u. A level or gently sloped erosion plane inclined seaward. "Arc. v. A nearly horizontal zone, at about the level of maximum high water or the seaward side of a dike. H.O.G. w. See see. ASTM C-1166.

Ark. That plan of mining coal in a room which requires the blasting of the bench before any, of coal alternately, each a little beyond the other. Also called bench working. Fay.

Ark. A mining system used either underground or in open pit, whereby a thick ore or waste zone is removed by blasting a series of successive horizontal layers called benches. Bureau of Mines Staff.

a placer claim located on a bench above the present level of a stream. Hess.

b. A coal seam cut in benches or by benches. Fay.

cut. a. In vertical shaft sinking, blasting of drill holes so as to keep one end of a drill string open at the beginning (leading), thus facilitating drainage and removal of blasted rock. Pryor. b. Benches in tunnel driving are often drilled from the top downward. The vertical shotholes are generally spaced 4 feet apart in both directions, fired by electric detonators, one row at a time. When bench shot holes are drilled horizontally, with the drifter drills mounted on a bar, the charges are fired in rotation, starting from the upper center. In some cases a bench may be drilled both vertically and horizontally, particularly where the benches are exceptionally high or when the headroom above the bench is inadequate for handling drill stuffs. Fay. c. A series of horizontal levels in a mine or mine tunnel. Fay. d. The day's work of a youth, indicating the proportion of a man's task which he is able or allowed to put out, is called quarter-man, half-man, three-quarter man. Fay. e. A long horizontal face or ledge of ore in a stope or working place. C.D. a. A ledge, which in open-cut work forms a step from which excavation will take place at constant level. Austin.
bending iron. An item of surveying equipment, comprising a triangular steel plate with printed studs at the corners. These studs are driven into the ground in the desired position. The plate is used either as a temporary bench mark or as a change point in running a line of levels. Ham.

bending shot. Scot. A shot placed in a hole bored vertically downward in an open face of work. Fay.


bench mark. a. permanently fixed point of known elevation used as a reference for elevations. A primary bench mark is one chosen as a tide station to which the tide staff and tidal datum originally are referred. Hy, b. A permanent mark or a suitable character for preserving and transferring vertical elevations in a tunnel. Stuffle.

bench of timbers. A term used to describe the header when it is complete with legs. Also called a set. Kentucky, p. 140.

bench placed. A tin- or gold-bearing terrace of gravel on one or both sides of a river valley. Nelson.

bench placer. Placers in ancient stream deposits. Fay.

bench stones are made circular for those who prefer the rotary motion in sharpening chisels and similar instruments. Fay.


bench stone. A rectangular stone measuring from 4 to 8 or 9 inches long by approximately 2 inches wide and varying in thickness, with 1 inch generally rests on the artist's bench, whence its name. Some bench stones are made circular for those who prefer the rotary motion in sharpening chisels and similar instruments. Fay.

bench terrace. A more or less level step between steep riers, graded into a hillside. Nichols.

bench vise. The ordinary machinist's vise, either plain or swivel. Crispin.

bench working. The system of working one or more seams or beds of mineral by open or under pressure. Crispin.


bend. Corn. Indurated clay; applied by the Bendelari jig. A jig fitted with a flexible rubbing element by which the bending operation is performed. ASM Gloss.

bend away. See away.

bend, bending. A diaphragm which is worked by an eccentric motion, thus producing a jigging cycle (pulsion suction). Pryor, 3.


bending brake. A press brake used in bending. ASM Gloss.

bending formula. The formula used to calculate the bending of beams, made of any homogeneous material, under load, $M = \frac{t}{2} \times I$, where $M$ equals bending moment, $t$ equals stress, and $z$ equals modulus of section, from which, for a beam where $I$ is the moment of inertia of the section and $y$ is one-half its depth. Ham.

bending moment. The algebraic sum of the couples or the moments of the external forces, or both, to the left or to the right of any section on a member subjected to bending by couples or transverse forces, or both. ASM Gloss.

bending moment diagram. A diagram showing the amount of bending moment at any point along a beam, for one loading. The position and amount of the maximum bending moment is clearly revealed by this diagram. Ham.

bending moment envelope. A diagram showing the worst bending moment at any point for all possible loadings on a beam, consisting of several bending moment diagrams superimposed one upon another. Ham.

bending of strata. See folding. C.T.D.

bending rolls. Two or three rolls with an adjustment for imparting a desired curvature in sheet metal. ASM Gloss.

bending schedule. A list of steel reinforcement prepared by the designer of a reinforced concrete structure, showing the shapes and dimensions of every bar and the number of bars required. The bar bender prepares the bars in accordance with this schedule. Ham.

bending stress. The stress produced in the outer fibers of a rope by bending over a sheave or drum. Zorn.

bend radius. The inside radius of a bent section. ASM Gloss.

bend pulley. An idler pulley which is used solely for the purpose of changing the direction of motion; or, other than at the terminals of the conveyor. NEMA MBI-1961.

benda. Caisson diease, brought on by too sudden return to normal pressure after working in a pressurized shaft or tunnel. Pryor, 3.

bend shaft. A shaft which supports a bend wheel or pulley. ASA MH4-1958.

bend tangent. A tangent point where a bending arc ceases or changes. ASM Gloss.

bending test. A test for determining relative ductility of metal that is to be formed, usually shearing, bending, or, for and, for determining soundness and toughness of metal. The specimen is usually bent over a specified diameter through a specified angle for a specified number of cycles. ASM Gloss.

bend-up, bend up a bit. Eng. An order to raise the cage slowly, so that it may be instantly stopped on the order "hold" or "stop".

bend wheel. A wheel used to interrupt and change the normal path of travel of the conveying or driving medium. Most generally used to change the direction of a conveyor travel from inclined to horizontal or a similar change. ASA MH4-1964.

beneficiate. a. To improve the grade by removing unwanted constituents, and (3) improving the quality, purity, or assay grade of a desired product. Pryor, 2. b. Concentration or other preparation of ore for smelting by drying, flotation, or magnetic separation. ASM Gloss.

beneficio. a. Sp. The working of mines. Fay. b. Sp. Profit derived from working a mine. Fay. c. Sp. Metallurgical processes: B. de caliza, to the caldron or hot amalgamation process; b. de hierro, amalgamation reduction with the addition of fragments of iron; b. de colo, the colo or cold amalgamation process; b. de patio, the patio or cold amalgamation process; b. de tonelos, the Freiberg or barrel amalgamation process; b. por cianura, the cyanide process; b. por corloración, the chlorination process; and b. por fuego, reduction by smelting. Fay. d. Sp. B. de metales, mechanical preparation of ores; ore dressing. Fay.

bench press. Any small press that can be placed in a pressurized shaft or tunnel. Fay.


bench placer. A tin- or gold-bearing terrace of gravel on one or both sides of a river valley. Nelson.


bench stones are made circular for those who prefer the rotary motion in sharpening chisels and similar instruments. Fay.

bench terrace. A more or less level step between steep riers, graded into a hillside. Nichols.

bench vise. The ordinary machinist's vise, either plain or swivel. Crispin.

bench working. The system of working one or more seams or beds of mineral by open working or stripping; in stages or steps. Zorn. Also called bench-and-bench Fay.


bend. Corn. Indurated clay; applied by the miner to any hardened argillaceous substance. Fay.

bend allowance. The length of the arc of the neutral axis between the tangent points of a bend. ASM Gloss.

bend angle. The angle by which a bending operation is performed. ASM Gloss.

bend away. See away.

bend, bending. A diaphragm which is worked by an eccentric motion, thus producing a jigging cycle (pulsion suction). Pryor, 3.
a fixed elevation. ASA MH4-1.1–1938. c. In tunnel timbering, two posts and a roof timber. Nichols.

bent. Pl. Elas that has been shaped while hot into cylindrical or other curved shapes. ASTM C162-66.

bent Lac. A primary division of the sea which includes all of the ocean floor. The Benthi Division is subdivided into the Littoral Sea (the ocean floor lying in water depths ranging from the high markwater to a depth of 200 meters or the edge of the continental shelf), and the Deep-Sea System (ocean floor lying in water deeper than 200 meters). The systems are further subdivided into the Tertiary Zone (0 to 30 meters), Subtropical Zone (30 to 200 meters), Archibenthic Zone (200 to 1,000 meters), and the Abyssal Zone (1,000 meters and greater). Hy.


bentonite. All plants and animals living on the ocean bottom. A.G.I.

bentonite. A montmorillonite-type clay formed by the alteration of volcanic ash. It varies in composition and is usually high in montmorillonite and diatomaceous earth.
beryllium oxide; beryllia

Beryllium oxide is a metal oxide with the formula BeO, a compound of beryllium and oxygen. It is a white, crystalline solid that is extremely hard and is used as a ceramic packing.

The compound is known for its high thermal and electrical conductivity, making it useful in electronic and electrical applications. It is also used in the production of gemstones, such as beryl, and in the manufacturing of high-strength alloys.
beryllium oxide; beryllia
cific gravity, 3.02. Bodies high in BeO have extremely high thermal conductivity (for a range of metal ranges) and also possess high mechanical strength. Used in nuclear reactors because of its refractoriness, high thermal conductivity, and its ability to act as a moderator for fast neu-
trons, reducing them to thermal speeds. BeO is widely used for electronic components and for crucibles for melting uranium and thorium. See beryl, beryl oxide. A rare mineral, found at Stone-
ham, Maine, in decomposed granite, oc-
curring as orthorhombic crystals. Phosphate of beryllium and sodium. C.T.D.
berylmometer. An instrument, often portable, that measures the presence of beryllium in any mixture or mineral. The device con-
tains radioactive antimony, which pro-
duces a beta phase of a single beryl into a lighter isotope, releasing neutrons which are counted by a scin-
berylstone. A color filter, same as the Emer-
el glass. Shipley.
beryl whirlpool process. A quick, simple method developed by the U.S. Bu-
reau of Mines for determining the amount of beryl in a mineral sample. Pre-
ts are placed in a hot solution of sodium hydroxide; this etches the beryl grains in the sample, which then are stained an in-
tense blue with another chemical, so they can be easily counted under a microscope. Bureau of Mines Staff.
berylite. A mineral, Cu2O, consisting of copper selenide, having a silver-white color when freshly broken; specific gravity, 6.7. Basset.
berylzircon. A mineral, (Ca,Al(C03)2(OH)4)n·3H2O, but the fibers give straight extinction. From the shales at Nowa Ruda, Dolny Slask, Poland. Hey, M.M., 1964; Fleischer.
beryllite. A massive, bright, yellow, brittle, 
calcium-magnesium-manganese arsenate, 
(Ca,Mg,Mn)3AsO4·2H2O. Fay.
berusite. A soda-rich variety of quartz 
that is stable between approximately 667° 
and 775° C; it is tetragonal. Lea.
berutile. A soda-rich variety of quartz 
that contains over 99.75 percent copper. 
Bennett 2d, 1962.
beryllium. Iron ore very low in phospho-
rus and thus suitable for use in the Besse-
beryllium gamma ray. A gamma ray emitted by 
beryllium into a lighter isotope, releasing 
neutrons which are counted by a scin-
tigraphy detector. LBIL.
beryllium hydride. Metallic tin in its common, massive 
beryllium oxide. A soda-rich variety of quartz 
that contains over 99.75 percent copper. 
Bennett 2d, 1962.
beryllium radiation. Metallic tin in its common, massive 
beryllium target. A target at high-tempera-
ture phases of a compound, adopted by most min-
eralogists and X-ray workers, is exactly re-
crystallized at room temperature. In the lattices of beryllium hydride, the fibers give straight extinction. From the shales at Nowa Ruda, Dolny Slask, Poland. Hey, M.M., 1964; Fleischer.
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that contains over 99.75 percent copper. 
Bennett 2d, 1962.
beta zircon

Shippel, beta.


Bethell's process. A process for creosoting betelnut. Bethel. Orthorhombic nee-

Bettendorf-Kroll process. A process for obtaining betrothed. Deprived of its trunk or main

bettunked. Deposition of its trunk or main body; said of certain river systems, whose

bettered valley. A valley that has lost its

hoodoo. A ferric lead sulfate or arsenate

bailee's-laboratory tolerance. The maximum

bevel 2d. The abbreviation for bevel-wall bit.

bevel angle. The angle formed between the

prepared edge of a member and a plane

bevel cut. Applied to any style of cutting with a very large table, joined to the

girdle by one or sometimes two bevels, and a

pavilion which may be steep cut, brilliant cut, or any style. Used mostly for

opaque gems. Also known as table cut. Shipley.

beveled end. In concrete and similar pipe,

terminal surface inclined at such an angle

with the axis of the pipe that the end of one pipe will closely fit in the alternate

der end of another. Hem.

beveled joint. In sewer or drain pipe, a joint

formed between pipes with beveled ends.

beveler. In the stonework industry, one who

bevels slabs of slate for building purposes

by beveling with a beveling edge. D.O.T. 1.

bevel flanging. Same as flaring. A.S.M. Glot.

bevel gear. a. A cone-shaped gear encircling the
drive rolls in a diamond-drill swivel head, which meshes with a matching gear attached to the drive shaft from the drill motor. By means of these gears the drill-string equipment can be made to rotate. Also called miter gear. Long. b. Any gear, the teeth of which are inclined to the shaft axis of the gear. Long. c. A gearwheel that transmits power between two shafts which meet at an angle. If at a right angle, and the wheel is of the same size, it is called a miter gear. Grispin.

beveling. The process of edge finishing flat glass to a bevel angle. ASTM C166-62.

beveminent. The replacement of an edge of a crystal by two planes equally inclined to the adjacent faces. Standard, 1964.

bevel-wall bit. A core bit having the inside

section of a gem stone. Shipley.

d. The groove made in a setting to receive the girdle and the immediately adjacent section of a gem stone. Shipley.

bezel facets. The eight facets on the crown of a round brilliant-cut gem, the upper points of which join the table and the lower points, the girdle. If the stone is a cushion-shaped brilliant, four of these bezel facets are called corner facets. Shipley.

bezel. a. All that part of a faceted gem stone lying above the girdle. Shipley. b. The sloping surface of the crown between the table and the girdle. Shipley.

c. A small part of that sloping surface just above the girdle; the so-called setting edge. Shipley.

d. The groove made in a setting to receive the girdle and the immediately adjacent section of a gem stone. Shipley.

beveling. A process for creosoting

betelnut; betechtinit. Orthorhombic nee-


A.1.1-1957.

bettenhorst Bed. A siliceous fireclay occurring under the Better Bed coal of the


BD. Following for Birmingham gauge; hoop and sheet. Handbook of Chemistry and


bina. A Malaysian unit of weight equal to

400 pounds avoirdupois. Hect.

B.H. Abbreviation for bottom-hole tempera-


Bi Chemical symbol for bismuth. Handbook


blanchite. A white hydrous double sulfate of

zinc and iron, FeZn(SO4)2.8H20. Later shown to be an isomorphous mixture of zinc and iron sulfates, (Zn,Fe)SO4.6H2O, belonging to the hexahydrate series of salts of Zn,Ni, Co and Mg. Crystalline crusts. Probably monoclinic. English.


bias. The tendency to obtain a value that is either persistently higher or persistently lower than the correct value. Alternatively, the numerical value of the difference between the true value and the average result obtained from a large number of determinations using a biased method. B.S. 1017, 1960, Pt. 1.

biased error; constant error; systematic error. Series which are always wrong in the same direction, producing cumulative distortion. Pyor, 3, p. 159.

biased results. In sampling, survey measurement, etc., systematic errors due to a fault in technique or in the instrument. Such errors are cumulative (anomyn random error). Pyor, 3, p. 159.

bismuth. The optical character of crystals belonging to the rhombic, monoclinic, and triclinic system, which exhibit double refraction, but have two sets of directions, that is, two optic axes. Anderson.

bistability. In a biaxial stress state, the ratio of the uniaxial to the larger principal stress. A.S.M. Glot.
bicarbonate. A salt of carbonic acid in which only one of its hydrogen atoms is replaced by a base; for example, bicarbonate of sodium, NaHCO₃, also called monobasic carbonic acid. Standard, 1964.

bicarbonate. A salt containing two chlorine atoms; for example, bicloride of mercury, HgCl₂. Standard, 1964.


biclitr. To make a price on anything; a proposition. Bid. A. To make a price on anything; a proposition. Bid.


bimetal. Refers to the concurrent use of both gold and silver as money at a fixed relative value, established by law. Also, the doctrine advocating such use. Standard, 1964. f.

bimetal. A strip consisting of two metals which have different coefficients of expansion, one metal forming each side of the strip. The strip will curl, with change of temperature, one way or the other by an amount which can be calculated. This device is widely employed in thermometers and relays.

bimetal. A strip consisting of one or two such metals; thus, NaCl, NaO, NaSO4, and (NH)4SO4, are all binary compounds. Webster 3d; A.G.I.

bimetal. An alloy consisting of two elements. A.G.I.

bimetal system. A system consisting of two or more metals. Webster 3d; A.G.I.

bimetal diagrams. Phase diagrams of two component systems. VV.

bimetal machine. A machine which can be quickly broken down by the bacteria used for this purpose at sewage disposal plants. Bureau of Mines Staff.

bimetallic. The concurrent use of both gold and silver as money at a fixed relative value, established by law. Also, the doctrine advocating such use. Standard, 1964. f.


binder. A. In mining, an iron piece attached to a drift. Standard, 1964. i.

binder. A. Shale or mudstone occurring in coal rests. Fay.

binder. A. To make cohesive or to give consistency to by means of a binder. Standard, 1964. a.

binder. A. A rock unit composed of one or more biotopes differing in biologic aspects from the immediately surrounding biotopes. C.S.A. Memo. 39, 1949, p. 96. b.

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binder. A. In ceramic mixes to increase the wet and dry strengths of the compact. Bureau of Mines Staff.

binder. A. A place for storing ore coal, etc. Compare bing, a and e. Fay.

binder. A. The place where lead ore is buckered or broken small for the hodding tubs. Arkell.

binder. A. The best quality coal, the small of which will bind or cake. Tomkies, 1954.

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biological prospecting. The chemical analysis of plants as a prospecting method. measured to a large amount of solutions from a large volume of earth. Most of the mineral content from these solutions is found in the leaves. Analysis of leaves may serve as a guide to prospecting. Standard, 1964. a.

bioclast. Refers to rocks consisting of fragment organic remains. A.G.I. supp.

biodegradable. Used in sewage disposal and water pollution to describe these substances that can be quickly broken down by the bacteria used for this purpose at sewage disposal plants. Bureau of Mines Staff.

biochemical prospecting. Prospecting by means of vegetation. The rock systems of trees are actually powerful sampling mechanisms which bring representative samples of solutions from a large volume of earth. Most of the mineral content from these solutions is found in the leaves. Analysis of leaves may serve as a guide to prospecting. Standard, 1964. a.

biogeochemistry. A. Pertaining to a deposit resulting from the physiological activities of organisms. The rock thus formed is designated a bio lith. A.G.I.

biogenous deposits. Deposits having more than 30 percent material derived from biogenous sources. Standard, 1964. a.

biogeochemical anomaly. An area where the vegetation contains an abnormally high concentration of metals. Hanek, 2, p. 296.

biogeochemical prospecting. The chemical analysis of plants as a prospecting method. Hanek, 2, p. 296. b.

biophenyl. A. A petrographic shatter or shatter of a crystal that is broken by the pressure exerted on it during the cycle of the other. Strock, 10.

bimetal strip. A strip consisting of two metals. Webster 3d; A.G.I.

bimetallic. The concurrent use of both gold and silver as money at a fixed relative value, established by law. Also, the doctrine advocating such use. Standard, 1964. f.

biogeochemistry

bloberm. a. A moundlike or circumscribed mass built exclusively or mainly by sedentary organisms, such as corals, stromatoporoids, algae, etc., and enclosed in normal rock of different lithological character. A.G.I. b. An organic reef or mound built by corals, stromatoporoids, gastropods, echinoderms, foraminifera, mollusks, and other organisms. A.G.I.


biopelmicrite. Limestone similar to biopelmicrite.

biology. The science of life; the branch of biological shield. A man of absorbing knowledge which treats of organisms; in- cluding knowledge which treats of organisms; includes fishes and pebbles. Shipley.

bioluminescence. The emission of visible light by bioluminescent algae. Messer.

biomass. A mass of absorbing material placed around a reactor or a radio-active source to reduce ionizing radiation to a level that are not hazardous to personnel. See also thermal shield. LBL.

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biowall. A magnesium-iron mica, K(Mg,Fe)3 (AlSiO6)(OH), widely distributed in igneous rocks. Monoclinic; perfect basal cleavage; dark brown to grey. Often used as a prefix to many names of rocks that contain it, such as biorite andesite. Fay.

bird-eye coal. Sometimes applied to anthracite coal when it has numerous and freshly broken surfaces displays round or oval eyelike forms, many of which have convex surfaces. A.G.I. See also anthracite coal sizes.

bird-eye limestone. A very fine-grained limestone containing spots or tubes of crystalline calcite. A.G.I. Supp.

bird-eye marble. A local name given to several varieties of marble in which the masses built exclusively or mainly by sedentary organisms, such as corals, stromatoporoids, gastropods, echinoderms, foraminifera, mollusks, and other organisms. A.G.I.

bird's-eye coal. A name given by prospectors and miners to a fine-grained igneous rock having small phenocrysts, particularly if they are quartz, from a fancied resemblance to bird's-eyes. Hess.

bird's-eye quartz. Jasper containing minute spherulites of usually colorless quartz.

bird's-foot delta. A delta formed by the outwash of a stream. Subsequent action by wave and storm may fail to remove all the impure material. Hess.


bird's-eye coal. A term applied by fishermen to pebbles which have slight imperfection on the best surface. Shipley.

bird's-eye slate. A quarryman's term for slate containing abundant deformed or squeezed quartz. Hess.

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bit core

place a portion or pilot of a noncoring or other type of bit. Compare core, x and y. Long.

bit cost. Bit-use cost generally expressed in monetary units per foot or per hundred feet of borehole drilled. For a specific diam- eter of bit, this cost per foot drilled usually is calculated in the manner shown as follows:

\[(R - S)Z + (CO + BL + ST - SC) = X,\]

where R equals diamonds in original bit, in carats; S equals resettable diamond salvaged, in carats; Z equals diamond cost per carat, in dollars; CO equals cutout charge, in dollars; BL equals cost of bit blank in dollars; ST equals setting charge in dollars; SC equals credit value of scrap diamonds in dollars; Y equals number of feet bit drilled; and X equals bit costs in dollars, per foot drilled. Long.


bit die. Synonym for bit mold. Long.

bit disc. A bit with two or more rolling discs which are used in rotary cutting. Used in rotary drilling through certain formations. Porter.

bit drag; drag bit. A bit with serrated teeth for cutting rock and for metal and wood. See also bit grinding machine that shapes and sharpens the teeth of a bit. Long. bit drilling. The cutting device at the lower end of a cable drilling tools or rotary drill pipe, the function of which is to accomplish the actual boring or cutting. A.G.I. bit end. The end of a reaming shell to which the bit is attached. Long. bit face. That part of the bit crown that comes in contact with the bottom of a borehole. It does not include that part of the bit crown that consists of the walls of the borehole. Long.

bit fed. See feed rate. Long.

bit fixed in and/or outside diameter of a set bit; also, a tool or device used to measure such diameters. Compare gage radius. Long.

bit gage. The man whose job is to gather small quantities of glass for use in decorating and inlaying glassware. Dodd. bit grinding. In metal mining, one who operates a bit grinding machine that shapes and sharpens the cutting edges of detachable drilling bits by abrasive action of grinding wheels. Also called bit sharpener operator. D.O.T.

bit handle. A tool for straightening a lost bit in the hole. Porter.

bit insert. A shaped hard-metal piece, which is inserted in a slot or hole in a bit by brazing or peening to serve as a cutting edge or abrasion-resistant point or plane. Compare insert bit. Long.

bit life. The average number of feet of borehole a bit may be expected to drill in a specific type of rock under normal operating or specified conditions. Long.

bit load. The weight or pressure applied to a bit in drilling operations as expressed as the number of pounds or tons of weight applied. Also called bit pressure; bit weight; drilling pressure; drill weight; drill pressure. Long.

bit matrix. Synonym for diamond matrix. See also matrix. Long.

bit mold. A steel, carbon, or ceramic die in which the shape of a bit crown is incised and pressed. Also called a pipe; gage. Long. bit mold. A matrix alloy by a casting or a powder metal-sintering process affixes the shank to a diamond-insert which can have a shape conforming to that incised in the die. Also called bit die; crown die; crown mold. Long.

bit performance. The achievement of a bit as gauged by the overall cost of using a specific bit per a unit measure of borehole drilled or by the total number of feet of borehole drilled per bit. Long.

bit pilot. The small cylindrical portion that is of smaller diameter and projects beyond the main body of a pilot-type noncoring bit. Long.


bit setter. Formerly an individual skilled in the art of setting diamonds in a bit blank by a hand-peeking and calling technique to produce a complete bit; currently an individual who places diamonds in pipe provided in a bit die or mold used in producing a diamond bit by mechanical method. See also core bit. Long.


bit speed. a. The number of revolutions a bit is rotated per minute. Long. b. Sometimes incorrectly used to express the number of bit revolutions required to advance the bit 1 inch, or by the total number of feet of borehole drilled. Long.

bitstone. In ceramics, carefully sized fragments of a core of a bit that is rotated in a glass grinding machine. See also core stone. Long.

bitumens. a. A general name for various solid hydrocarbons. In 1912, the term was used by the American Society for Testing Materials to include all those substances derived from bituminous coal that contain 50 per- cent hydrocarbon. Standard, 1964. b. A general term descriptive of coal or coal products. Standard, 1964. c. A coal that is rich in carbonaceous matter. Nelson.

bituminous. a. Native of mineral pitch, tar, or asphalt. The term is generally applied to any of the flammable viscous, liquid, or solid hydrocarbons, such as oil in carbon disulfide; often used interchangeably with hydrocarbons. A.G.I.

bituminous cable. A cable notable for its resistance to moisture, but not suitable for high temperatures. The wires are tinined to prevent reaction with the sulfur in the bitu- men. Outside the bitumen are layers of tape, jute, and one or two layers of steel armoring; outside each layer of steel armoring are layers of serving compound. Mason, V. 2, p. 433.


bituminous emulsion. a. A suspension of mi-
bismuth. I. A mixture of 1 part potassium bromide. An alloy of bismuth with tin. 

bismuth glance. See bismuthinithe.


bismuthinithe. Bismuth triulfuride, BiS3, commonly occurring in shapeless, lead-gray masses with a yellowish tarnish. Also called bismuth glance. C.T.D.

bismuth calomel. Bismuth occurs free, in association with gold, silver, or copper. Main sources are native bismuth and bismuthinite. Used, especially, in the glass industry, and for fusible alloys. Pryor, 3.

bismuth oxide; bismuth trioxide. a. BiO; melting point, 820° to 860° C, and is derived from the ignition of bismuth nitrate. A constituent of optical glasses, providing greater durability and higher refractive indices than corresponding lead glasses. Used as an ingredient in fluxes for fired-on conductive silver paints. The calcined material can be used to bond metallic silver flake to ceramic bodies. Lee. b. A heavy, yellow powder; orthorhombic; and specific heat, 3.7. Used in ceramic colors and in producing bismuth salts. CCD 6d, 1961.

bismuth oxychloride; pearl white. BiOCI; molecular weight, 260.46; crystals or white powder; specific gravity, 7.72; insoluble in water; soluble in acid. Also called basic bismuth chloride; bismuthyl chloride; bismuth subchloride; blanc d'Espagne. Bennett 24, 1962.


bismuth tribromide; bismuth tribromide; BiBr3; black; orthorhombic; and melting point, 706° C. Of some interest for thermoelectric applications. Lee.


bismuth subnitrate. A light-colored crystalline powder; Bi(NO3)3 · 5H2O. CCD 6d, 1961. Melting point, above 1,300° C. Used as an additive to barium tetraborate ceramic capacitor conductive bodies with an intermediate level of dielectric constants which show little variation with temperature. CCD 6d, 1961.

bismuth tribromide; bismuth trifluoride; tetrafluoride. BiF3; hexagonal rhombohedral; gray; and a thermoelectric material. Because it loses its semiconducting properties above 100° C, it is of value chiefly in copling devices. Lee.

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bismuthite. An amorphous form of bismuth carbonate, occurring as a rare natural mineral. C.T.D.


bismotostannite. A black bismuth tantslate oxide, 1 part acid potassium sulfate, and 2 parts sulfur. Also, a mixture of equal parts of potassium oxide and sulfur. Fay.

bit core. A coating of wet-process porcelain enamel that has been dried, but not fired. ASTM C286-65. b. Biscuit, biscuit ware, as in statuettes, dolls, etc.; ware baked once but not glazed. Standard, 1964. c. Ceramic ware that is fired to a temperature which is adequate to produce the necessary strength for glazing and decorating. Bureau of Mines Staff.


biscuit kiln drawer. One who removes saggers from kiln after ware has been fired and has cooled, and removes ware from saggers. When removing glazed ware from kiln, known as glost-kiln drawer. Also called kiln drawer; round-kiln drawer. D.O.T. 1.

biscuit kils. Acid sulfate, containing the monovalent radical HS04, for example, NaHSO4. Pryor, 3.

biscuit oven. The same as biscuit oven. C.T.D.


bismuth. Acid sulfate, containing monovalent radical HSO4, for example, NaHSO4. Pryor, 3.

bisselite. Acid sulfate, containing monovalent radical HSO4, for example, NaHSO4. Pryor, 3.

bit. a. Any device that may be attached to, or is, an integral part of a drill string and is used as a cutting tool to bore into or penetrate rock or other materials by utilizing power applied to the bit percussively or by rotation. Long. See also deraschable bit; drag bit. b. A pointed hammer for dressing hard stone. Webster 2d. c. The outside set diameter of the reaming bit. Lee.

bismuth telluride; bismuth trkelluride; tetra-telluride. Bi2Te4; orthorhombic; and 706° C. Of some interest for thermoelectric applications. Lee.

bismuth glance. C.T.D.

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bituminous emulsion

- globules of bituminous material in water or in an aqueous solution. Urquhart, Sec. 2, p. 81. B. A suspension of minute globules of bituminous material in a liquid bituminous material. Urquhart, Sec. 2, p. 81.

bituminous fermentation. A fermentation peculiar to vegetable matter placed in such situations, as not only to exclude the external air and to secure the presence of moisture, but to prevent the escape of the more volatile principles; and which terminates in the formation of those substances termed bitumens, which in this case includes peat and coal. Tomkiewicz, 1954.

bituminous grout. A mixture of bituminous material and sand finer than one-fourth inch, which, when heated, will flow into place without mechanical manipulation. ASTM 1079-54.

bituminous lignite. a. Term used in coal literature to apply to a certain kind of lignite. A.G.I. b. Lignite of a pitch black color with a conchoidal fracture. It is sometimes known as pitch coal. Nelson.


bituminous macadam. Asphalt made artificially from crushed stone and bitumen with bitumen. See also tar macadam; asphalt, b. Nelson.

bituminous marl. A bituminous material mixed with a very fine aggregate. Petroleum Age, v. 11, April 15, 1923, p. 37.

bituminous materials. Materials containing bitumen as an essential constituent. In a broad sense, the term applies to materials containing mixtures of native or pyrogenous hydrocarbons and their nonmetallic derivatives, which may be gases, liquids, viscous liquids, or solids, and which are soluble in benzol or chloroform. This definition is still a matter of controversy, but has the sanction of technical use. Hess.

bituminous pavements. A pavement composed of stone, gravel, sand, shell, or slag, or combinations thereof, and bituminous material thoroughly incorporated. Fay.

bituminous rock. Natural or rock asphalt, but the term is sometimes used to describe a rock in which the percentage of impregnation is comparatively low. See also artificial rock asphalt. Nelson.

bituminous sand. A sand naturally impregnated with bitumen or petroleum residue. Petroleum Age, v. 11, April 15, 1923, p. 37.


bituminous shale. A shale containing hydrocarbons or bituminous material; when rich in such substances, it yields oil or gas on distillation (for example, oil shale). Standard, 1964. b. Shaly sandstone or shale. C.T.D.

bituminous stabilization. The mixing of a bituminous material with soil to act either as a binder or as a waterproofing agent. The type and quantity of bituminous material depend on its reaction with the soil type and the climatic conditions. The bituminous material increases the effective fluid content of the soil and the plastic limit is particularly efficient with soils whose natural moisture content is below that needed for compaction. See also soil stabilization. Nelson.

blowout. Surface. In paving, a superficial coat of bituminous material, with or without the addition of stone or slag chips, gravel, sand, or material of similar character. Fay.

blowout. A variety of brown coal resembling wood. Fay.

black. b. Some bituminous matter of low rank found in oil shales, shales, marls, and limestones; derived from waxes, fats, and resins. Tomkiewicz, 1954.

blowout. Organic matter, soluble in organic solvents, and present in various types of little altered or unaltered sedimentary rocks, including coal, peat, etc. Tomkiewicz, 1954.


black. b. That portion of the bit between the crown and the shank of the bit. Long.

black. a. Total weight in carats, of the diamonds set in a diamond bit. Long. b. Weight or load applied to a diamond bit during drilling operation. See also bit load.

black. A yellowish-white hydrous orthosilicate of aluminum and calcium, with small amounts of chlorite, etc., 10.8SiO₂·6Al₂O₃·5½(Ca,Be,Mg)O·1·5(Al,-Na,K)O·7H₂O. Minute hexagonal plates. Pseudohexagonal prism. Mt. Bity, Malaya Republic. English.


black. b. Having two valences; for example, cobalt which has values of 2 and 3. Handbook of Chemistry and Physics, 43d ed., B-107.

black. A mullusc having two shells. See also univalve. Shipley.

black. A geometry-red beryl found to the southwest of Simpson Spring, Utah. English.

black. a. A black oxide of iron and magnesium. Fay.

black. c. bivalent; divalent. a. Having a valence of 2. Webster 3d.

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black. b. Having two valences; for example, cobalt which has values of 2 and 3. Handbook of Chemistry and Physics, 43d ed., B-107.

black. A mullusc having two shells. See also univalve. Shipley.

black. A geometry-red beryl found in the southwest of Simpson Spring, Utah. English.

black. A black oxide of iron and magnesium. Fay.

black. c. bivalent; divalent. a. Having a valence of 2. Webster 3d.

black. b. Having two valences; for example, cobalt which has values of 2 and 3. Handbook of Chemistry and Physics, 43d ed., B-107.

black. A mullusc having two shells. See also univalve. Shipley.
black chondrite

is a black chondrite, veined. Hess.


black cement. The mixture of amalagam gold and magnetic obtained; from behind the riddles in a gold sluice. C.T.D.

black core. A name given to the more or less impure metallic copper produced in blast furnaces when running on oxide ores or roasted sulfide material. It is always an alloy of copper with one or more other metals generally containing several percent of iron, often lead, and sometimes other impurities; it contains from 1 to 3 percent sulfur. Fay.


black core. The interior of a ceramic shape which is black in color, (that is, in most cases the part of the interior surface of a ceramic surface of carbonaceous material, sulfur, etc. In general, accompanied by bloating or expanding). Also called black heart. Bureau of Mines Staff.

black coreing. A condition usually resulting from the premature vitrification of a high silica iron ore. It is a mixture of a porosity or void which prevents the oxidation of carbonate material, sulfur compounds, etc., and the interior remains a reduced state; hence the black core. Bureau of Mines Staff.

black cotton. black cotton soil. In India, soil from 10 feet to 30 feet in thickness overlying the coal measures, which 'r dry weather, shrings and produces mud cracks. Fay.

black cottons. Generally applied to coal carbon dioxide. Strictly speaking, a mixture of nitrogen and carbon dioxide. The average black damp contains 20 to 75 percent of carbon dioxide and 85 to 90 percent nitrogen. It is formed by mine fires and the explosion of firedamp in mines, and hence forms a part of the afterdamp. An atmosphere depleted of oxygen rather than containing an excess of carbon dioxide. Fay. Being heavier than air it is always found in a layer along the floor of a mine. It extinguishes light and suffocates its victims. Hence, it is sometimes known as choke-damp. Kerton.

black diamond. a. A variety of crystalline carbon, appearing black in diamond, but showing no crystal form. Highly prized as an abrasive because of its hardness. Occurs only in alluvial carbonado. C.T.D. b. A term frequently applied to coal. Fay.

black Diamond Na-Cel. Permissable explo-


black earth. a. A general term including chernozem and dark plastic clays of tropics. Schieferdecker. b. A kind of coal which is pulverized and used by printers in fresco. Fay.

black edge. The dark enamel exposed at the edge of a light enamel. Fay. The enamel used to produce the black. Bryant.

black edging. A black porcelain enamel applied over the ground coat and exposed in specified areas by brushing the cover coat bisque prior to firing. See also edging. ASTM C286-65.

black Egyptian ware. See basaltic. C.T.D.


blackening. In foundry, the process of coating the faces of a mold with graphite or powdered carbon, still used in naming lead pencils, which are really made of graphite. Also called plumbago. Tomkeieff, 1954. b. Graphite, in impure crystalline form. Pryor, 3. c. Used for coating patterns and the faces of cast-iron chillings. Grupp.

blacklead ore. An early name for the black variety of cersitude. Fay.

blackleg. a. A worker hostile to trade unionism or acting in opposition to union policies; a strikebreaker. Webster 3d. b. A swindler; a professional gambler. Webster 3d.

black light. a. Used by miners and prospectors for ultraviolet light. See also fluorescence. Ballard, b. Electromagnetic radiation not visible to the human eye. The portion of the spectrum generally used in fluorescence is found in the ultraviolet region between 3,300 and 4,000 angstroms with the peak at 3,650 angstroms. ASTM Gloss.

black lignite. Lignite higher in rank than brown lignite. Defined by Grout as having a fixed carbon content ranging from 35 to 60 percent and a total carbon content of from 73.6 to 76.2 percent. A.G.I.

black liquor. a. A residue from the digesters in the manufacture of sulfate or soda pulp. Bureau of Mines Staff.

black magnetite. a. Coating of black iron ore or recovery furnaces in which evaporated black liquor is burned to a molten chemical. Bureau of Mines Staff.

black list. a. Any list of persons who are for any reason deemed objectionable by the makers or users of the list, such as for political or social misconduct, for joining in or assisting a strike, etc. Fay. b. (York.) Miners' term for impure fusain bands in the Barnsley or Mexborough, etc. Tomkeieff, 1954.

black mica. a. A colorless variety of mica. See anorthosites. Fay. b. A magnesium ore. A polishing material containing 93 percent FeO or Osborne.

black magnesite. See hausmannite. Osborne.


black men's buttons. Small pieces of rounded glass found in various parts of Australia and Tasmania; thought to be probably of meteoric origin. Hess.

black metal. See black shale, b. Tomkeieff, 1954.

black moh. Eng. Slang for workmen who refuse to join a trade union. Fay.

blackmornite; black moh. Lanc. A dark-brown powdery substance, consisting of silica, alumina, and iron; found in iron mines.

black mud. A mud formed in lagoons, sounds, or bays, in which there is poor circulation or weak tides. The color is black because of the presence of iron sulfides and organic matter. A.G.I.


black oil. See black brass as used by braziers and wire drawers. Standard, 1964.

black lava glass. See obsidian. C.M.D.

black lead. a. An old and obsolete name for graphite, still used in naming lead pencils, which are really made of graphite. Also called plumago. Tomkeieff, 1954. b. Graphite, in impure crystalline form. Pryor, 3. c. Used for coating patterns and the faces of cast-iron chillings. Grupp.

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black oil. a. A residue from petroleum or from
black oil

its distillates. It varies widely in character and is used as a cheap lubricant. Fay.

black oil shale. Oil shale in the Eastern U. S., particularly common around the bituminous coal and petroleum regions. Bureau of Mines Staff.

black opal. Incorrect name for black- colored opal or chalcedony which is usually colored artificially. Properly called black chalcedony. See also onyx. Shipley.

black opal. An opal of dark tints is so called, though it is rarely black; the fine Australian blue opal, with flame-colored glazes, is typical. C.M.D.

black oxide of cobalt. See earthy cobalt.

black oxide of manganese. See pyrolusite. Fay.

black pearl. A trade name which in the narrowest usage refers to a black or almost black pearl, or sometimes to a gray pearl; in its broadest sense, it refers to a brown or a dark blue, blue-green, or green pearl which is veiled or a pearl which shimmers. Shipley.

black pot. Eng. A variety of coarse unglazed earthenware. Fay.

black pot. Eng. A variety of coarse unglazed earthenware. Fay.

black pete. Sheet iron before tinning. Fay.

black post. Impure earthy limestone. Atwell.

black spot. A defect that appears in the black oil.

black solder. An alloy for brazing black iron, sometimes known as a leaden alloy. Fay.

black speck. A defect that appears in the black oil.

black speck. A defect that appears in the black oil.

black strap. A black heavy oil sometimes used in plate printing.

black stratigraphic section. (adjacent to the gray zone) of used silica brick from steel furnace roofs, composed largely of tridymite and magnetite. Bureau of Mines Staff.


black tellurites. Accessory sulfotelluride of gold and lead with some antimony. C.T.D.

black turpentine. A typical black section (adjacent to the gray zone) of used silica brick from steel furnace roofs, composed largely of tridymite and magnetite. Bureau of Mines Staff.

black wart. An early name for several minerals, including graphite and the softer magnetite oxides. Fay.

black work. A term wrought by blacksmiths. Fay. b. Metal products (as forgings or rolled work) that have not undergone a finish (as pickling or machining) that gives a bright finish. Webster 3d.

black-zone. A typical black section (adjacent to the gray zone) of used silica brick from steel furnace roofs, composed largely of tridymite and magnetite. Bureau of Mines Staff.

black. a. Usually, a part of an excavator which digs and pushes dirt but does not carry it. Nelson. b. The shape of a solid, defined by Zingg as one in which the ratio of breadth to length is less than 2 to 3. C.G.1. c. A shape in which the ratio of breadth to length is less than two-thirds. A.G.1. d. A shape in which the ratio of breadth to length is less than 2 to 3. C.G.1. e. A shape in which the ratio of breadth to length is less than 2 to 3. C.G.1. f. A shape in which the ratio of breadth to length is less than 2 to 3. C.G.1. g. Having the appearance of blades; mineral crystals that are strongly elongated in one direction. A.G.1.

bladed. Decidedly elongated and flattened; descriptive of some minerals. Fay.

bladed structure. Consisting predominantly of individual minerals flattened like a knife blade. Hess.

bladed mill. Trommel washer with lifting blade which acts as a conveyor and scrubbing of passing feed. Pryor, 3.

bladed mica. A Scottish name for carbonaceous shales, of a blue-gray color, associated in the Lothians with oil shales, but differing from these in having a much lower proportion of bituminous matter, in being brittle rather than tough, and in producing when weathered a crumbling mass which, when wetted, is plastic. Dodd.

bladegrate. See also bind. Also called blade; blaise. Fay. b. A soft shale or slate of black and white bands. See also kingstone.

blades. A Scottish name for carbonaceous shales, of a blue-gray color, associated in the Lothians with oil shales, but differing from these in having a much lower proportion of bituminous matter, in being brittle rather than tough, and in producing when weathered a crumbling mass which, when wetted, is plastic. Dodd.

black turf. An Irish name for the lowest layer of peat deposit which is a well-matured compact organic mass. Also called stone turf and sodium turf. Fay.

black truck. H. Aust. A box-shaped truck or car with an end door, so called because it is made black with tar. Fay.
Blaidsell loading machinery

tank center and the sand dropped on the disk is distributed over the entire tank or of the entire area. Blaisdell sand distributor. An apparatus for loading sand tanks. It consists of a rapidly revolving disk radially. The disk is hung on a shaft in the center of the tank, and as sand is dropped on the disk it is distributed over the entire area.

blay. Scot. See black. Fay.

blake breaker. A jaw breaker or particular kind of jaw crushing. Nelson.

Blake furnace. A furnace, the hearth of which consists of terraces rising from, the outer edge to the center. The hearth is circular and revolves when in operation.

blanket. a. Anhydrous ferric tellurite as red-brown microcrystalline (cubic?) crusts from Goldfield, Nev. Spencer 17, M.M., 1952. It is distributed over the entire area.

blanket of black deposit. A flat deposit of ore, the minket sand. A body of sand or sandstone where all the holes on one side are parallel to the long axis of the cross section.

blanket deposit. A flat deposit of ore, the length and breadth of which are relatively great compared with the thickness. More or less synonymous flat sheets, bedded veins, beds, or flat masses. See also blanket vein. Fay.

blanket feed. A method for charging batch designed to produce an even distribution of batch across the width of the furnace. ASTM C162-66.

blanket deposit. A flat deposit of ore, the length and breadth of which are relatively great compared with the thickness. More or less synonymous flat sheets, bedded veins, beds, or flat masses. See also blanket vein. Fay.

blanket sand. A body of sand or sandstone that covers a considerable two-dimensional area. Often called a sheet sand. A.G.I.

blanket shooting. Applied to a method of blasting on a face not exceeding 30 or 35 feet in height. It involves leaving at the quarry face a mass of shattered rock several feet in thickness that serves as a buffer, preventing the rock from being thrown far from its source, and also rendering the hole more effective. Also called buffer shooting. Fay.

blanket slack. A sluice in which coarse blankets are laid, to catch the fine but heavy particles of gold, amalgamates, etc., in, the slime passing over the blank. The blanks are removed and washed from time to time, to obtain the precious metal. Fay.

blanket strata. A strata over which gold pays. It is limited in width for the purpose of finding coarse gold and associated minerals. Nelson.

blanket vein. A horizontal vein or deposit. A sheet deposit. A vein in which the ore body covers the entire area within the limits of the surface lines of a mining location. The apex of a blanket vein is coextensive with the space between the sidelines of a mining location. See also blanket deposit. Fay.

blanket washing. In ore dressing, sizing, and refining, one who cleans flannel blankets over which a mixture of finely ground gold ore and cyanide solution from Chilean mills is passed to collect free particles of gold not dissolved by the cyanide. D.O.T. I.

blanket flange. A flange which has not been drilled for bolts. Ham.

blanket of a drawing or forming die that holds the workpiece against the drawing to control metal flow. ASM Glou.

blanket hole. A borehole in which no minerals or other substance of value were penetrating. Also called cased hole. Fay.

blanket deposit. A deposit of which first shapes the glass in the manufacture of hollowware. ASM C162-66.

blanket mold. The metal mold which first shapes the object in the nitriding operation without introducing nitrogen. This is usually accomplished by using an inert material in place of the nitriding agent or by applying a suitable protective coating to the ferrous alloy. ASM Glou.

blanket. To line a specific portion of a borehole with casing or pipe for the purpose of supporting the sidewalls or to prevent ingress of unwanted liquids or gas. Also called case; case off; seal off; Long.

blanket pipe. Unperforated pipe or casing set in a borehole. Long.

blanket trench. A trench in which no reaming diamonds or other cutting media are inset on the outside surface. Long.


blanked, pressing. Optical glass formed by pressing into the rough shape and size required in the finished article. ASTM C162-66.

blanket car. A device used for locking the cam on the camshaft in a stamp mill. A wedging action is inducted by means of a brass taper bushing. Fay.

blanked cut. This is a cut with a single V where all the holes on one side are parallel and meet the holes from the other side at an angle that may be as low as 30°. Longfett, p. 194.

blanket. The ignition of a heavy explosive charge, particularly a large one in open-cast or quarry work. See also blasting. A Nelson. b A miner's term for compressed air underground. Nelson. c. The operation of igniting both air and gas, the latter is ignited by means of explosives. Fay. d. An explosion of gas or dust in a mine. Webster 3d. e. Sadness, S. G. The operation of increasing the dis-
blast mon exposure on a bit face by removing some of the matrix metal through the abrasive action of grains of sand carried in a blast. Also, the process of crystallization during the recrystallization of rocks. It is used as a suffix in idiom and porphyroblast to indicate the process of recrystallization during the metamorphism of rocks. It is used as a suffix in idiom and porphyroblast to indicate the extent of the rocks produced by metamorphism and recrystallization. The two-syllable term blast is used in words like granoblastic and porphyroblastic to denote the extent of the rocks produced by metamorphism and recrystallization. The two-syllable prefix blasto appears in words such as blastogranitic, blastophytic, and blastoporphyritic to denote a relict structure, veiled but not obliterated. Holmes, 1920. An increase in firing temperature of a kiln immediately before ending the firing operation. Bureau of Mines Staff. The period during which a blast furnace is in blast, that is, in operation. 

blasting box. A chamber into or through which the air of a blowing engine passes. Fay. 

blasting cell. Heat transfer surface, most frequently of an extended surface arrangement, over which air is blown to be heated or cooled, depending from the temperature of the fluid within the pipe-like surface. Strock, 10. 

blasting draft. The draft produced by a blower, as by blowing in air beneath a fire or drawing out the gases from above it. A forced draft. Fay. 

blasting cap. A term applied to a miner who has been injured by an explosion of dynamite or gunpowder. Weed, 1922. B. Rent by an explosive and kiln. 2d. 

blaster. A device for detonating an explosive charge. The blaster usually consists of a main explosive, an igniting mechanism, and an electric blasting cap. Also called blasting machine. A.C.G.I. B. One who sets off blasting caps. Fay. A blast of a charge of explosive, to permit introducing a blasting cap into a hole detonating the charge. Fay. A blast hole, a. A tightly woven covering of asbestos, linen, or cotton. b. A plug. Fay. 

blasting charge. A portable unit consisting of a drilled explosive charge tank feeding into an air-activated loading tube. The equipment should be grounded to guard against buildup of static electricity and possible accidental explosive detonation. The blasting charge permits rapid loading of drilled explosives into blastholes drilled in any direction. Bureau of Mines Staff. 

blasting drill. Any rotary, percussive, fusion-piercing, churn, or other type of drilling machine used to produce holes in which an explosive charge is placed. Also called shotdrill. Long. 


blasting machine. Synonym for blasthole drill. Long. 


blasting. a. The operation of breaking coal, ore, or rock by boring a hole in it, inserting an explosive charge, and detonating or firing it. Also called blasting. See also explosive, b. Napoleon. c. Cleaning or finishing metals by impingement with abrasive particles at high velocity, and usually carried by gas or liquid, or thrown from a centrifugal wheel. ASM Gloss. 

blasting agent. A commercial blasting agent is a cap of chemical composition or mixture which contains no explosive ingredients and which can be made to detonate when initiated with a high strength explosive primer. DuPont, 1966, p. 47. 

blasting barricade. A piece of iron pipe, usually about one-half inch in diameter, used to provide a smooth passageway through the stemming for the miner's egress. It is recovered after each blast and used until destroyed. Fay. 

blasting cap. a. A copper shell closed at one end and containing a charge of detonating compound, which is ignited by electric current or the spark of a fuse. Used for detonating high explosives. Fay. b. A small sensitive charge placed in the larger explosive charge by which the larger charge is detonated. B.C. 1. See also electric detonator. 

blasting cap, waterproof electric. See water-proof electric blasting cap. 

blasting cap, waterproof electric. See water-proof electric blasting cap. 

blasting circuit. A circuit consisting of a horizontal wire or cable and electric blasting caps used in the firing of a blast in mines, quarries and tunnels. ASA C42.85: 1956. 

blasting compound. Explosive substances other than dynamite, gunpowder, blasting caps, and air-shot firing blasting cord. See also explosive, blasting cap, shot-firing blasting cord. 

blasting curtain. A screen erected to prevent damage to equipment and supports in the vicinity of the blasting point. It consists of round timbers about 6 inches in diameter and suspended from a cable or chain across the roof. The curtain is erected a short distance from the shothole. See also shot-firing curtain. Nelson. 

blasting fuse. a. A slow-burning fuse used in blasting operations. Standard, 1964. b. A fine core of gunpowder enclosed in the center of a fuse, yarn, etc., for igniting an explosive charge in a shothole. See also safety fuse. Nelson. 

blasting galvanometer. An instrument that provides a simple means for testing electric blasting circuits, enabling the blaster to locate breaks, short circuits, or faulty connections before an attempt is made to fire the shot. With its use, misfires may be prevented to a great extent. To test a circuit one wire should be placed on one terminal of the instrument and the other wire on the other terminal. If the needle is not deflected, it indicates the circuit is broken; if it is electric blasting cap that is being tested, this should be discarded. Pit and Quarry, 53rd, sec. A, p. 85. 

blasting galvanist. A high explosive, consisting of nitroglycerin and nitrocellulose. It is a strong explosive, and a rubberlike, elastic substance, unaffected by water. Fay. Taken as a standard of explosive power. BS 3618, 1964, sec. 6. 


blasting machine. A portable dynamo that generates enough electric current to detonate electric blasting caps. It drives the machine rack bar or handle, which is given a quick, downward push. Also called battery. Long. 

blasting machine, dynamo type. A.M.E. 6 75 147, 1964. 

blasting machine, electric. A high explosive, consisting of nitroglycerin and nitrocellulose. It is a strong explosive, and a rubberlike, elastic substance, unaffected by water. Fay. Taken as a standard of explosive power. BS 3618, 1964, sec. 6. 

blasting machine, v. a. A tightly woven covering of heavy fabric such as wool, hemp, or cotton, made in various sizes, for spreading over material to be blasted for preventing blasted fragments from falling on the miners as they work. A commonly used mat that consists of discarded heavy-duty tire casings cut into pieces which are then laced together with discarded wire cable. Bureau of Mines Staff. 

blasting neck. A pointed instrument for piercing the wad or tamp of a charge of explosive, to permit introducing a blasting fuse. Standard, 1964. 

blasting powder. a. A powder containing less nitrate, and in its place more charcoal than blackpowder. Its composition is 65 to 75 percent potassium nitrate, 10 to 13 percent sulfur, and 13 to 20 percent charcoal. In the United States, sodium nitrate is used largely in place of potassium nitrate. Compare blackpowder. Fay. b. A low explosive. See also gunpowder, black. Nelson. 

blasting refire. A mechanism, blasting. Lewis, p. 146. 

blasting stick. A simple form of fuse. Fay. 

blasting supplies. A term applied to electric blasting caps, ordinary blasting caps, fuse, blasting machines, galvanometers, etc., used in blasting. See blasting used in blasting, except explosives. Fay. 

blasting switch. A switch used to connect a
blasting switch

The power source to a blasting circuit. It is sometimes used to short-circuit the leading wire to the primer to ensure safety against premature firing. 

A.S.A. C42.45-1956.

blasting timer

An instrument that utilizes a powerline and an electronic control to close the circuits for successsive blasting caps with a delay time interval. The timer provides for the circuits of 15 charges to all offices positive control of the duration of intervals. Strevlerkter, pp. 46-47.

blasting tube

A tube of explosives, as nitroglycerin, for blasting. Standard, 1964.

blasting unit

A portable device including a battery or a hand-operated generator designed to supply electric energy for firing explosive charges in mines, quarries, and tunnels. Also called blaster; explode; shot-firing unit. A.S.A. C42.85: 1956.

blasting unit, single-shot

See single-shot blasting unit.

blasting unit, multiple-shot

See multiple-shot blasting unit.

blast meter

An instrument to show the velocity of discharge from the nozzle of a blasting engine. Standard, 1964.

blast nozzle

A fixed or variable sized outlet for releasing gases. A.S.A. C42.51-1956.

blasting pipe

A pipe for supplying air to furnaces. They are employed. Hartman, p. 33. They are

blasting smit, nsultiple-shot

See multiple-shot blasting smit.

Manfred med. Sand that has become pale yellow because of bleaching. Schieferdecker, v. 1, 2d, 1939, p. 204.

blasting unit

An instrument that utilizes blasting powder, nitroglycerin, or electric current to fire the explosive. A.S.A. C109.1-1958.

blasting unit, single-shot

See single-shot blasting unit.

blasting unit, multiple-shot

See multiple-shot blasting unit.

blast stoporpkyritic


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A fixed or variable sized outlet for releasing gases. A.S.A. C42.51-1956.

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bleeding

a. To drain off water or entrapped air from a piping system or container. Compare bleeder, a. Lang. b. To give off or exude small amounts of droplets of water or gas, such as from a stratum of rock or coal. Long. c. To remove unwanted air or fluid from a confined space. Fay.

bleeder. a. A connection located at a low place in an airline or gasoline or container so that by means of a small valve the condensed water, or other liquid, can be drained or bled off from the line or container without discharging the air or gas. Lawe, b. A fine adjustment valve (needle valve) connected to the bottom end of a hydraulic feed cylinder in order to control the speed at which the hydraulic piston travels can be minutely controlled. Long. c. A pipe on top of an iron blast furnace through which gas escapes. Bureau of Mines Staff.

bleeder bench

Widely used for draining methane in coal mines in the United States where the room-and-pillar method is employed. Huthman, p. 32. They are panel entries driven on a perimeter of a coal face and are driven to the face or in the main intake airways. They are maintained, after mining is completed, as exhaust airways. Bureau of Mines Staff.

bleeder pipe. A pipe inserted in a seal to relieve gas pressure from a sealed area. Coal. The exudation of bituminous material on the roadway surface after construction. Fay. d. The exudation of water or gas from passages. Nichol.

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bleeder pipe. A pipe inserted in a seal to relieve gas pressure from a sealed area. Bureau of Mines Staff.

bleeder turbine. A steam turbine arranged so that low-pressure steam for heating purposes can be taken out between intermittent stages. Thus, the high-pressure boiler steam does some work before it is taken out for low-pressure heating service. Petroleum Age, v. 11, April 15, 1923, p. 39.

bleeding


bleeding rock. Sandstone containing water. T.I.M.E.

bleeding surface. Any face, such as the walls of a well or borehole or the sides of a fracture, that traverses a reservoir rock or aquifer permitting the stored liquid or gas to seep (or to bleed) into the opening. A.S.A. C109.1-1958.

bleeding valve. A cock, as in an airbrake mechanism, the opening of which releases air. Standard, 1964. See also bleeder. Fay.

bleeding. a. A coal, when blown, that feeds or blows act as the means by which gas is "bled off" or dissipated to the adjacent strata or to the surface. Kentucky, p. 24.

Bleiberg furnace

See Carinthian furnace. Fay.


blende. Without specific qualification, it means zincblende or the sulfide of zinc (sphalerite), which has the luster and often the color of common resin and yields a white streak and powder. The darker varieties are called blackby the English miners. Other minerals having this luster are also called blende, such as antimony blende, ruby blende, pitchblende, and hornblende. Sphalerite (blende) is often found in banded iron formations, the name of which is derived from the word blende, meaning to dazzle. Fay.

bleending and mixing, the process of intermixing powders of the same nominal composition so that each bin or stockpile can be individually controlled. Bureau of Mines Staff. See also paddle-type mixing conveyor; screw-type mixing conveyor. A.S.A. M14.1-1958.

bleending system. A coordinated system of conveyors and allied equipment for the purpose of blending bulk materials to obtain a product which will be uniform and homogeneous having physical and chemical properties very near the average of the entire raw input. A.S.A. M14.1-1958.

bleen persian. A form of pottery decoration in which a white pattern was painted or over a dark blue background; the same derives from the fact that the pattern generally had a Persian flavor. Dodd.

belle. A fault, in glacial rock, in the form of an elongated bubble intermediate in size between a seam and a blister. Gray bille contains undissolved sodium sulfide. Dodd.

blick. Ger. Bright glow or flash, on gold color or gold sheen. R.C.M. C66-62.


blin. a. Not appearing in an outcrop at the
surface, such as a blind veneer. Webster 3d.
blind. a. Forest of Dean. See after-damp. Fay.
c. The overburden is moved in front of the cutting to create a cut or other underground roadway. Fay.
d. To drill with the circulation medium (water or drill mud) escaping into the sidewalks of the borehole and not overflowing the collar of the drill hole. Long. c. An underground opening not connected with other workings nearby and at about the same level. Long.
blind space. See subcutoff. The upper edge of a lode or vein near the surface but covered by superficial deposits. Nelson.
blind borehole process. A new method in the underground gasification of coal. A borehole is drilled to a blind end having no outside connection. A tube of smaller diameter is inserted nearly the full length through which air is passed to supply a gasification reaction at the far end of the hole. The hot gases return around the outside of the tube. Nelson.
blind coal. a. Eng. A seam covered by the heat of a trap dike so as to resemble anthracite. Fay. b. Eng. Anthracite and other kinds of coal that are covered by the overburden. See also black coal; natural coke. A.G.I.
blind drift. a. Horizontal passage, in a blind deposit. A deposit that does not extend downward into a coal seam to another below. Hess. See also blind road; blind way. Mid. Any underground roadway not in use, having stoppings placed across it. Fay.
blind end. One not yet holed through to connect with other passars. Fay.
blind level. a. One not yet holed through to connect with other passars. Pryor, 3. b. A level that does not extend downward into the sand or to the surface of bedrock. Hawkes.
blind lead; blind lode. A. vein having no outcrop. Fay. b. A lead showing no surface outcrop, and one that cannot be found by any surface indication. c. Also lead. Fay. c. An obscure bedding plane. Zern.
blind lode. An obtur. A channel having no surface outcrop or indication of lode or vein reef, near the surface but covered by superfi- cial deposits. Nelson.
blind ore. A. A vein that does not continue to the surface. Also blind, a; blind lode; blind lead. Fay.
blind shaft. A sublevel shaft, connected to the surface by a transfer shaft. A wine. Pryor, 3.
blind splicing. Joining ropes or cables by laying out alternate strands of one and laying in the corresponding kinds of the other, so that the splice is smooth and of the same size as other sections. Hess.
blind stopes. Secret workings underground, not marked on plans. Pryor, 3.
blind vein. A vein that does not continue to the surface. See also blind, a; blind lode; blind lead. Fay.
blinds. Echo trace on radar or sonar indicator screen. Hy.
blister. a. A closed or broken bubble. Bureau of Mines during vitrification appearing as an enclosed or broken bubble. Bureau of Mines. b. A small blisters are called pinheads or pepper blisters. A.G.I. c. A defect in metal, etc., by rapid heating to produce a light- tering. See also secondary expansion. Staff. b. Expanding nonmetallic raw materials such as clays, shales, perlite, slates, etc., by rapid heating to produce a light- ttering. See also secondary expansion. Staff. c. Compacting soil immediately over reinforcement. Ham. e. A glaze fault revealed to provide a base on which to place rein-
siing, blocking of screen spertures by particles. Pryor, 3. b. A matting of, or stoppage by, fine materials during screening which interferes with or blinks the screen mesh. Bureau of Mines Staff. c. Compactaing soil immediately over a tile drain to reduce its tendency to move into the tile. Nicholls. d. A layer of lean mix concrete from 2 to 4 inches thick, laid on soil in the bottom of a foundation to provide a base on which to place reinforce- ment. Ham. e. A glaze fault revealed by a reduction in gloss, and caud by surface devitrification. Dodd. 
blind lead; blind lode. A. A vein having no outcrop. Fay. b. One not yet holed through to connect with other passars. Pryor, 2. b. A lead showing no surface outcrop, and one that cannot be found by any surface indication. c. Also lead. Fay. c. An obscure bedding plane. Zern.
blind lode. A. A lead showing no surface outcrop, and one that cannot be found by any surface indication. c. Also lead. Fay. c. An obscure bedding plane. Zern.
blind ore. A. A vein that does not continue to the surface. Also blind, a; blind lode; blind lead. Fay.
blind splicing. Joining ropes or cables by laying out alternate strands of one and laying in the corresponding kinds of the other, so that the splice is smooth and of the same size as other sections. Hess.
blind stopes. Secret workings underground, not marked on plans. Pryor, 3.
blind vein. A vein that does not continue to the surface. See also blind, a; blind lode; blind lead. Fay.
blister copper. An impure intermediate product in the refining of copper, produced by blowing copper matte in a converter, the name being derived from the large blisters on the cast surface that result from the liberation of SO2 and other gases. ASTM. Glow.
blister furnace. A furnace for smelting ore to blister copper. Hess.
blister hypotheses. A hypothesis proposed by J. L. Rich (1951) as an explanation of compressional mountains. Radiogenic heat expands and melts a limited portion of the crust and subcrust causing a domed regional uplift (or blister) on a foundation of molten material having no permanent strength. Erosion and isostatic transfer initiates a marginal downwarp which is gradually filled with sediments (a geosyncline). Sliding of the crust away from the center of the dome causes crumpling and thrusting of the marginal geosynclinal sediments. Repeated isostatic tension across the top of the dome and block faulting and copious emissions of lavas result. Finally, as the dome cools and congeals, sliding of the crust ceases and the upwarped area subsides. A.G.I.
blistering. a. The development during firing of enclosed or broken macroscopic vesicles or bubbles in a body in a glaze or other coating. ASTM C242-60T. b. See secondary blistering; mudcap. Fay.
blister pearl. Pearly concretion attached to the shell and therefore not true pearl. Flattened, irregular, and sometimes contains clay, water, etc., and occasionally a small bladder. Shipley.
blister rubber. One who removes blisters (air pockets) from inside of green sewer pipes by cutting them with knife. D.O.T. 1.
blister steel. Raw steel which has been cooled very slowly and which has a blistered appearance. The blisters have been formed by the efforts of gas to escape from within the metal. Cinnam.
blister wax. Same as blowax wax. Tomkeieff, 1954.
blitzrohr. Ger. A fulgurite; a mass of sand or rock, usually tubular, melted by lightning. Hess.
blitzschiene. A. Basic lead chloride, PbCl2O or PbCl(OH)2; with x about 2.6, occurring as a fissure mineral at Langban, Sweden. Hey, M.M., 1961.
blasto. A hammer swelled at the eye. Fay.
blasting. a. The expanding or swelling of a ceramic shape during firing. Results in defective ware and is generally caused by overfiring or black coring. Bureau of Mines Staff. b. Expanding nonmetallic raw materials such as clays, shales, perlite, slates, etc., by rapid heating to produce a light- weight vesicular structure. Bureau of Mines Staff. c. Swelling of a refractory when in the thermoplastic state caused by a temperature in excess of that for which the material is intended, an exception being the use of this property in one type of laminate brick. See also secondary expansion. A.R.I.
blasting of refractories. Substantial swelling produced by a heat treatment that causes the formation of a vesicular structure. ASTM C71-64.
bleating phenomena. The expansion of cer-
block diagram. A view of an imaginary rectangular block of the earth's crust. It is, as if, upon a rectangular block of wood—two geologic sections had been drawn on two adjoining sides and a map on the top face. While the block itself had been sketched in a position, such that these three faces were visible. Stokes and Varnes, 1955.

blocked ore a. Ore, the amount, content, and mineability of which have been proven by development work or by drilling developed ore. A.G.I. b. A body of ore exposed, explored, and sampled for valutative purposes and which represents a side of the panel formed by driving, winning, and raising. Pryor, 3.

blocker. In bituminous coal mining, a laborer who places wooden blocks under the wheels of mine cars to prevent their movement at the tipple or the opening of a shaft or an incline before they are run onto the cage or attached to the haulage cable.

D.O.T. 1.

block faulting. See fault block. A.G.I.

blockfield. See felsenmeer. A.G.I.

block furnace. Same as bloomery. Fay.

block grease. Moderately stiff grease, prepared in block form. It is used as a lubricant for the belts, above bearings (tunnel lubrication). Pryor, 3.

block handle. A cup handle of the type that is attached to the cup by a solid bar of clay (which is, of course, integral) with the handle. See also open handle. Dodd.

block in large course. Large stone blocks laid in courses in dock wells. Having bush-hammered faces and smooth beds; such stones are generally of varied lengths but constant depth, often 12 inches. Ham.

blocking. a. The process of shaping a gather of glass in a cavity of wood or metal. ASTM C162–66. b. The process of stirring and fusing glass by immersion of a wooden block, or other sort of bubble, in the molten mass. ASTM C162–66. c. The process of reprocessing to remove surface imperfections. ASTM C162–66. d. The process of cutting edge, or other, mass blanks in a shell for grinding and polishing operations. ASTM C162–66. e. The process of setting refractory blocks in a furnace. ASTM C162–66. g. A method of cutting edge, or other, mass blanks, not built at the same time, by means of offsets and overhanging blocks. ACSG. h. Obstruction of crushing zone by clayey material or rock which refuses to break down and pass to discharge. Pryor, 4, i. In forging, a preliminary operation performed in closed dies, usually hot, to position metal properly so that in the finish operation the dies will be filled correctly. ASTM Glott. j. In radiography, using diaphragms made of lead or other dense material to limit the cross section of the X-ray beam so as to prevent excessive fogging of the film because of secondary or scattered radiation. MAE. k. An opening or around the object being radiographed are sometimes employed. A.S.M.

blocking and wedging. A method of holding mine timber sets in place. Blocks of stone or boulders, or bolters, or small pieces of rock have been blown down by the miners. Fay. b. See machine operation.

blocking. See fault block. A.G.I.

blocking. a. A person whose duty it is to break up and reduce to safe and convenient size, by blasting or otherwise, any large blocks or pieces of rock that have been blown down by the miners. Fay. b. See machine operation.

blocking. See fault block. A.G.I.

blocking. See fault block. A.G.I.

blocking. a. A small hole drilled into a rock or boulder into which a metal bolt or a small charge or explosive may be placed. Long. b. Used by drillers, miners, and quarrymen for a method of breaking undeniably large blocks of stone or boulders by the discharge of an explosive loaded into shallow holes drilled into the blocks or boulders. Long. c. A relief hole, designed to remove part of the burden from a subsequent shot, used in coal mining. Fay.

blocking. See fault block. A.G.I.

blocking. a. A person whose duty it is to break up and reduce to safe and convenient size, by blasting or otherwise, any large blocks or pieces of rock that have been blown down by the miners. Fay. b. See machine operation.

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blocking. See fault block. A.G.I.
least three sides, in preparation for continuous extraction; the opening of a deep lead deposit. Nelson. b. As applied to coal re- st ore, to acquire coal and mining rights in contiguous areas to form a continuous area and in a desirable shape for planned future mining. Bureau of Mines Staff, c. Aust. Laying or staking out gold-bearing gravel deposits in square blocks in order to facilitate systematic washing. Fay.

blocking out. Insulating black composed of mineral wool, fiber; asbestos, and a high temperature binder. Bureau of Mines Staff.

block lava. Lava flows occurring as a tumultuous assemblage of angular blocks. Contrasted with palahoehoe, a lava with a comparatively smooth orropy surface. Also called aphrolithic lava; aa. Holmes, 1928.

block layer; madman; platelayer. A man employed on the maintenance of tracks underground. He is also responsible for the laying of turnouts and junctions. Nelson.


blockmaking. Applied to the various processes involved in roofing slate manufacture which include the stripping, dressing, and splitting, cutting, sawing, etc. AIME, p. 796.

block mica. Mica with a minimum thickness of 0.007 inch and a minimum usable area of 1 square inch, fully-trimmed unless otherwise specified. Skow.

block mill. See pan mill. Dodd.


block mountain. A mountain carved by erosion from a large, uplifted earth block bounded on one side or both sides by fault scarps. AGI.

block movement. A general failure of the hanging wall. In the gold mines of the Union of South Africa and the Michigan copper domain, block movements have been experienced. Nelson.

block off. a. To fill and seal undesirable openings. Too, or caving zonis in a borehole by cementation or by lining the borehole with pipe or casing. Also called blank off; cased off; seal off. Long. b. To stop movement against the flow or escape of gas, air, or liquid by erecting rock, concrete, steel, or cloth barriers, or erecting barriers to prevent men from entering unsafe areas in underground workings. Long.

block ore. A local term in Wisconsin for large, cubical crystals of galena. Fay.

block out. To delineate the area in which a desirable mineral occurs by systematic core drilling or by underground openings. Long.

block pavement. The wearing surface of a road formed of rectangular blocks of stone or wood. Ham.

block rake. A surface blemish, having the appearance of a chain, sometimes occurring on plate glass. Dodd.


block reef (rake). A scratch imperfection caused by clogged tools, or the felt in the paving operation. ASTM C162-66.

block rilles. These consist of timber blocks, 8 to 12 inches square, set in transverse rows along the entire length of a structure and it is usual to separate the rows by means of a strip of ordinary rifle scantling. Griffith, S. V., p. 62.

Block's alloy. A high cobalt alloy containing 9.4 percent cobalt, 45 percent nickel, and 0.9 percent silicon. Campbell.

block sequence. A longitudinal welding sequence. For iron and steel, the width is not more than twice the thickness, and the cross-sectional area is usually not less than 36 square inches. Iron and steel blooms are sometimes made by forging. AIME Glass.

block test. A shop giving power output, effi- ciency, and fuel consumption of a motor. Fay.


block-tin lining. Copper vessels are lined or blocked with hot-rolled product, rectangular in shape and having the core produced tends to break and block or jam around the drill dust free. Long.

blood agate. a. Flesh-red, pink, or salmon-colored agate from Utah, Shipley, b. Hem- schie, Shipley.

blood coral. A name sometimes applied to iron-stained coral. Shipley.


blood poisoning. A morbid state of the blood caused by the introduction of poisonous or infective matter from without, or the absorption or retention of such matter pro- duced in the body itself. Occasionally caused by injuries, particularly in dirty mines or mills. Fay; Hess.


bloodstone. A variety of chalcedony or jasper, dark green in color, interspersed with small red spots. Used as a gem. Sanford. Also called heliotrope.

bloodwipes. Deb. To draw blood, at a mine, by any act of violence that one man can inflict upon another. Fay.

bloody line. A pipe or flexible tube conducting cutting-laden air or gas from the collar of a borehole to a point far enough removed from drill rig to keep the air around the drill dust free. Long.

bloom. a. A mineral that is frequently found as an efflorescence, cobalt bloom, for ex- ample. Also called blossom. Webster 3d. b. To form an efflorescence; as, salts with alkali salts are incorporated, bloom out, on the surface of the earth in dry weather following rain or irrigation. Webster 3d.

bloomery. e. The reduction of petroleum, or its products. Webster 3d. f. A semifin- ished hot-rolled product, rectangular in cross section, produced on a blooming mill. For iron and steel, the width is not more than twice the thickness, and the cross- sectional area is usually not less than 36 square inches. Iron and steel blooms are sometimes made by forging. AIME Glass.

bloodyrock. Rock ore that breaks in thick blocks from the roof of a mine working. Long.

boulevard. An area on a construction site set apart for carrying present concrete components, which are then allowed to mature and harden before use. Ham.

blocky rock. Rock ore that breaks into large blocks. Sandstrom.

blodite. See blodite.

blodite. A colorless, water-soluble, magnesi- um-sodium hydroxyurate, Na₂O·3MgO·3H₂O; no cleavage; occurs in saline deposits Also called blodite; astrakanite; achat. Fay; Webster 3d.

blomford. Shipley.

bloomer. The mill or equipment used in reducing steel ingots to blooms. AIME Glass.

blonde. A name applied to iron-stained iron, making wrought iron, usually direct from the ore. The sides are iron plates; the hair plate at the back, the boney plate at the front, the tuyere plate (through which the tuyere passes) at one side (its upper part being called the tuyere plate), the forespout plate opposite the tuyere plate (its upper part being the skew plate) and the back boney plate. For iron and steel blooms are sometimes made by forging. AIME Glass.

blooming. See blooming.

blooming mill. A device formed by a vertical or horizontal device which enables the wearer to continue breathing comfortably, even should the normal blower stop. Mclennan, s. i, pp. 326-327.

blown. A to-and-fro aerial ropeway, perhaps spanning an excavation. May be equipped with rope system which allows leads to be lifted from quarry and then carried to side for discharge, the ropeway then reversing its motion and returning the carrier to the loading point. Pryor, 3.

bloody metal. Staff. A variety of blood, light-colored clay ironstone from the Coal Measures. Arkell.


bog coal. A name sometimes applied to iron-stained coal. Shipley.

bog iron ore. Hematite. Shipley.


bogus. A name sometimes applied to iron-stained coal. Shipley.

borehole. The mill or equipment used in reducing steel ingots to blooms. AIME Glass.

borel. To draw blood, at a mine, by any act of violence that one man can inflict upon another. Fay.

borel. A mouthpiece having an inhalation valve, an exhalation valve, and a rotary blower. A mouthpiece for coating lead sheet or lining lead pipe, called hot dippings. Tin is sometimes used to absorb the impact of waves. Fay; Hess.

borelli. See iron-borelli.

boreling. The mill or equipment used in reducing steel ingots to blooms. AIME Glass.

boreno. A mill or equipment used in reducing steel ingots to blooms. AIME Glass.

boreoxide. A device formed by a vertical or horizon- tal device which enables the wearer to continue breathing comfortably, even should the normal blower stop. Mclennan, s. i, pp. 326-327.

boreostone. Staff.

borestone. A variety of chalcedony or jasper, dark green in color, interspersed with small red spots. Used as a gem. Sanford. Also called heliotrope.

borewipe. Deb. To draw blood, at a mine, by any act of violence that one man can inflict upon another. Fay.

bog iron ore. Hematite. Shipley.


bogus. A name sometimes applied to iron-stained coal. Shipley.

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borelli. See iron-borelli.

boreling. The mill or equipment used in reducing steel ingots to blooms. AIME Glass.


blowing. The process of manufacturing blooms of iron from the ore or from puddle balls. Standard, 1964.

blossom of coal. See coal smut. Fay.

bloom. 1. The natural rolling mill used to make blooms. ASM Gloss.

blossom. The oxidized or decomposed outcrop of a vein or coal bed, or any indicating traces of a coal bed or a mineral deposit, visible at the surface. Fay. B.C.I.

blossom of coal. See coal smut. Fay.

bloomer. Rock detached from a vein but which has not been transported. Fay.

bloated. Spotted effects, especially on stone and other marble. Kuba, Curtis, 4th. p. 301.

blower. a. A fan employed in foreign air. Mason.

c. Eng. A man who blasts or fires shots down a mine. Zern.

blower fan. a. A fan which compres a stream of air through a tubing to a particular working face. Bureau of Mines Staff.

blower system. A system in which the pressure generating source is located at the entrance and raises the pressure of the air about atmospheric. Hartman, p. 80.

blower wax. A pale yellow soft variety of ozokerite which is squeezed out of the veins under the influence of pressure of the surrounding rocks. Tomkiewicz, 1954.

Blow-George. Eng. A small hand-driven fan operating in an iron case, introduced in the Midlands Counties about 1850. It was used for auxiliary ventilation. Nelson.

blow head. Part of a forming machine serving to introduce air under pressure to blow any hollow glass article. ASTM C162-66.

blow hole. a. An air bubble or void in a bit crown or casing. See also airhole. Long. b. A minute crater formed on the surface of thick lava flows. Fay. c. A hole in a casting or a well caused by gas entrapped during solidification. ASM Gloss.

blow in. To put a blast furnace in operation. See also blowing.


blowing cavity. A cave from which air is blown out at the entrance. Scharereder, Fay.

blowing engine. A machine for forcing air into blast furnaces under pressure, often about 1 pound avoiduoop per square inch. Hear. D. C. T. D. B. Fay.

blowing fan. A fan which forces or blows air into the mine workings either through the airways (a main fan) or through inbye air pipes (an auxiliary fan). Nelson.

blowing furnace. A furnace in which glassware is heated so that it becomes stiff in working. Also called glory hole. Webster 2d.

blowing house. Eng. An establishment in which blast furnaces are operated. Used specifically for smelting tin ore. Fay.

blowing in. To start a blast furnace. Bureau of Mines Staff.

blowing out. a. A valve or drain connection on which the water flows from Lie fan at the portal towards the working face. Frankel, 3, Art. 18:01, p. 1.

blind blast. A port is made in the stem and cinder, for carrying the air. Fay. c. A sudden explosion of uncontrolled explosion due to insufficient stemming, and cinder. Fay.

blow mold. The metal mold in which a blown glass article is finally condensed. ASTM C162-66.

blown. a. A large outcrop beneath which the air flows from Lie fan at the portal towards the working face. Frankel, 3, Art. 18:01, p. 1.

blown glass. Glassware shaped by air pressure, as by mouth blowing or by compressed air. ASTM C162-66.

blown metal. Pig iron purified by blowing air through it. Bureau of Mines Staff.

blown-out shot. A shot which dissipates the explosive force by blowing out the stemming instead of breaking down the coal. It may be caused by insufficient stemming, overcharging with explosive or a burden which is too much for the charge to dislodge. Nelson.

blown Petroleum. In roadbuilding, the semi-solids or solids produced by blowing air through heated native liquid bitumens. Ferri.

blow-off. a. A valve or drain in which the rocks beneath it becomes so hot that it is finally squeezed out of the rocks. Fay. b. The sudden escape of gas from the strata or the coal into mine workings. See also outburst, nelson. c. Eng. Man who blasts or fires shots into a mine, or who drills the holes and charges them, ready for firing. Fay. d. One who forms glass by blowing. ASTM C162-66. See also glassblowing; gaffer, D.O.T.

blowing pipe. A glassblower's pipe. Fay.


blowing of furnace. A furnace used for firing ore or for the voltaic lead and zinc. Fay.

blowing ventilation. Mine ventilation in which the air flows from Lie fan at the portal towards the working face. Frankel, 3, Art. 18:01, p. 1.

blowpipe. A portable apparatus for applying intense local heat, used by painters, electricians, and plumbers. Also called blowtorch. C.T. D.

blow molding. The metal mold in which a blown glass article is finally shaped. ASTM C162-66.

blown asphalt. A hard friable solid obtained by blowing air at high temperature through natural or residual oils. Also known as distilled asphalt, condensed asphalt, and mineral rubber. C.C.D, 66, 1961.

blown away. Sey holes blown. Dodd.

blown bitumen. A special type of bitumen produced by blowing air, under controlled conditions, through hot bitumen. Ham.

blown glass. A glassware shaped by air pressure, as by mouth blowing or by compressed air. ASTM C162-66.

blown metal. Pig iron purified by blowing air through it. Bureau of Mines Staff.

blown-out shot. A shot which dissipates the explosive force by blowing out the stemming instead of breaking down the coal. It may be caused by insufficient stemming, overcharging with explosive or a burden which is too much for the charge to dislodge. Nelson.

blown petroleum. In roadbuilding, the semi-solids or solids produced by blowing air through heated native liquid bitumens. Ferri.

blow off. a. A valve or drain connection on a steam or hot-water boiler so arranged to drain off water and steam with any accumulated oil, grease, and dirt. Crispin. b. Removal of dust and dirt from the surface of dry (biscue) enamel, prior to firing. Bryant.

blowout. a. A large outcrop beneath which the air is smaller is called a blowout. Fay. b. A shot or blast is said to blowout when it goes off like a gun and does not shatter the rock. A blow-out or windy shot. Fay. c. A sudden violent, uncontrolled escape of gas, oil, or water from the well due to (1) the formation pressure being greater than the hydrostatic head of the fluid in the hole, and (2) the failure or lack of mechanical means, such as blowout preventers, to control such an occurrence. Brantly, 1, d. A great mass of quarts found in gold quartz veins that may show as a yellow or orange rock. Perhaps a trap or porphyry, or some similar development may reveal a vein only a few feet wide. How, p. 101, c. The high points of cementitious rock, and uncontrolled ejection of water, gas, or oil from a borehole. Long. 1. Used by prospectors
blowout and miners for any surface exposure of strongly altered discolored rock associated, or thought to be associated, with a mineral deposit. Blowing equipment is used in the application of the rotary method, an unexpected volume of gas under pressure sometimes "blows" the mud-laden drilling fluid from the hole, thus putting an end to drilling until controlled. The term is also used in standard tool drilling when the flow of gas is sufficient to interfere with the drilling operation. A.G.I. b. Used by miners and prospectors for a large, more or less isolated, usually barren quartz outcrop. Known in Australia as blow. Hess. i. A basin, scooped out of soft, unconsolidated deposits by the process of deflation. It ranges from a few feet to several miles in diameter. Lest. j. The cleaning of boiler flues by a blast of steam. Fay. The rupture of a boiler tube, steampipe, pneumatic tire, or other container through faulty construction, excessive pressure, or other cause. Fay. l. To put a blast furnace out of blast, by ceasing to charge fresh materials, and continuing the blast until the contents of the furnace have been smelted. Fay. m. To smelt the iron-bearing materials in the furnace, adding domestic coke so that the products charged about normal. Camp. 6th ed., 1931, p. 336. blowout plug. A sub (adapter) by means of which the upper end of an inner tube of a double-tube core barrel can be coupled to the fluid-circulation system of a drill. Long. blowout preventer. A rotary or stationary device attached to drivepipe or casing at the collar of a borehole, consisting of an assemblage of bypass and gate or disk valves which may be closed around the drill rods, or which can be closed completely if the drill rods are withdrawn from the borehole. Used to contain and control the flow of liquids or gases under high pressure encountered while drilling a borehole. Long. blowout shot. An improperly placed or overcharged load of black blasting powder in coal (where used) which frequently results in a mine explosion. von Bennewitz. blowover, blow. The sudden, high head-on damage done above a blow-out in a hand shop operation to facilitate bursting off. ASTM C162-66. blowout, a. Welding or cutting torch. A.S.M. Gloss. b. A small laboratory apparatus using a mixture of air under pressure and utility gas in order to give a hot localized flame. Used in the blowpipe analysis of minerals and in laboratory glass-blowing and glass bending. C.T.D. See also blowpipe reaction. c. A metal tube, some 4 to 5 feet long, with a bore of 1/4 to 3/4 inch and a thickened nose which is dipped into molten glass and withdrawn from the furnace. The glass is subsequently manipulated on the end of the blowpipe and blowout to shape. Also called blowing iron. C.T.D. blowpipe furnace. A furnace fired by having a blowpipe blown through a pipe. Hess. blowpipe reaction. a. The decomposition of a compound or mineral when heated by the use of a blowpipe in some characteristic reaction, as a coloring of the flame or a colored crust on a piece of charcoal. See also blowpipe. b. A method of analysis in mineralogy, Fay. blowpipe spray welding. See spray welding. blowpipe tubing. A rapid method for the determin-
blue malachite. Same as azurite. Standard.

blue marl. Lower Lias clays. Arkell.

blue material. A name commonly applied to the common fine-grained, bluish-gray mudstone which forms the roots of many of the exposures in England. A.G.I. b. A copper matte containing approximately 60 percent copper. See also bind; bluestone. Fay. c. See blue powder.

blue moonstone. A bluish chalcedony. Shipley. b. A term frequently applied to fine quality previous moonstone of bluish tinge; also incorrectly applied to chalcedony artificially colored blue. Shipley.

blue mud. a. An ocean-bottom deposit containing up to 75 percent terrigenous materials of dimensions below 0.003 millimeter. The depth range occurrence is about 750 to 16,000 feet. Colors range from reddish to brownish at the surface, but beneath the surface, the colors of the wet muds are gray to blue. A.G.I. d. A common variety of deep-sea mud having a bluish-gray color due to presence of organic matter and finely divided iron sulfides. Calcium carbonate is present in amounts up to 35 percent. A.G.I.

blue needles. Applied in the grading of quartz crystals to needlelike imperfections, often due to presence of organic matter and finely divided iron sulfides. Calcium carbonate is present in amounts up to 35 percent. A.G.I.

blue onyx. Incorrect name for single-colored zephyrite. Fay. b. Also called blue agate or blue jade. See also bind. Fay. c. Same as copper vitriol; copper sulfate. Fay. c. Also called Amherst stone because it is quarried near Amherst, A.G.I. d. A dense, hard, indurated, fine-grained feldspathic sandstone, most of which splits easily into thin, smooth, bluish-gray sheets. A term is applied to all slate-gray, but the term is applied to all varieties irrespective of color. A.S.T.M. C-465. See also bind, b. See above. SMTR. Paper No. 61. f. Synonym for chalcanthite. Hey 24, 1955.

blue take. Synonym for cyanite. Fay.

blue tops. Grade stage whose tops indicate finish grade level. Nicholas.

blue vitreous wollastonite or chalcanthite. Also called copper vitriol. Fay.

blue water gas. Obtained by passing steam over red-hot coke, in a cycle process comprising two main stages: (1) gasmaking, which reduces the temperature of the coke; and (2) blowing with air, which raises the temperature of the coke. It is called blue water gas because of its blue flame, a characteristic of the combustion of carbon dioxide. Francis, 1965, v. 2, pp. 386-387.

blue whistler. Ark. A local term for a very hard, dark-gray siderite rock, so tough that when stray pieces reach the rolls of the bauhite-chalcopyrite mill, it is reduced to powder. Fay. d. Synonym for chalcanthite. C.T.D.

blue whinstone. A term frequently applied to fine quality previous moonstone of bluish tinge; also incorrectly applied to chalcedony artificially colored blue. Shipley.

blue pebble. Synonym for lazulite. Fay.

blue peach. Corn. A slate-blue, very fine-grained tourmaline. Fay.


blue needles. Applied in the grading of quartz crystals to needlelike imperfections, often due to presence of organic matter and finely divided iron sulfides. Calcium carbonate is present in amounts up to 35 percent. A.G.I.

blue rock. Lapis lazuli from California.
**Bohemia** gem stones. Includes the following: garnet, jadeite, pyrope, astrophyllite, pyrite, quartz (gem-cut), and yellow quartz (gem cut). Pryor, 3.

Bohemian ruby. A jeweler's name for rose quartz when cut as a gem. Fay.

Bohey boiler. The net magetic moment arising from the dipole moment of the atom. Toms, 1924, p. 453.

Bohemia's clerystone. Moldasite. Shipley.

Bogwood. A spongy variety of hydrated oxide bog ore. Bohey boiler. An engine having its cylinders and driving wheels on a pivoted truck bogie engine. An engine having its cylinders and driving wheels on a pivoted truck.

Bogie; bogi, bog. A rail truck or trolley of low height, used for conveying timber or machine parts underground, or for conveying the dirt hoppit from a smoking pit to the dirt heap. It may also be used as a wagon spotter. Nelson, b. York. A small truck or trolley upon which a bucket is carried from the shaft to the spoil bank. Fay. c. A weighted truck run fore and aft or next to the rope in a train or trip. Fay. d. A two-axle driving unit in a truck. Also called tandem driving unit; tandem. Nickels.

Bogie engine. An engine having its cylinders and driving wheels on a pivoted truck.

Bogie kiln; truck chamber kiln. An intermittent kiln of the box kiln type distinguished by the fact that the ware to be fired is set down in a house. Each is then pushed into the kiln; the bogie has a deck made of refractory material. See also box kiln; shuttle kiln.

Bog iron ore. Loose, porous form of limonite occurring in wet ground, often mixed with vegetable matter, Fe₃O₄·nH₂O. Fay. b. A deposit of hydrated iron oxides found in swamps and peat mosses. Schiefer. c. A deposit of iron oxides in a peat bog. Prayor, 3. b. A deposit of hydrated iron oxides found in wet ground and used in Portland cement manufacture. It is often erroneously called marl, a term which properly belongs to a calcareous clay. Fay. b. See lake marl. Nelson.


Bogey, a. A notions in the Carnarvon name for peat. Tompkev, 12.7

Bog oak. Oak immersed in peat bogs, semifossilized and blackened to resemble ebony by water distilling with the tannin of the oak. C. M. D.

Bog ore. A spongy variety of hydrated mode of iron and limonite. Found in layers and fossilized and blackened to resemble ebony. Medical: John; 3. b. A deposit of hydrated iron oxides found in swamps and peat mosses. Schiefer.

Bogus. a. A white powder, calcareous deposit, precipitated through plant action on the bottom of many ponds and used in Portland cement manufacture. It is often erroneously called marl, a term which properly belongs to a calcareous clay. Fay. b. See lake marl. Nelson.

Bogus-carbonate. Chryssocolla; carrying carbon dioxide as an impurity; from the Bogo- selski mine, Perm, Russia. Weed, 1918.


Boguel. Same as zemora. A.G.I.

Bogumil. A grayish, fine, granular to porphyritic intrusive rock containing plagioclase, augite, more or less hornblende, a little biotite; interstitial and skeletal. Jahnke. c. 4, 1938, pp. 220-222.

Bogwood. Eng. The trunks and larger branches of trees dug up from peat bogs. See also bog oak.


Bohemia's diamond. Rock crystal. Shipley.

Bohemia's garnet. Yellowish-red variety of the garnet pyrope. Occurs in large numbers in the Mittelgebirge, in Bohemia, Czechoslovakia. C.T.D.

Bohemia's gem stones. Includes the following: garnet, jadeite, pyrope, astrophyllite, pyrite, quartz (gem-cut), and yellow quartz (gem cut). Pryor, 3.

Bohemian ruby. A jeweler's name for rose quartz when cut as a gem. Fay.

Bohey boiler. The net magnetic moment arising from the dipole moment of the atom. Toms, 1924, p. 453.
boke. a. Derb. A small stringer of ore which soon dwindles out. Fay. b. Derb. A break or division between the outcrops of two rocks.


d. bold coast. A prominent land mass that rises steeply from the sea. H.G.

Bolderberg beds. Belg. The sands and gravels of the Bolderberg Hill, representative of the middle or Eocene Tertiaries, and often referred to by geologists. Fay.

boli. a. Any of several varieties of friable earthy clay usually colored red by iron oxide and consisting essentially of hydrous silicates of aluminum and less often of magnesia. Webster 3d. b. Claylike minerals used in medicine; some have been identified as halloysite. Holmes, 1928. c. A bright red, water-stained, decomposed product of basaltic rocks, having the variable composition of lateritic clays. Holmes, 1928. d. Any cylindrically shaped object or mass. Webster 3d.


bolomagnetometer. Lindblad-Malmqvist gravity meter, for measuring variations in gravity; used in prospecting for ore deposits. Fay.


bollard. A cast-iron post anchored securely into the masonry or concrete of a guay wall as a mooring for vessel, or bolted into a curb as a protection against traffic. Ham.

Boley's gold purple. A color that has been used on porcelain. A solution of stannic ammonium chloride is left for some days in contact with granulated tin and is then treated with dilute gold chloride solution. The gold purple is precipitated. Dodd.

bolitto. It. The frit or calcined ingredients from which glass is made. Standard, 1964. A unit of measure.

Bologna stone; Bolognian stone. The mineral Bologna spar. See Bologna stone.

bolster. A plate to which dies may be fastened, the work being secured to the top surface of a press bed. In mechanical forging, such a plate is also attached to the ram. ASM Gloss.

bolter. A nearly horizontal cylinder or prismatic frame, usually rotating, covered with silk or other fabric with very regular meshes, for sitting and separating flour of which the shaft has been covered by extending the fabric over the whole length of the machine. Usually different sections of its length are covered with gradually decreasing sizes of mesh. Standard, 1964. b. To tilt or separate by passing through a bolster. Standard, 1964. c. In glassblowing, a cylindrical mass, as a bolt of melted glass. Standard, 1964. d. S. Staff. A short narrow heading connecting two objects. Also called boltbole. Fay. e. A mild steel rod, used in roof bolting. See also slot-and-wedge bolt; wedge-and-sleeve bolt. Nelson.

bolted cable coupler. Two cable coupling parts, with connecting pins, bolted together to form a straight through connecting box. B.S. 3618, 1965, sec. 7.

bolted cable plug and socket. A plug and socket designed to be held together by one or more bolts or screws, or studs and nuts, in such a way that they cannot be disengaged without the use of a tool. B.S. 3618, 1965, sec. 7.

bolthole. S. Staff. A short narrow opening if , through a pipe at the top of the chamber removed and hauled away in metal containers for disposal. Bureau of Mines Staff.

bomber. 4. Large rounded mass of lava from a few inches to several feet in diameter, generally vesicular, at least inside, through which escaping gas and ash are forcing an explosive eruption. Fay. b. An elipsoïdal, discordal, or irregularly rounded mass of lava ejected at a high temperature during a volcanic eruption. Bombs range upwards in size from the largest lapilli. They are characterized by a well-defined crust and are often cellular or even hollow internally. Holmes, 1928. e. The combustion chamber of a bomb calorimeter. Webster 3d. d. A missile containing an explosive, as dynamite. Fay. e. A heavy-walled reaction vessel or autoclave. Used to carry out reactions at high pressure and high temperature. Hurbut.

bomb calibrometer. A long steel vessel used for determining the heat produced during combustion, for example, for determining the calorific value of fuels. Standard, 1964. d. S. Staff. A short narrow heading connecting two objects. Also called boltbole. Fay. e. A mild steel rod, used in roof bolting. See also slot-and-wedge bolt; wedge-and-sleeve bolt. Nelson.

bomb calorimeter. A strong steel vessel used to determine the heat produced during combustion, for example, for determining the calorific value of fuels. Standard, 1964. d. A transparent, colorless mineral, found in lignite in Tuscany, Italy; it fuses at 75°C, volatilizes at a higher temperature. Ben. Also known as bomb.


bonamite. A jeweler's trade name for an apple-green smithsonite, resembling chrysoprase in color, from Kelly, New Mexico. Shipley.

bonanza. a. In miners' phrase, good luck, or a body of rich ore. A mine is in bonanza when it is profitably producing ore. Fay. b. Part of a precious mineral deposit that is especially rich. Baturin.


bond. a. The cohesion or adhesion that develops between particles of ceramic materials in the unfired or fired state. Bureau of Mines Staff, 1965, sec. 7. The bond is the junction of the various parts of a masonry wall by lapping one unit over another; the pattern formed by the exposed faces of the unit. The adhesion of the mortar to the units is also referred to as the bond. ACG. d. See adhesion. ASTM C286-62. e. In grinding wheels and other relatively rigid abrasive products, the material that holds the abrasive grains together. ASTM Gloss. f. In welding, the junction of joined parts. Where two atoms due to an electron pair resonating or rotating between them. If each atom contributes an electron the bond is atomic, and also homopolar (nonpolar). If held unequally, it is heteropolar (polara), for example, H:O. If only one of the two electrons, the bond is molecular. In a coordinate bond each of two atoms contributes one electron to form a coordinate bond, or to a shared pair (covalent). In a dative bond, one atom supplies both electrons of bonding pair (also called a
bond

The term bond is used in various contexts, including in chemistry, engineering, and geology. For example, in chemistry, it refers to the attraction between atoms in molecules or ions that holds them together. In engineering, it is often used in the context of bonding materials like concrete, metals, and ceramics. In geology, it can refer to the connection between layers of rock or the bonds that form minerals. This page seems to cover multiple topics related to bonds, such as bond strength, bonding systems, and bond failure, but it is not entirely clear due to the fragmented nature of the text. It appears to be a compilation of various definitions and explanations, possibly from different sources. Without additional context, it's challenging to provide a coherent summary.
boninite. Mex. First-class silver ore, that is, bonnet. A. A covering over a mine cage which acts as a roof to shield it from objects falling down the shaft, thereby protecting the riders. Also called cage cover. Fay. B.C.I. b. A gasket for firetight timber. Zinn. c. See bell mold. Fay. Scot. Gas coal or shale overlying and working along with a coal seam. E. Scot. A portion of a coal seam left for a roof. Fay. d. The metal casing of a miner's flame safety lamp, with openings at the top and a hook for carrying the lamp. The bonnet protects the inner gauze from damage and from the impact of high-velocity air. See also safety lamp. Nelson. g. Synonym for air dome. Long. h. The access cover for the steam chest of a pumping boiler. Also called pressure dome. Long. j. A cover used to guide and inclose the tail end of a valve spindle. Strock. k. A cap over the borehole arranged as one would read a book, also bottle oven. Dodd.

bonnet hip. See hip tile. Dodd.


bonney. Corn. An isolated body of ore. See also bonnet roller.

bontle. Mid. A hoisting stage full of men. See also bottle oven.

bonnie; bonney; bunny. Corn. A mass of clay in order to increase strength, or the steam chest on a steam engine. Long. g. Synonym for air dome. Long. h. The gate in a dam that holds the water until it is released. See also gate in a dam; flop gate. Hess. b. A device, usually a pole resting on a fulcrum, used to tighten a chain or line about a loaded truck or wagon to hold the load in place. Hess.

boomer. a. An explosive of special character mainly used in booming. Fay. b. A slight channel cut into which is let a sudden heap of water (in placer mining, where water is scarce). In California, the contrivances for collecting and dumping water are termed "self-shooters," an idea suggested by the sudden and violent manner in which the water makes its return to the surface for retrieval. It is designed for nighttime recovery. HBG.

booming. The accumulation and sudden discharge of a quantity of water (in placer mining, where water is scarce). In California, the contrivances for collecting and dumping water are termed "self-shooters," an idea suggested by the sudden and violent manner in which the water makes its return to the surface for retrieval. It is designed for nighttime recovery. HBG.

boomerang sediment corer. This (free-instrument type) device can be dropped over the side of a moving ship where it will sink rapidly to the ocean floor, take a core of sediment, release itself, and automatically return to the surface for retrieval. It is designed for nighttime recovery. HBG.

booster. a. An explosive of special character used in booming. Fay. b. A straight channel cut down a declivity into which is let a sudden heap of water. Hess. c. A pump or compressor inserted to pump water in place. Hess. b. A pump or compressor inserted in the column near the outbye end to increase the pressure. Nelson. c. Any device used to tighten a chain or line about a loaded truck or wagon to hold the load in place. Long. e. A new sonar transducer, expected to be especially helpful in the exploration of bottom substrata. Hy.

boom cutter. See boom operator.


boom drifter. a. The device used in booming. Fay. b. A slight channel cut down a declivity into which is let a sudden heap of water. Hess.

boom machine. a. In placer mining, an automatic gate in a dam that holds the water until the reservoir is filled, then opens automatically and allows the escape of such a volume of water that the soil and upper gravel of the placer are washed away. When the reservoir is emptied the gate closes and the operation is repeated. On a smaller scale it may be used merely to furnish water periodically in small quantities. Also called automatic dam; flop gate. Hess. b. A device, usually a pole resting on a fulcrum, used to tighten a chain or line about a loaded truck or wagon to hold the load in place, while being hauled over rough roads. Hess. c. Originally, an oilfield worker who migrates from one boom drifter to another; now, commonly, a member of a drill crew who works on one job a short time, quits, and moves on to another locality to seek employment. Also called drifter. Long. d. A combination ratchet and lever device used to tighten a chain or line about a loaded truck or wagon to hold the load in place. Long. e. A new sonar transducer, expected to be especially helpful in the exploration of bottom substrata. Hy.

boom ram. See boom operator.

book. a. See book form. b. See book value. c. The sum at which the total assets of a company stand in the books, less the sum of the external liabilities. Truex.

book form. book-packed splittings. Splittings arranged and supplied in the form of individual bunches, each book containing consecutive splittings obtained from the same piece of block mica or thins. Book form splittings are generally dusted with mica powder to offset residual cohesive forces. Strock.

book mica. Crystals of crude mica obtained from the mine in various shapes and sizes. Also called books. Strock.

book value. The sum of the external assets of a company stand in the books, less the sum of the external liabilities. Truex.

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book mica. Crystals of crude mica obtained from the mine in various shapes and sizes. Also called books. Strock.
booster
y substance to augment or improve performance, volume, or force. See also booster fan.

booster conveyor. Any type of powered conveyor used to regain elevation lost in gravity rolling. A slope conveyor. AMR 1956.


booster fan. A fan installed underground to improve or augment the ventilation in a district. A booster fan is installed when other means of improving the ventilation would be very costly, or too slow or perhaps ineffective. A ventilation survey is a legal obligation in Great Britain before installing a booster fan. See also fan.

booster pump. A. A pump used to increase the pressure of fluids, such as to increase the pressure of water delivered to a drill. ASTM C162-66. B. A pump that operates in the discharge line of another pump, either to increase pressure, or to restore pressure lost by friction in the line or by lift. Nichols.

boosters. Those people who, as local property owners, have a stake in the prosperity of their town. Legends grow rapidly on mining properties.

boothite. A blue, lighter than chalcanthite, monoclinic crystal occurring in hard glassy crystals, and soft white masses. It is strongly pyroelectric. Found in beds of gypsum and anhydrite at Stassfurt, Germany. C.T.D.; Dana 17; A.G.I.; Fay.

boor. A sandwich of boron carbide crystals in aluminum, with a layer of cellophane pure aluminum. Concentrations of up to 50 percent boron carbide can be obtained. Used as a shielding material against the passage of thermal neutrons, as in reactor shields; neutron curtains; shutters for thermal curtains; safety rods; and containing for fissile material. CCD 6d, 1961.


boresor. A salt or ester of boric acid; a compound containing the radical BO\(_2^–\). A.G.I.

boresor glass. A glass in which the essential glass former is boron oxide instead of silica. ASTM C162-66.

borates. See boron minerals.

borax. A mineral deposited by evaporation of the waters of alkaline lakes, notably in California, Nevada, and Tibet, China. A hydrated sodium borate, Na\(_2\)B\(_4\)O\(_7\)·10H\(_2\)O, occurring as a surface alunite, or as monoclinic crystals embedded in the lacustrine mud. Dana 17; A.G.I.; Pryor 3.

bore day. The day the drills are withdrawn. Pryor, 3.

bore hole. A joint in a coal. See also borehole.

borehole. A. A hole, shaped somewhat like the leg of a boot, caused by a blast that has failed to reach the rock properly. See also gun, b. A hole to be carried through the face of the coal with the large end of the cone turned upward. The long end caving off of the walls above catches on it and forms a packer. Porter.

boresor. Abbreviation for barrels of oil per day. Also abbreviated BOBD. Bulfin Style Guide, 58.

boron. Boron oxide used to any great extent. Boron has been applied to this method, such as checkerboard system; Brown panel system; following up the whole with the broken; Lancahshire bord-and-pillar method; modified room-and-pillar method; narrow working; North Staffordshire method; rearer method of working inclined seams; rock-chute mining; room system; room system with caving; Warwickshire method of working contiguous seams; wide or square work; bord-and-pillar method.
and pillar-and-breast. Fay.

bord-and-pillar working. N. of Eng. A system of mining in which interlacing rows of bord and pillar workings are driven at right angles into the seam, leaving small square or rectangular pillars of coal of from 30 to 50 yards side length, either wholly or partly extracted by a small group. Also called room-and-pillar; tab-and-stall; bord-and-wall.


bord cleat. a. Eng. The main cleavage planes of a seam. Lons. b. In coal mining, the main cleats. Also called bord on face.

bord cleat. a face being taken at right angles to the main cleat or facing, that is, the length of a bord. Fay.


bord facies. The outer or border zone of an igneous rock mass that has a different texture or composition from the interior owing to more rapid cooling and possibly to assimilation of substances from the enclosing rock. Hess.

bord gate. a. A main heading generally to the main cleats. Also called bord on face. c. Eng. A coal face having a bearing coal cut, the bord line. TM. b. The bord gate is also bordways.

bord gate. a. A main gate leading and at right angles to a coal bed. SMRB, Paper No. 61. b. See main cleat. Mason, V. 1, p. 8.

bord course. Aust. A direction at right angles to the bord course or facing, that is, the length of a bord. Fay.


bord round. A headings driven at right angles into the coal between the levels is removed. Fay.

bord. a. To cut a circular hole by the rotary motion of a cutting tool. Long. b. In rock drilling, a circular hole made by boring. Long. c. A tunnel, especially during the time it is being excavated. Nelson. d. The inside diameter of a cylinder, such as the inside diameter of piston cylinders on a pump or reciprocating engine. Pryor. e. A hole or cavity produced by a single-point or multipoint tool other than a drill. ASM Gloss. f. A tidal flood that regularly or occasionally fills a strata with drifting fluid. Quick-acting syrinx cement, with a 30-60 minute set time. See also mud flush, b. Nelson. c. The complete filling of a borehole with cement to prevent the entry of water into mine workings. Nelson.

borehole spacing. The distance between boreholes drilled for drilling, ion or sampling purposes. With bedded minerals, the holes may be positioned at the intersection points of co-mine and sub-mine lateral triangles with sides from 100 to 500 feet apart. The spacing is closer with patchy deposits. With metallic ores following belts across country, the holes are spaced along lines crossing the ore body in order to yield correct information about the ore at definite intervals. In the case of known and semiproved coalfields, boreholes at 1/4-mile intervals may suffice. Nelson.

borehole survey. A process of determining the course of, and the target point reached by, a borehole, using one of several different azimuth and dip recording apparatus small enough to be lowered into a borehole; also, the record of information thereby obtained. Also called drillhole survey. Long. b. The process of determining the mineralogical, structural, or physical characteristics of the formations penetrated by a borehole using electrical logging apparatus small enough to be lowered into a borehole; also, the record of the information thereby obtained. Long. c. Measurement of deviation from straight line by a diametrical borehole surveying instrument by observing each pattern of glass bottle containing hydrofluoric acid or consolidation angle of cooling liquid wax, more accurately, by a photographic record of plumb-lines, magnets, or by a gyroscope. Pryor, 3. d. A survey to determine the precise position of various points on the central axis of a borehole. B.S. 3618, 1963, sec. 1. e. A survey to obtain information about the sites intersected by a borehole. B.S. 3618, 1963, sec. 1.

borehole sampling. Instrumental tests to determine the amount and direction of deflection of a borehole from vertical and horizontal planes. The instrument is lowered into the borehole and tends approximately every 100 feet or so of depth. The data obtained may be used to construct a scale model showing the actual course taken by the hole. See also crooked hole; Oehman and Payne-Galloway instrument; oriented core. Nelson.

borehole. A tabular record of the characteristics and thicknesses of strata intersected by a borehole. B.S. 3618, 1963, sec. 1. e. See also drill, Fay.


borehole. A long hole in a strata used for the purpose of blasting. See also drill, Fay.

bore. a. A rod (as a drill) used for boring. Webster 3d. b. Eng. A piece of round iron with a steel point, which is driven into the rock to make holes for the purpose of drilling. See also drill, Fay.

bore rod; boring rod. Term used primarily by soil and foundation testing engineers for the equipment customarily called a drill rod by drillers and miners. Long.

borehole. A simple vertical hole in the earth's crust by means of boreholes and suction pumps. Boreholes are used for mining, and for the extraction of liquid solutions of salt, sulfur, etc. Nelson.

borehole pump. a. Strictly, any pump which can be suspended in a borehole; usually a centrifugal pump suspended in a borehole by its pipe range and driven by a shaft inside of the pipe. B.S. 3618, 1963, sec. 4. b. A centrifugal pump, electrically driven, and designed in the form of a vertical narrow chamber. It may be used to provide water, for dewatering purposes; or for borehole mining. See also sinking pump; submersible pump. Nelson.

borehole samples. The samples of the rocks obtained during boring. The diamond and shot drill yield cores, while percussive drills yield flute and chips which are examined to determine the nature of the rocks passed through. Borehole samples may also be required during site investigations. See also exploratory drilling; soil core. Nelson.

borehole sealing. a. The sealing or closing of borehole walls where drilling fluid is lost. Quick-acting syrinx cement, with a 30-60 minute set time. See also mud flush, b. Nelson. c. The complete filling of a borehole with cement to prevent the entry of water into mine workings. Nelson.

boric acid; orthoboric acid. White; trilinec; H2BO3; and very soluble in water. Used as a flux in the manufacture of cast-iron and sheet-steel porcelain.
boric acid; orthoboric acid
cornel f. r., hanssen. on heating it loses water and forms metabolic acid, H₂BO₂; or on fusion it forms basic acid, HB₂O₃ or the so-called pyrophoric acid, H₂BO₃; on heating at a still higher temperature, it forms the third compound, called boric oxide or boric acid. It occurs as tabular triclinic crystals deposited near fumeroles, and it also occurs in solution in the hot lakes of tuolumne, italy. c.t.d.
boric oxide glass; boron oxide glass. A colorless, transparent glass or noncrystalline powder; somewhat brittle; B₂O₃; specific gravity, 1.85 to 1.88; boiling point, above 1,500° C; soluble in alcohol and in acids; slightly soluble in cold water with decomposition; and soluble in hot water. Used in the production of boron; in the chemical analysis of silicates; in heat-resistant glassware; and as a fire-resistant additive for paints. ccd 6d, 1961.
boron. A group of special ceramic materials. Typical properties are great hardness and mechanical strength, high melting point; low thermal shock resistance; and high thermal conductivity; impact resistance is low but the thermal-shock resistance is generally good. The density of specific borides see under the borides of the following elements: aluminum borides; bainium borides; calcium borides; chromium borides; hafnium borides; molybdenum borides; niobium borides; silicon borides; strontium borides; tantalum borides; thorium borides; titanium borides; zirconium borides; vanadium borides; tungsten borides; zirconium borides. dod.
borer. corn. a. tool for boring. An instrument of iron and brittleness; slightly bitter; B₂O₃; specific gravity, 1.85 to 1.88; boiling point, above 1,500° C; soluble in alcohol and in acids; slightly soluble in cold water with decomposition; and soluble in hot water. Used in the production of boron; in the chemical analysis of silicates; in heat-resistant glassware; and as a fire-resistant additive for paints. ccd 6d, 1961.
borer. a. rod, made in various lengths, for water or firedamp drainage. a., a glass in which boric oxide, silica and boric acid are used as a constituent of a ceramic body that fires to a translucent porcelain at 1,000° C. dod.
boring. a. drilling or cutting of a hole for blasting, water infusion, exploration, or water or firedamp drainage. see also percussion boring; rotary boring. nelson. b. the drilling of deep holes for the exploitation of deep mutuals. The latter is used similarly in connection with metalliferous deposits. c.t.d., ma., materials, standard, 1964. c. a machining method using single-point tool on internal surfaces of revolution. asm.
boring bar. a. a rod, made in various lengths, usually with a single chisel cutting edge, for hand drilling in rock. the blows are given by a sledge hammer. nelson. b. a revolving or stationary bar carrying one or more cutters or drills for boring. fay.
boring bit. derb. a. sharp piece of steel at the end of an auger stem or drill for cutting rock or other material by rotation of the auger. see also bit, a; b. derb. fay.
boring contract. an agreement entered into between a producer and a contractor for the sinking of oil or gas wells on a property. fay. see also drill contract.
boring contractor. synonym for drill contractor.
boring head. a. the part of a drill machine more commonly called swivel head by persons associated with the diamond-drilling industry. see also swivel head, a; long. b. synonym for drill bit. long. c. the cutting end of a boring tool, especially the cutting end of an auger drill. web. 3d. d. see drill head, a. b.s. 3618, 1963, sect.
boring journal. a book which contains an accurate record of the progress of the boring work, day by day. it is usually kept by the drilling master. see also log, c. fay.
boring log. synonym for drill log. long.
boring machine. the tool used in charge of a well-boring outfit. fay.
boring rod. a rod made up of segments, carrying at its lower end a tool for earth boring or rock drilling. webster 3d.
borings. used by the soil and foundation testing profession as a synonym for boring holes and/or the materials removed from a borehole. compare cuttings, a; sample, b. long.
boron equation. the free energy of solvation of an ion is

\[ \Delta G = \frac{N_{\text{Av}} e^2}{2r} \]

N is the Avogadro number, z the ionic valency, e its electronic charge, D the dielectric constant of the electrolyte and r the ionic radius. pryor, 3.
bornhardsite. a cobalt selinite, Co₂Se₄ cubic to hexagonal rhombohedral crystals; ranking 6d. 1961; handbook of chemistry and physics, 1964.
bornite. a valuable copper ore; a sulfide of copper and iron, CuF₅S₄, crystallizing in the cubic system. also called erubescite; horseflesh ore; rock copper ore; variegated copper ore; purple copper ore. sanford; dana 17.
bornoludate. see aluminum borate. dod.
borolite. a hypabyssal rock, having a granitoid texture and consisting essentially of orthoclase and melanite with subordinate nepheline, biotite and pyroxene. a variety of melanite-nepheline pyroxenite found at Loch Borolan, Scotland. a.g.i.
borolon. alumina, Al₂O₃, prepared by fus- ing bauxite; specific gravity 4; used as an abrasive and refractory. nelson.
boron. element of atomic number 5, of group III in the periodic system. a very soft, brown, amorphous powder or yellow crystals; insoluble in water, alcohol, or in concentrated sulfuric acid; and soluble in concentrated hydrochloric acid, hydrobromic acid, and hydrofluoric acid. used as a constituent of a ceramic body that fires to a translucent porcelain at 1,000° C. dod.
boron-edenite. a mineral, artificial NaCa₂Mg₅(Si₄B₄O₁₀)F₉, containing 91 percent B₂O₃. sperling, 21, 1958.
boron hydride indicator. unit tests for up to 0.1 parts per million (ppm) of pentavalent boron or deaborane in air and 0.1 parts per million (ppm) of diborane. detector comprises a potentiostat, a burette and a burette pump, reagent solution, a dry reagent, color or comparison card and a calibration chart. the number of parts per million produced on filter paper a color to match a reference standard is the index of borane concentration.
boron metasomatism. the replacement of minerals, as of a granite, by boron-bearing minerals, such as orthoclase and rarely, datolite and danburite. a.g.i.
boron minerals. many known minerals contain boron, but only a few are commercially valuable as a source of boron. the principal boron minerals are borax (tincal), Na₂B₄O₇·10H₂O; kernite (zarorite), Na₂B₄O₇·4H₂O; colemanite (boracite), Ca₂B₆O₁₀·5H₂O; ulexite (boronatrocalcite), CaNa₂B₁₀O₂·9H₂O; priceite (pamphphile), Na₂B₁₀O₂·9H₂O; carborborite (stassfurtite), Mg₂B₂O₇·9H₂O; and sassoite (natural boric acid), H₂BO₃. today the united states furnishes the bulk of the boron introduction from deposits of sodium boron. boron and boron compounds have numerous uses, including applications in glass, ceramics, welding compounds, soaps and detergents, plasters and paints, starches, fertilizers, steels, nonferrous metals, atomic reactors, radio tubes, solar batteries, abrasives, refractories, chemicals, plastics, motor fuels, antifreeze, insulation materials, adhesives, drugs, and cosmetics. bu mines bull, 630, 1965, pp. 149, 151.
boron nitride. white, p. 594. hexagonal rhombohedral, crystals or powder; the powder has a hardness of 2, Mohs' scale; sublimes, about 3,000° C; and is insoluble and some properties vary accordingly to the method of preparation and the crystal form. used as a refractory; a high-temperature lubricant, as in glass molds; in furnace insulation; and in molten-metal pump parts. ccd 6d, 1961; handbook of chemistry and physics, 45th ed., 1964, p. b-138.
boron oxide. see boric oxide. ccd 6d, 1961.
boron-phosphate. a. a％material, K₂B₂O₅.Fe₂O₃. spencer 21, m.M., 1958.
boron phosphate. BPO₃; specific gravity, 2.80; melting point 1,000° C. used in the production of high-cristobalite. it has been used as a constituent of a ceramic body that fires to a translucent porcelain at 1,000° C. dod.
boron phosphide. symbol, BP; melting point, greater than 2,000° C but readily oxidizes, which limits its potential use dod.
boron silicides. see silicon borides. dod.
boron steel. the addition of about 0.003 percent of boron confers increased hardness and ability to steels in the quenched and tempered condition. the addition of this percentage of boron to low carbon, 0.50 to 0.60 percent molybdenum steel in the normalized condition gives double yield strength and a 30 percent increase in tensile strength, but boron has only a very slight advantage when molybdenum is less than 1.00 percent.
boronate. see ulexite, fay.
boron carbide; tetrahedron carbide. probably not a true compound, but instead a solution of varying amounts of carbon in a slightly distorted boron lattice; B₄C; black; hexagonal rhombohedral crystals; ranking next to diamond in hardness, 9.3 Mohs' scale; and melting point, 2,350° C. used in powder form as an abrasive and in molded form as an abrasion resist. ccd 6d, 1961; handbook of chemistry and physics, 45th ed., 1964, p. b-158.
boronatrocalcite. see ulexite, fay.
boron carbide; tetrahedron carbide. probably not a true compound, but instead a solution of varying amounts of carbon in a slightly distorted boron lattice; B₄C; black; hexagonal rhombohedral crystals; ranking next to diamond in hardness, 9.3 Mohs' scale; and melting point, 2,350° C. used in powder form as an abrasive and in molded form as an abrasion resist. ccd 6d, 1961; handbook of chemistry and physics, 45th ed., 1964, p. b-158.
boronatedite. a mineral, artificial NaCa₂Mg₅(Si₄B₄O₁₀)F₉, containing 91 percent B₂O₃. sperling, 21, 1958.
boron hydride indicator. unit tests for up to 0.1 parts per million (ppm) of pentavalent boron or deaborane in air and 0.1 parts per million (ppm) of diborane. detector comprises a potentiostat, a burette and a burette pump, reagent solution, a dry reagent, color or comparison card and a calibration chart. the number of parts per million produced on filter paper a color to match a reference standard is the index of borane concentration.
borsella. An instrument for stretching or con-

bosh. a. A tank or tub from which horses 


glasscutting. Gordon. g. S. Afr. Rounded 

crystalline diamonds not usable as gems; 

standard, cost than ordinary excavation. Hess.

vation it also often requires the construction of a 

the land, where the borrow pit is located; 

tracts.

form the embankment. Borrow-pit excava-

near an embankment when there is 

therefore 

usually runs higher in 

classification, 

boreal. A.d. Formerly used to 

beryll in spherical form, and said to 

bort somewhat more granular than com-

crystalline diamond; (3) framesite bort 

picked up by a magnetic separator and 

tain black carbon or other minerals; used 

use in a fragmented form. See also frag-

Currently the term commonly is applied 

low-grade industrials suitable only for 

American mineralogic assays. CCD 6d, 1961, 

Handbook of Chemistry and Physics, 45th 


borrow pit. A special classification usually 

plied to material taken from some pit 

near an embankment when there is in-

sufficient excavation nearby on the job to 

form the embankment. Borrow-pit excava-

ation is therefore a special classification, 

usually bid upon as a special item in con-

tracts. It frequently involves the cost 

land, or a royalty on material taken from the 

land, where the borrow pit is located; 

it also often requires the construction of a 

suitable road to the pit. This type of exca-

vation therefore usually runs higher in 

cost than ordinary excavation. Hess.

borsella. A. Formerly used for stretching or con-

tracting glass in its manufacture. Standard, 

1964, p. 301.

boss. a. In immediate charge of a 

piece of work, as a mine foreman. Fay. 

b. A master workman, a foreman, a 

director or manager. Ricketti, 1. c. Ark. 

A coal mine employee not under the juris-

diction of the miner's union. Fay. d. 

the enlarged part of a cast iron on which a wheel 

is keyed. Webster 3d. e. A cast-iron plate 

secured to the back of a traveling forge 

hearth. Fay. (2) A wag or die used for 

shaping metals. Webster 2d. g. A heavy 

cylindrical piece of iron (usually cast or 

steel) inside the top of the stamp. 

stems into and into the bottom of which the 

shoer is inserted. It is the body of the 

hammer into which the handle fits and which 

also gives height to the blow. Also called 

top head. Fay. h. Scott. Hollow. The 

or engraved marking on any 

metal. To hole or uncover. Fay. i. A 

pierced, and often dome-shaped mass 

of igneous rock congealed in the surface 

of the earth and laid bare by erosion. 

Webster 3d.

boss driver. One in charge of men or boys 

who are driving horses or mules for haul-

ing coal, rock, or ore at mines. Fay.

bossing. a. Scott. The holing or undercut-

ting of a thick seam, as of limestone, the 

height of the undercutting being sufficient 

for a man to work in. Fay. b. In ceramics, 

the projection of a cast-iron forma-

columnar in clusters on 

botryolite. A radiated, 


bott. A plug of clay for closing the taphole 

of a cupola or a blast furnace. Bureau of 

Mines Staff.

Böttger ware. Dark red stoneware. ACSG, 

1963.

botting. Thrusting a bot into the taphole to 

stop a run of slag or metal. Fay.

bottle. a. A vessel or receptacle 

having a neck. Fay. b. Glass, earthen 

ware. See glass. c. A plug of clay 

incorporated. Used as a Jeff-lubricating 


bottle brick. A hollow clay building unit 

shaped like a bottomless bottle 12 inches 

long, 3 inches outside diameter (o.d.), 2 

inches inside diameter (i.d.), and 

weighting 21/2 pounds. The neck of one unit 

is placed in the end of another to build 

beams, arches, or flat slabs; steel reinforce-

ment can be used. Bottle bricks have been 

used in France (where they are known as 

 Fusées Céramiques'), in Switzerland, the 

Netherlands, and in South America. Dodd.

bottle chuck. A pulley with a wide-grooved 

face for guiding a cable around a turn in 

the track, an angle sheave. Zurn.


bottled gases. The liquefied petroleum gases 

propylene and butane. These gases are 

liquefied at normal atmospheric temperature 

(70° F) at pressures of 125 pounds per 
square inch and 38 pounds per square inch 

respectively and the are used in cylinders or 
tank cars in liquid form at about these 

pressures. Liquid propane is sold mainly 

for industrial use, because of its 

pressure, and butane mainly for domestic 


bottles. A gas consisting of volatile hydro-

carbons, from propane to pentane, mixed 

with hydrogen and methane under pres-

sure. It withstands pressures that may be 

transported in steel tanks under 

pressure in liquefied form. May be used as 

species. Its major constituents are copper, 

carbon, and hydrogen oxygen. Its for-
mula is Cu(2H2)3(2C3H8). American 

Mineralogist, v. 30, no. 1, march-april 


29, no. 211, December 1950, p. 260.

botanical prospecting. Prospecting in which 

differing plants. Prepared plastic or factory plant 

serve as a clue to the presence of metals 

beneath barren rock or a covering of sand 


botryogen. A vitreous hyacinth-red, translu-

cent, hydrous magnesium ferromagnesio-

lite, crystallizing in the monoclinic system. Fay.

botryoid. A form in the shape of grapes. 

A.G.I.

botryoidal. Having the form of a bunch of 

grapes; usually applied to mineral aggre-

mates. Webster 3d. Fay.

botryoidal stalactite. Round or semispherical 

smooth nodular growths of calcium carbo-

nate, usually occurring as cavern walls. Synonym for botryoid; clus-

terite; grape formation. Schützackerterite.

botryolite. A red, columnar dolomite 


bott. A plug of clay for closing the taphole 

of a cupola or an blast furnace. Bureau of 

Mines Staff.

botryolite. A radiated, 

bottle-glass machine operator. See bottle-


boss driver. One in charge of men or boys 

who are driving horses or mules for haul-

ing coal, rock, or ore at mines. Fay.

bossing. a. Scott. The holing or undercut-

ting of a thick seam, as of limestone, the 

height of the undercutting being sufficient 

for a man to work in. Fay. b. In ceramics, 

the projection of a cast-iron forma-

bosilicate glass

ASTM C162-66.


bottle gas
**bottle gas**

A fuel to operate combustion-type engines in lieu of gasoline. Sold under various trade names but most commonly known as L.P. gas, L.P., L.P. gas, or bottled gas (or blue gas). Long.

**bottle glass.** Glass used for the manufacture of bottles. Made from a batch comprising essentially sand, lime, and alkali. A typical glass composition may contain the following: such a glass was 0.6 percent Al₂O₃, 9.0 percent CaO, and 16.3 percent Na₂O; C.T.D.

**bottle jack.** Eng. An appliance for raising heavy objects, with a pump; the screw is operated so as to cause the pump to push the loaded jack up. Also called bottle pumping jack. Eng. A bottle being formed in an intermittent kiln, usually by the use of suction feeding, blowing, and forming.

**bottle machine operator.** One who tends automatic machines which forms bottles from molten glass. Also called bottle-making machine operator; forming-machine operator; press-and-blow-machine operator.

**bottle-making machines.** These may operate in various ways, but the bottle being formed in two stages, that is, the parison and the flashed bottle. Widemouth ware may be formed by pressing the parison and then blowing, narrow-mouthed bottles by blowing a wall of glass after pressing and blowing. In the last method, the glass is gathered by suction into the parison mold, in the other two it is dropped by hand or more probably by a feeding device, hence the term suction-fed, suction-fed, feeder-fed.

**bottle oven.** A type of kiln used for melting glass, and often used where height is limited. Nelson.

**bottle oven.** The method by which the bottomeh is removed from below as with a power shovel. American Institute of Mining and Metallurgical Engineers Bulletin No. 604, 1935, p. 7.

**bottleneck.** Eng. The bottom of a wagon or truck which is unfastened by knocking off a catch when the wagon is required to be discharged. Fay. A flat base for holding the flask in making sand molds. ASM Natl. c. Also placed on the underside of a mold during ramming. C.T.D.

**bottle oven.** The technique by which soap impurities are reflected off the bottom one or more times before reaching the target. Ha.

**bottom break.** The break or crack that separates a block of stone from a quarry floor. Hein.

**bottom cager.** A man at the bottom of a stope or shaft in a mine to superintend the operation of the raising and lowering of the cage. See also cage. Fay.

**bottom cutter.** A dinter; a coal cutter for making floorcuts. Nelson.

**bottom equipment.** a. The tools or equipment attached to the lower end of a drill string and normally used at or near the bottom of a borehole. Also, the drilling equipment placed and operated at or near the bottom of a borehole, such as a pump unit or strainer. Long. b. Mine equipment used solely for work at the mine bottom, such as rotary dump and switch motor (i.e. used to spot cars in rotary dump). Bureau of Mines Staff.

**bottom filler.** A man who fills a barrel with ore, coke, or stone, places it on the cage or elevator so that it is hoisted to the top of the furnace. Fay.

**bottom-filler conveyor buckets are attached continuously.** ASA M141-1.958.

**bottom-discharge conveyor buckets are essentially generally rectangular in shape in plan and having a bottom consisting of an undercut gate.** ASA M141-1.952.

**bottom-discharge conveyor.** A conveyor used to convert a cone at the bottom of a drilled hole into a cylinder. ASM Natl.

**bottom-dump car.** See mine cars. Lewis. p. 222.

**bottom-dump scraper.** A carrying scraper that dumps or ejects its load over the cut.
bottom floor. Eng. The lowest bed of Lias limestone in the quarry, Barlaston, lime works, also at Stanford quarries, North- west Derbyshire. Zorn.

bottom gate. The gate road at the lower end of an inclined coalface. See also main gate, tailgate, top gate. Nelson.

bottom heading (overhand bench). Method of excavating tunnels, drifts, or other mine openings. Bottom heading, which may either be driven in successive stages or holed through, is subsequently enlarged by excavating at the top section. Frendel.

bottom hole. A point at, or near, the bottom of a borehole. Long.

bottoming. a. The thinning out or ending of the rock and/or other media encountered or near the bottom of a borehole. Long.


bottom joint. A joint or bedding plane, horizontal or nearly so. Zorn.

bottom-lift. a. The deepest column of a pump. Zorn. b. The lowest or deepest lift or level of a sugar mill. Manufactures.

crater. The deepest lift of a mining pump, or the lowest pump. Fay.

crater. One who digs up the bottom of a drift, entry, or other haulageway to gain headroom. Also called brusher; dirt scraper; groundman; ripper; stoneman. Fay.

bottom loading belt. A belt conveyor.

bottom maker. A laborer who retines bottoms of ingot sooking pits with coke dust to retard formation of oxide scale on hot ingots. DOT: T. 1.

bottom man. See bottomer, a and b. DOT: T. 1.

bottom pillow. Peat found near lakes, rivers, and smaller forms consisting of hypnum and similar plants. Tomkeieff, 1954.

bottom pillar. A large block of solid coal left unworked around the shaft. See also shaft pillar, a. Fay.

bottom plate. A plate supporting a foundry mold. Webster.

bottom pouring; uphill teeming. A method of teeming molten steel from a ladle into ingot molds. The steel passes through a system of refractory fireclay tubes and enters the molds at the bottom; the refractory tubes are of various shapes—trumpet, guide-tube, center brick, and runner brick. See also trumpet; guide tube; center brick; runner brick. Dudd.

bottom pour ingot assembly. One comprising hot tops, wood blocks, ingot mold, mold stool, lateral outlet bricks, lateral bricks, king brick, foundation bricks, funnel brick and suitable metal supporting devices. Bureau of Mines Staff.

bottom-pour ladle. One poured through a refractory nozzle in the bottom. Bureau of Mines Staff.

bottom reverberation. See reverberation. Hy.

bottom rock. Bedrock. Austin.

bottom roller. See return roller. Nelson.


bottom set bed. A layer of finer material carried out farther south so deposited on the bottom of the sea or lake in front of a delta. As the delta grows forward, the bottomset beds are covered by the foreset beds. See also foreset bed; topset Led. Fay.

bottom settling. Earthy matter, inert organic matter, or, in the case of Pennsylvania petroleum, manifacatured of amorphous paraffin wax and water, which accompanies crude oil. Fay.

bottoms. a. The steel plates forming the bottom of an oil still or a steam boiler. Fay. b. Steel sheets about three-eighths of an inch thick formerly used on small mines on wood beams spanning a vump where a floor was not desired. Zorn.

boulder. A large gray and white mottled marble with streaks and clouds of yellow, brown, and pink; from Nassau, Germany. Fay.

bouger anomaly. The gravity value existing after the Bouguer corrections to a level datum have been applied. A.G.I.

bouger correction. The correction made in a gravity survey to take account of the altitude of the station and the rock between the station and sea level. A.G.I.

bouging. a. Scot. Segments of wood or other material used for increasing the diameter of a pipe from a distance is not always in- fers, et al. 1954. Fay. b. Scot. To coil unevenly on a drum; at, the rope or cable is not buoing well. Fay.

bouling. a. Metal, metallic, bluish-gray, lead-sulfur-antimony mineral, PbSnSb; orthorhombic. Dana 17.

bouler. The word connotes a sense of size and boulders probably may be considered to be, in general, worn rocks and the latter in diameter. Hes. b. A fragment of rock brought by natural means from a distance (this concept of transpor- tation from a distance is not always involved in later usage) and usually large and rounded in shape. Fay. c. A detached
boulder; bouldering

- Boulder: A large rock that is too heavy to be lifted readily by hand, Nickoli.
- Boulder belt: A belt of glacial boulders ranging from boulders to clay sizes, ASCE.
- Boulder clay: A stiff, hard, and usually rounded, Webster 3d.
- Boulder cracker: A heavy iron rod from 8 to 10 inches to 10 or more, and rounded or much-worn mass, Fay.
- Boulder flat: A level tract strewn with smaller pieces (secondary blasting), Fay.
- Boulder pavement: A surface of rock units, Webster 3d.
- Boulder pop: An alarm given when a boulder is to be broken up by a pop shot, Fay.
- Boulder strata: A stratified deposit of boulders on a beach or on the thickest set with boulders released by glacier move-
- Boulder clay: A stiff, hard, and usually rounded, Webster 3d.
- Boulder cracked: A strand thickly set with boulders released from the till by wave erosion, Fay.
- Boulder on a beach or on the bottom of shallow water; derived from deposits of boulder clay, destroyed by the waves.
- Boulder pop: An alarm given when a boulder is to be broken up by a pop shot, Fay.
- Boulder reef: A beach ridge composed of boulders, A.G.I.
- Boulder stratification: A term used by miners for many purposes, in the direction the ice moved, Fay.
- Boulder hinge: A fault with fixed ends, Fay.
- Boulder point: A strand of boulders of the same sort of rock, extending from the source or parent ledge, perhaps for many miles, in the direction the ice moved, Fay.

Bourdon pressure gage

- Bourdon pressure gage: A tube, oval in cross section, which tends to straighten as the pressure inside is increased. In civil engi-

boundary conditions: As used in strength of materials, the term usually refers to the condition of stress, displacement or slope at the ends or edges of a member, where these conditions are apparent from the circumstances of the problem. Thus for a beam with fixed ends, the ends are considered as boundary conditions. For a pierced circular plate with freely supported edges, the zero radial stress at each edge is a boundary condition. Re.

boundary layer: The velocity of the fluid at the surface of a solid boundary is zero. There is, therefore, a region adjacent to the boundary in the fluid across which the velocity of flow will vary from zero to maximum stream velocity. This region is termed the boundary layer, the thickness of which depends upon the viscosity and velocity of the fluid. Roberts, I, p. 2.

boundary map: A map for the purpose of delineating a boundary line and the adja-

boundary plane: Interface. Plane separating two media with different elastic properties, Schieferdecker.

bound charge: An induced electrostatic charge, held by attraction of inducing charge, which has opposite polarity, Pryor, 3.

boundary pillar: A pillar left in mines by adjoining mining of a member, where these conditions are apparent from the circumstances of the problem. Thus for a beam with fixed ends, the ends are considered as boundary conditions. For a pierced circular plate with freely supported edges, the zero radial stress at each edge is a boundary condition. Re.

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boundary points: Points on the map showing the location of the points of some friendly or neutral country, on a boundary.

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Bourdon pressure gage

Ham.

Bourdon tube. Pressure gage, made from elliptical curved tube which straightens under pressure, and is made to move a measuring needle over a dial.

Pryor, S. 'bourn.' Springs which only flow at certain times of the year, or only after a prolonged spell of rainy weather, form temporary streams, which are known as bournes, nal-bournes, winter-bournes, dep-wou-bournes, levants, and gypsies. Some of them break out every year at the same spot; these may be called regular bournes, and are generally winterbournes. Others only come into existence after a season of great and prolonged rainfall, and these may be termed occasional bournes. Challinor.

Bournouille. A sulfide of lead, antimony, and copper, approximately PbSbSbS; orthorhombic. Also called wheel ore. Dana 17.

Bournstone. Mid. A coil of rope upon a drum.

Bowenite. A fine-grained massive variety of serpentinite resembling nephrite (jade); in appearance and sometimes sold as such; hardness, 5 to 5.5; specific gravity, 2.6 to 2.8; mean refractive index varies from 1.50 to 1.55. From New Zealand; India; and Rhode Island. Shipley.

Bowenite Jade. Same as Bowenite. Shipley.

Bowen's reaction series. A discontinuous reaction series. A.G.I.

Bowing. a. Distortion of a structure. ASM Glass. b. A tendency in a length of coated abrasive to curve, caused by excess moisture (expanding) or lack of moisture (shrinking) on one side of the strip. Usually prevented by proper storage conditions. ACSG, 1963.

Box. a. Mid. A coil of rope upon a drum. Fay. b. (Leic.) A dinner or other jollification.

Bowl and slips. Synonym for bowl and bowl. Fay. b. (Aust.) An iron bucket used for carrying rock or shale, Fay. b. Scot. A projecting horizontal portion of the Syrions crusher, which carries ore, bowse, or booze, Yorkshire lead mines. See also bowser, Arkell.

Bowl mill. Grinding unit for soft material, such as coal. A bowl rotates about its vertical axis, the feed being crushed between its wearing rings and spring-loaded rollers. Products are air-classified. Pryor, S.


Bowl scraper. A steel bowl hung within a fabricated steel frame, running on four or two wheels. In its bottom edge digs into the ground, the bowl being filled as it is drawn forward by a tractor, soil is ejected at the dump by a tailgate, moved by wire ropes or hydraulically. Towed scrapers transport soil, in addition to spreading and leveling it. Hamm.

Bowl scraping. A method of forecasting the durability of refractory glass tank blocks proposed by E. J. C. Bowmster. The loss in weight of a sample cut from the tank block is determined after the sample has been immersed for 3 hours in HF/H_2SO_4 at 100° C; the acid mixture is 3 parts by volume HF commercial 50 to 50 percent HF and 2 parts by volume pure concentrated H_2SO_4. The test is no longer considered valid. Dodd.


Bowellite. A pegmatoid rock consisting of crystals of sandine with subordinate soda amphiболite (anorthosite), and aggregate from Bowral, Wales. Hess.

Bowser. a. Lead ore as extracted from the vein. Nelson, b. Eng. Medium-quality lead ore, Staffordshire. Vein matter v nickel has been worked out or wrought and which carries some lead, bowse, or booze, Staffordshire lead mines. See also bowser, Arkell.

Bowstring girder. A girder shaped in the form of a bow and string, which may be held between the arches of a bridge, and is made to take the strain by a bowstring. C.T.D.


Bowl and slips. Synonym for slip and slip. Long.

Bowl centring. A centrifugal device for de-watering, usually conical or bowl-shaped, in which the containing surface is imperforated. The greater density of the particles causes them to collect preferentially in contact with the inside of the containing surface where they are discharged mechanically. Water usually overflows from a position nearer to the axis. B.S. 3525, 1962.

Bowl classifier. A machine for dressing, a hydraulic classifier similar to a thickener, but different in that the current carries the fine material to the top of the machine, where it is made separations at very fine particle size. Neuston, b. 81.

Bowditch's rule. Used in surveying to adjust a closed traverse, which has been made by compass. Angles and sides are assumed to be equally liable to error. The correction applicable to any line for an error in latitude is, __________ x total error in latitude. Correction for errors in departure is made in the same way. Ham.

Bow drill. A small drill operated by twisting a bowstring around it and pushing the bow back and forth. Used for perforating glass and gems. Hess.

Bowen's name for large, coarsely botryoidal concretions in the Lower Cretaceous sands at Stone, near Aylesbury. Also called doctor's bowls, deadmen's bowls, Arkell.

Bowels. a. The common paving stones. The expression paving stones here clearly means cobbles. Arkell. b. Large stones scattered over the heaths. Arkell.

Bow or bower. Variant and archaic spelling of boulder. Long.

Bow. a. The common paving stones. The expression paving stones here clearly means cobbles. Arkell. b. Large stones scattered over the heaths. Arkell.

Bow metal. The impure Anthony obtained from coal, that is, from the fusion of anthracite ore with iron or other anthracite containing carbon. Also known as iron sulfide, the removal of which eliminates both iron and sulfur. Hess.

Bowels. b. Eng. A core box; core tray. Gong. k. To drill borehole. Nichols. l. To extract samples from a core barrel. Nichols. m. To install female thread. Nichols. n. A transmission. Nichols. o. A dump body. Nichols. p. The internal threaded portion of a coupling or connector. The DCDMA accepted standard system for female thread. Long. q. To place core samples in a lidded, traylike, partitioned container for safekeeping after they have been removed from the core barrel; also, the container in which core samples are placed after they have been removed from a core barrel. Also called core box; core tray. Long. k. To drill bore-
holes at the four corners of a square area at equal distances from a centrally located and already completed borehole. Long. 1. A unit in a sluice for washing gravel; a succeptor. "Box", mer. Eng. See also into. SMIR, Paper No. 61.

box and pin. The female and the male members of a tool joint, or a wood dowel joint, which form a screwed coupling. Porter.

box annealing. Annealing a metal or alloy in a box for accelerated cooling and to minimize oxidation. In box annealing a ferrous alloy, the charge is usually heated slowly to a temperature below the transformation range, but sometimes above or within it, and then cooled slowly; this process is also called close annealing or pot annealing. See also black annealing. ASM Gloss.

box barrow. A large wheelbarrow with up-right sides. Webster 2d.

box bell. See bell screw. Hess.

box bill. a. A tool used in deep boring for punching a female and the male members of a tool joint, or a wood dowel joint, which form a screwed coupling. Porter.

box canyon. A canyon from the bottom of which a nearly vertical wall ascends all four sides. Hess.

box canyons. a. Any of several types of canyons cut by a river or stream. Fay.

box cask. A large box of steel or concrete with an open top, built on shore and launched into a river or sea to be floated and towed to the site chosen for its foundation. This box will form an integral part of the permanent structure; it is used for bridge piers, because it enables them to be driven down under reasonably dry conditions. Ham.

box canyon. A canyon from the bottom of which a nearly vertical wall ascends all four sides, as the result of the zigzag course of the canyon. Fay.

box cutting. Any of several types of conveyors adapted by portable or hinged mounting for use in loading bulk materials into boxcars. Some types are designed to have their material fed into the ends of the car. ASA MHA-1-1938. b. In anthracite and bituminous coal mining, one who loads coal into railroad boxcars by means of shovels, for hand filling coal into trams. The collar scooped the lumped coal into the box and discarded the small material which had little market value. The use of this box was compulsory at many collieries until a few decades ago. See also fork-filled. Nelson.


box frame construction. A modern method of building flats, offices, and similar structures, using concrete or steel supports supported by load-bearing walls across the shortest span of the building. It has been developed to economize in steel or reinforced concrete framework. Ham.

box furnace. a. A furnace in which, periodically, a load of ware is introduced, fired, and removed. ASTM C286-65. b. The term refers to the batch-type furnace for firing enamelware, or smelting enamel metal. Enam. Dist. Gym.

box girder. A hollow steel beam with a square or rectangular cross section. Nichols.

box groove. A closed groove between two rolls, formed by a collar on one roll, fitting between collars on another. Fay.

box hardening. A process of hardening by cementation in an iron box. Webster 2d.

box heading. A heading driven through very soft ground with close timbering. Nelson.


boxing. a. A method of securing shafts solidly by slots and thinning out, Zern. b. Continuing a fillet weld around a corner as an extension of the principal weld. Also called end return. ASM Gloss.

boxing in. A method of setting in a kiln so that, for example, special refractory shapes can be fired without being stressed and deformed; also known as pocket setting. Dodd.

boxing up. Packing ballast under sleepers to raise a track which has subsided. Ham.

box kilns. A relatively small industrial kiln of boxlike shape and intermittent in operation. Dodd.

box loader. In the quarry industry, one who loads broken rock into a large box, placed on a small track running on a narrow gauge track, to be hoisted out of the quarry pit. Also called grouter; rock load. D.O.T. 1.


box metal. A brass, bronze, or antifouling alloy used in the journal boxes of sails or shafing. Long.

box metal. A steel pipe made fr.m a pair of steel sheets in single sections, or rolled steel joists welded along their lines of contact. Ham.

box section. A compact type of section contained in a small metal box. Ham.

box shear test. See shear box test. Ham.

box sluice. An open wooden channel or flume for conveying placer sand. The gold or heavy minerals settle at the bottom. The method is cleaner and requires less water than ground sluicing. Nelson.

box stones. Eng. Masses of brown ferruginous or phosphatic sandstone, rounded or flattened in form and generally a little larger than the flat. Some enclose fossil remains; hence the name. Holmes, 1928.

box tap. See bell tap. Long.

box thread. The thread on the inside surface of a coupling or tubular connector. Accepted by the DCDMA as the standard term to be used in lieu of female thread.

box-thread bit. A bit having threads on the inside of the upper end or shank of the bit by means of which the bit may be coupled to a running shell, core barrel, or drill rod. Long.

box timbering. Plank timbering. Use of rectangular close frame for lining shafts or drives. Pryor, 3.

box to box. The two internal-threaded ends of a coupling, or tubular connector piece. See also box b. Long.

box to pin. The internal and external-threaded ends of a tubular coupling, or tubular connector piece. Long.


boxwork. The series of rock, or the general rock structure of a deposit. Fay.

box-work texture. A texture showing a porous aggregate with plates or septa along their cleavage or fracture planes and its density varies inversely as the absolute pressure. Schieferdecker, 3.


boy's law. States that at a constant temperature, the volume of a gas varies inversely as the absolute pressure while the density varies directly as the pressure. (That is, if the pressure on a gas is doubled the density is also doubled, but the volume is decreased to one-half of the original volume.) HBG.

boyon. Staff. A bluish iron ore. See also bolun. Arkell.

boyson's reagent. A 5 percent solution of nitric acid in absolute ethyl or methyl alcohol, used for the general etching of normal carbon steels. Olsborn.

box to box. A box, with a heat-insulated walls, containing a temperature recorder; it was designed by M. Boyson to travel with the law through a vitrorespiring furnace. Dodd.


bd Abbreviation for barrels per day. BuMin Style Guide, p. 38.

BPL Abbreviation for bone phosphate of lime, the anhydrous calcium phosphate or tricalcium orthophosphate, Ca3(PO4)2, in
which form are calculated most determina-
tions of phosphorus in rocks to be used for
mades of PAO and multiplied by the factor
2.184 to convert it to the equivalent BPL.

Br Chemical symbol for bromine. Handbook

Brachian Plastography. Brabender Plastifi-
Corder. Trade names; instruments designed
in the United States to assess the plasticity
of clays and other materials on the basis of
stress measurement during a continuous
shearing process. Dodd.

Brachy SAIL The shorter lateral axis in the
form or landing at the top of a shaft. The
focal distance is equal to 4 hundredweight. Fay. d. A plat-
measure of weight. The Hurlet brace was
firmly in place; especially, (1) a framed
for giving the blows to the chisel in
bracing. a. Long.

Brace head. a. A cross handle attached at
the top of a column of drill rods by means
of which the rods and attached bit are
turned after each drop in chop-and-dash
operations while sinking a borehole arough
a derrick, which properly should be called
a platform or landing at the top of a shaft. The
upper brace is the platform built in the head of the shaft collar. Nelson.
e. A timber member in square-set stopes.
Nelson. 1. A stiffening member running at
an angle, in the vertical plane, between two legs of a drill tripod or
derrick. Sometimes improperly used to designate a stiff-
ening member or run in a horizontal plane between two legs of a drill tripod or
derrick, which properly should be called a
brace head. 2. A small hand tool to which
may be attached a metal- or wood-boring
bit and by means of which the attached bit
may be rotated. Nelson. b. A member to which
or to strengthen with planks or heavy tim-
ber. Long.

Bracing. a. A cross handle attached at
the top of a column of drill rods by means
of which the rods and attached bit are
turned after each drop in chop-and-dash
operations while sinking a borehole arough
a derrick, which properly should be called a
brace head. 2. A small hand tool to which
may be attached a metal- or wood-boring
bit and by means of which the attached bit
may be rotated. Nelson.

Bracklessam beds. Pale-colored clays inter-
mingled with black shales occurring in
parts of Southern England and worked
for brickmaking to the Southwest of Lon-
edon and near Southampton. Dodd.

Bracklesham beds. Pale-colored clays inter-
mingled with black shales occurring in
parts of Southern England and worked
for brickmaking to the Southwest of Lon-
edon and near Southampton. Dodd.

Bradford Waken A machine which combines
coal crushing and screening. It consists of
two or more men holding a block or band
and through which the drill must go to
reach the lower and more profitable oil
balls. Fay.

Bradford brakes. A machine which combines coal crushing and screening. It consists of
a revolving cylindrical screen 8 to 14 feet in
diameter and 15 to 22 feet in length. It breaks the coal by gravity impact, which
turns the block upon the screen and the
coal which accumulates around the fur-
ces of coal works; coal dust; coke dust.

Brake. a. A device, either hand- or power-
operated, for applying resistance to the
drum or pulley and thus controls the move-
ment of mine cars or cages. A common
form is a brakehoe, lined with friction
material, which is applied to the surface of
a wheel or drum, and thus retards or even
stops its movement. See also winder brake.

Brake band. The flexible steel-ribbon part of
the salt causes the zinc sulfide to be wetted
while the lead sulfide and pyrite float. The
separation of the zinc from the metal from
the gangue is effected later. Fay.

Bradykrite. A double salt of potassium
and magnesium carbonate, K2O·MgCO3,
as very fine-grained material in saline oil
shale from Wyoming. Spencer 16, M.M.,
1943.

Bradyseism. Slow movement of the ground
especially recognizable by an upheaval,
subsidence, or a shifting of shoreline.

Brace. a. Scot. A hillside, a slope, a bank,
a hill. Fay. b. Scot. An inclined roadway,
more commonly used in the compound
form, for example, pulley brac, cuddy brac.
Fay. c. Insufficiently charred wood, as in

Bragg angle. In crystallography, an identi-
yzing angle measured by placing crystals in
narrow X-ray beam, when its lattice layers
reflect the incident ray on to photographic
plate. This produces series of lines NA=2d
sin θ = nλ, where d is the lattice spacing,
and λ the wavelength, n the integer reflection. Pryor, J.

Brackebuschite. A black to reddish hydrated
iron-manganese vanadinite, (Pb,Fe,Mn)
4VaO2(OH)2, crystallizing in the mono-

Brackelsberg process. A process by which fine
ores are moistened with water to which a
binding medium is added and the wet
mass, without any heating, is rotated in a
drum till it forms into spherical lumps of
varying size. The moisture is then dried out
by evaporation and the product contains
in its form or landing at the top of a shaft.

Brachypinacoid. A pinacoid parallel to the
shorter lateral axis and 40% of the inter-

Brachyaxis. A variety of leucite tephrite,
having the chemical composition of certain
leucitites. Holmes, 1928. b. A dense basaltic
rock with rare phenocrysts and composed
of nearly 50 percent leucite, 8 percent
augite and nepheline, olivine, 4 percent
andesite, and plagioclase. Belle.

Brake and-stope feeder. One that utilizes a
brake-and-stope mechanism to 4ead, trans-
port and deliver objects. ASA MH41.1-
1958.

Brake band. The flexible steel-ribbon part of


Brachypinacoid. A pinacoid parallel to the
shorter lateral axis and the brachyaxial.

Brachypyramid. A pyramid, the intercept of
which on the brachyaxial is more than 1.

Brachytypus. In crystallography, comparati-


Bracing. a. One that utilizes a brake-and-stope
mechanism to transport and deliver objects.
ASA MH41.1-1958.
brake beam. A horizontal beam or rod on a wagon or railroad car that operates the brake shoes. Webster 3d.

brake beam. A device for checking by friction the speed of a rope (as in a hoist). Webster 3d. b. The part of a brake that holds the shoe. Webster 3d.


brakedrum. A rotating cylinder with a milled inner or outer surface upon which a brake band or brake shoes press. Nichols.

brake hanger. One of the bars or links suspending a brake wheel. Webster 3d.


brake horsepower. a. The power of an engine or other motor as measured by a dynamometer applied to the flywheel or the shaft. Webster 3d. b. Actual power output put delivered by the crankshaft of an engine. It is equal to the theoretical or indicated horsepower multiplied by the mechanical efficiency. Abbreviation, bhp. Brantly, 2.

brake incline. a. An incline in which the full trucks descend by gravity and pull up the empty ones. C.T.D. See also gravity haulage. Webster 3d.

brake-lining finisher. In the asbestos products industry, one who performs the finishing operation on asbestos lining stock. D.T.O. 1.

brake limiters. Friction elements. Dodd.

brake magnet. One that (1) induces eddy currents in a rotating drum, and (2) magnetically applies a friction load. Pryor. 3.

brakeman. a. One who attends to a brake or brakes, as on a railroad car. Standard, 1964. b. Eng. The man in charge of a winding (hoisting) engine for a mine. Brakeman is usually used in the United States; brakesman is the British usage. The man in charge of hoisting engines, especially in the United States, is usually called a hoisting engineer. Fay. c. In mining, a laborer on trains of cars hauled by locomotive or hoisting cable or chain, and controlling their transportation. D.T.O. 1.

brakesman. a. A stationary portion of the brake capable of being pressed against the brake drum for stopping the wheel. Shell Oil Co.

brake stick. A lever, operated by a hand lever. Fay.

brakesman. Eng. See brakeman, b. Fay.

brake staff. Eng. See brake, b. brake staff. Fay.

brake stick. A stick of wood to provide leverage in operating the brake wheel of a railroad car. Bureau of Mines Staff.
manganese, nickel, tin, and lead are frequently added. C.T.D. See also brasses.

brassage. The mixing ice for coinage; now commonly a term used for brasses.


brass; brassi; brazil; brazile. Miners' term for iron pyrites; applied to coal seams containing pyrites. Also used for hard nodules elsewhere, as at the base of the Totternhoe stone, and sometimes applied to the Totternhoe stone itself or other hard rocks. Compare rattle; raddle; raddle; Arkel.

brasses. a. Term used among British miners for iron pyrites; now also used in place of hard ore; sometimes used in place of iron. Fay. b. Term used among British miners for iron pyrites; applied to coal seams containing pyrites. Also used for hard nodules elsewhere, as at the base of the Totternhoe stone, and sometimes applied to the Totternhoe stone itself or other hard rocks. Compare rattle; raddle; raddle; Arkel.

brassing. The minting fee for coining; now a. Term used among British miners for iron pyrites; applied to coal seams containing pyrites. Also used for hard nodules elsewhere, as at the base of the Totternhoe stone, and sometimes applied to the Totternhoe stone itself or other hard rocks. Compare rattle; raddle; raddle; Arkel.

brass powder. a. A pulverized mixture of metallic phosphorus and antimony for diminishing the friction of revolving journals that rest upon them. Fay.


brass furnace. One of two kinds of furnaces for the making and founding of brass such as (1) a reverberatory furnace for large quantities of the alloy, or (2) a crucible furnace for small quantities of the alloy. Fay.


brass rod. A drill rod made entirely of a nonmagnetic alloy consisting essentially of copper and zinc in variable proportions. See also nonmagnetic rod. Lang.


brassy top. Aust. The top part of the Greta coal seam, in which there are large quantities of iron pyrites. Fay.

brassy, brass. See brassy. Tomkeiff, 1954.

brat coal. Thin seam of impure coal usually containing a small amount of pyritic material and frequently found at the roof of a seam of coal, Scotland and North England. Probable origin, Brazil.

brattie. a. A board of planking, or other partition, in any mine passage to confine the air and force it into the working places. Its object is to keep the intake air from finding its way by a short route into the return airway. Temporary bratties are often made of cloth. Also spelled brettie; bretti; brat; brattie. See also brattie cloth. Fay.

brattie road. A road through the goaf supported by checks or timber packs. Fay.

brattie trick. Aust. A trick played on inspectors when measuring the air in a mine, the quantity of air passing a particular district below its normal amount, in order to increase it in the district being tested. Usually effected by: (a) the fitting of a plate of brass cloth across one of the return airways. Fay.


brattice man. In mining, one who builds brattices, &c. b. A heavy canvas, often covered with some water-proofing material, for temporarily forcing the air into the face of a breast or heading; also used in place of hard ore; sometimes used in place of iron. Fay. c. Fitting! of brass in bearing blocks. etc.
Brazil twin

rivable from the other by any rotation, here is the twin.

brazing. Joining metals by flowing a thin layer, capillary thickness, of nonferrous filler metal into the space between them. Brazing results from the intimate contact produced by the dissolution of a small amount of base metal in the molten filler metal, without fusion of the base metal. Sometimes the filler metal is put in place as a thin solid sheet or as a clad layer, and the joint zone is heated as in furnace brazing. The term brazing is used where the temperature exceeds some arbitrary value, such as 800° F, the term soldering is used for temperatures lower than the arbitrary values. ASM Gloss.

brazing alloy. The same as brazing filler metal. ASM Gloss.

brazing filler metal. A nonferrous filler metal used in brazing and braze welding. ASM Gloss.

brazing sheet. Brazing filler metal in sheet form or flat-rolled metal edgings. Brazing filler metal on one or both sides. ASM Gloss.

brazing solders. Alloys used for brazing. They include copper zinc (50 to 55 percent copper), copper-zinc-silver (16 to 52 percent copper, 4 to 50 percent zinc, 10 to 80 percent silver) and also nickel-silver alloys. C.T.D.

brea. A viscous asphalt formed by the evaporation of petroleum from oil seeps; moltha, or mineral tar. Webster 2d.

break. a. An opening made by breaking down a portion of a solid body, as a wall, a dike, or a riverbank; a break; a gap. Fay. b. The face of a level or drift. Fay. c. A fracture or crack in the roof beds as a result of mining operations, for the purpose of inducing fractures. Nelson. d. To split into pieces or smash into parts or fragments typically by a blow or stress and with suddenness or violence; to separate; to burst. Webster 3d. d. Scot. A reduction of the day's wage. Fay. e. Can. Local shear zone within which mines arc induced to break circulation. To resume the movement of drilling fluid down the drill pipe through the eyes of the bit, and upward through the annulus. Brantly, 1.


breakdown. a. Of an emulsion, the reunion of the finely dispersed particles and their separation from the medium which they form an emulsion. C.T.D. Supp. b. The sudden passage of current through an insulating material, as soon as the voltage exceeds a certain definite value called the breakdown voltage. C.T.D. c. An initial rolling or forging operation, or a series of such operations, for the purpose of reducing a casting or extruded shape prior to forging. ASM Gloss. d. A preliminary press forging operation. ASM Gloss. e. Mechanical failure. Pryer. f. An opening on the side of a vessel through which ore is crushed, sieved, or washed. From this term are derived such terms as breakage, break-in, breakage, etc. g. A fracture formed in the roof next to the goaf. Fay. h. A coal miner or hewer. Fay. i. To commence to twist open or break; to twist or break; to open; to break; to crack; to dash; to shatter. Som. To commence to break. Webster 2d.

breakdown voltage. The voltage at which an insulator or dielectric ruptures; or the voltage at which ionization and conduction begin in a gas or vapor. HOG.

breaker. a. In anthracite mining, the stricture in which the coal is broken, sized, and cleaned for market. Also known as coalbreaker. Fay. b. N. of Eng. A large crack formed in the roof next to the goaf. Fay. c. Som. A coal miner or hewer. Fay. d. In Italy, a collier who wedges down coal and hammers it into coal. Fay. e. A small narrow across a road for drainage. Webster 3d. f. In the quarry industry, one who operates a crane to load freight (wedges and two metal strips on each tapering side) in each hole drilled in stone, or along a channel. Also called crane. D.O.T. 1. g. A machine used for the primary reduction of coal, ore, or rock. Crushing generally refers to the finer reduction of the material. Nelson. h. A wave breaking into beam against the shore. Synonym for breaking wave. Schiferdecker.

breaker boss. A foreman who is in charge of operations in an anthracite breaker where coal is washed, sized and cleaned for market. D.O.T. 1.


breaker chain; breaker; break-off man; breaker of slate. See slate picker. D.O.T. 1.

breaker engine. In anthracite coal mining, the coal which operates and maintains a power unit and machinery for crushing, sizing, and cleaning coal in a breaker. D.O.T. 1.


breaker props. Strong rigid props set along the edges of roadways, in longwall mining, to cause the explosives to shear the rock square with the roadway sides, rather than allow the force to spread over the waste area. See also waste edge support. Nelson.

breaker repairman. In anthracite coal mining, a maintenance mechanic who adjusts and repairs machinery in a breaker where coal is crushed, sized, and cleaned for market. D.O.T. 1.

breakers. a. The face of a level or drift. Fay. b. A fracture in the strata. Eng. For the purpose of mining operations, for the purpose of inducing fractures. Nelson. c. To split into pieces or smash into parts or fragments typically by a blow or stress and with suddenness or violence; to separate; to burst. Webster 3d. d. Scot. A reduction of the day's wage. Fay. e. Can. Local shear zone within which mines arc induced to break circulation. To resume the movement of drilling fluid down the drill pipe through the eyes of the bit, and upward through the annulus. Brantly, 1.

breast wall. Eng. Fissures in old coal workings. Also called crack-off man; knocker-off; D.O.T. 1.


breast zone. See surf zone. Schiferdecker.

breakage. a. Voluntary or involuntary division of a solid. B.S. 3552, 1962. b. Small material produced by involuntary breakage during mechanical handling or processing. ASM Gloss.

breakage clause. Eng. A clause inserted in some mining leases providing for an abatement of royalty or allowance on weight for certain weight of small coal or breakage sent out in every ton of large coal, for example, 120 pounds in every culler's ton of 2,640 pounds. Fay.

breakage of coal. See degradation. Nelson.

breakaway chain. A chain that holds a tractor and a towed unit together if the regular fastening opens or breaks. Also called safety chain. Nichols.

breakback. The fractures caused by the shattering of solid rock ledge back of the drill holes in which the charge is placed. Fay.

break circulation. To resume the movement of drilling fluid down the drill pipe through the eyes of the bit, and upward through the annulus. Brantly, 1.


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breakdown of emulsion. The separation of an emulsion into its constituents; in a bituminous emulsion, these are bitumen and water. Hem.

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breakdown of emulsion. The separation of an emulsion into its components; in a bituminous emulsion, these are bitumen and water. Hem.
breaking-down machine

breaking-down mill. Engine. A mechanical appliance, worked by compressed air or by hydraulic power, for breaking down coal after hoisting. Fay.

breaking-down mill rolls. A rolling mill unit used for breaking-down operations; a rolling mill used for modifying the sectional dimensions, mainly the thickness of ingots, billets, and other rough, semifinished products, as a preliminary step to subsequent rolling operations. Henderson, p. 273.

breaking ground. a. The breaking and loosen-
ing of rock, as a preparatory step to its loading and removal. See also excavation. Nelson.
b. Attrition of ore by hand, explosive, or mechanical breaking methods to reduce it to pieces of ore suitable for transport and treatment. Pryor.

c. break in. Trist.

breaking joints. Unscrewing drill

breaking bad. Stress or tension

breaking point. In rock crushers, a

breaking piece. Part of a machine designed to fail in overload, thus providing easy

breaking strain; breaking strength. The least load that will cause a rupture, as in crushing, breaking, etc.

beak. a. A short narrow heading driven from one road to another; a breakthrough. Fay. b. Dog. An alteration in the vein due to an intrusion of barren rock, or to a fault. Fay.

breakout. a. To pull drill rods or casing from a borehole and unscrew them at points where they are joined by threaded couplings to form lengths that can be stacked in the drill tripped or derrick. Compare breaking joints. Long. b. An accidental flow of metal through a hole in a furnace lining. Bureau of Mines, Staff. c. In dry process enameling, a defect characterized by an arc of well-defined boundaries. ASTM C286-65.

breakout block. A block of steel made to fit the square section of a drill bit and to hold it with the greatest possible while breaking the joint. Porter.

breakout gun. A hydraulic or compressed-air actuated device attached to breakout tongs used to couple or uncouple drill rods, drill pipe, casing, or drive pipe. Also called makeup gun.

breakout tongs. A heavy wrench, usually mechanical arrangements, used to couple or uncouple drill rods, drill pipe, casing, or drive pipe. Also called makeup tongs.

break up. Clev. A system of employing unskilled men, the former paying the

latter a mere laborer's wage until he becomes an experienced miner. Fay.

breakup. a. On exhaustion of an ore deposit or exhaustion of the exploitable value on site of buildings, equipment, stockpiles, untouched remnants of ore, concentrates, etc., in foundations of plant and any other assets still having value apart from their original use. Pryor.

breakwater. A structure or contrivance, as a mole, mound, or wall serving to break the force of waves and protect a harbor or anything exposed to the force of the waves. Fay.

breakway. The running back downhill of a tram or tramway (usually loaded) on an inclined haulage plane, due to the break-

break of the circuit. Fraenkel, v. Wire receiving the firing impulse and caps, the time elapsing between the bridge and the main pre.sure on the main. Fay.

break of ice on a river or other


break in the reef. Aust. A fault in a


break line. a. The line in which the roof of a coal mine is expected to break. Fay. b. The line of complete extraction of coal. Fay. c. A line roughly following the rear edges of the pillars that are being drawn concurrently. Fay.


breast beads. Natural joints in rock, coal, etc. Fay.
breast holes. In driving a tunnel, holes blasted after the bottom cut. Pryor, 2.
breasting. a. N. Staff. A short leading stall, weight to and forming the face of the main levels. Fay. b. A wide heading or level. Fay. c. Eng. Taking ore from the face or head of a drift. Fay. d. In drift mining, breaking down the gravel underground, and retreating towards the crosscut from which the drift was worked. Berntsen. e. Eng. In Cumberland, a place driven to open out a longwall face. SMiRB, Paper No. 61.
breast machine. A machine used for underground cutting coal in which the main frame and carriage are held stationary by roof jacks while the cutters advance into the face during the cutting operation. Since cuts do not exceed 44 inches along the face, it is necessary to rebate the machine several times before the entire face can be cut. Jones.
breast plate. A slightly curved iron plate fastened to the end of a coal auger to enable the miner to press the auger forward with his body to work against a known size of rock. Fay.
breasts. The sloping parts joining the hearth of an open-hearth furnace to the furnace end, below the ports and adjoining brickwork. See also doors. Banks.
breast stopping. A method of stopping employed on veins where the dip is not sufficient to keep the ore to be removed by gravity. The ore remains close to the working face and must be loaded into cars at that point. See also overhand stopping. Fay.
breast timber. A leaning brace from the floor of an excavation or a wall supported by a breast wall. Fay. breast wall. a. Eng. A wall built to prevent the falling of a vertical face cut into the natural soil. Zern. b. The sidestraight of a glass tank furnace above the tank blocks. Also called caving wall; casement wall; jamb wall. Dodd. c. The bearing wall between the pillars of a glassmaking pot furnace and in front of the pot. Dodd.
breast wheel. A waterwheel onto which the water is led at about axle height and which acts both as a support of the drying house, the windows of which are arranged along the inner edge of the drying house, and in front of the pot. Dodd.
breath. a. Eng. The word used to denote any wind or air, not necessarily clean. Also the word used to denote the act of inhaling or breathing. c. The reference is to how the water wheel acts on the vessel. Compare overshot wheel; undershot wheel. Webster 3d.
breathwork. In the construction industry, one who works in a tunnel heading. D.O.T. 1.
breather. a. Eng. An apparatus enabling a man to enter and explore underground workings filled with noxious gases. Fay. b. A device fitted in the wall of an explosion-proof compartment, or connected by piping thereto, which permits relatively free passage of air through it, but which will not permit the passage of incendiary soot or flames in the event of gas ignition inside the compartment. ASA C42.35: 1956.
breathing. Alternate expansion and contraction of air in bransch which allows fresh oxygen to be drawn in and oxidation to proceed. Sinclair, I., p. 286.
breathing apparatus. An apparatus that enables a person to work in an explosive or poisonous gas. It contains a supply of oxygen and a regenerator which removes the carbon dioxide exhausted from the supply. See also Gibbs apparatus; Proto apparatus; Simbal breathing apparatus; W'g rescue apparatus. Nelson.
breathing cave. A cave in which air is alternately blown out and sucked in at the entrance. Conway, p. 18. b. A narrow part in a passage through which air blows. Schieferdecker.
breccia. a. A. A fragmental rock, the components of which are angular, and therefore, it is distinguished from a conglomerate in that its components are not water-worn. There are friction or fault breccias, talus breccias, and eruptive breccias. Fay. b. Any rock formation essentially composed of unconsolidated, or loosely consolidated, angular-shaped fragments. Compare broken ground. Long.
brecciated. Any marble composed of angular fragments. Fay.
brecciated structure. Characterized by agglomeration of angular fragments. May be a primary sedimentary structure related to desiccation, slump, etc., also produced by tectonic movement and other causes. Pettijohn.
brecciated vein. A fissure filled with fragments of rock and in the interstices of which vein matter is deposited. Fay.
bredge. The form of calcium orthosilicate is stable up to 1,477°C on heating, persisting down to 670°C on cooling. See also calcium orthosilicate. Dodd.
breeching. a. Mid. Drawing loaded trams downhill underground. Fay. b. The part of a harness that passes around the breech of a draft animal and enables him to support by brattices built on each side. Fay. c. The part of a harness that passes around the breech of a draft animal and enables him to support by brattices built on each side. Fay.
breech hole. In driving a tunnel, a hole blasted in the face of the tunnel and then filled with noxious gases. Fay.
breeching fire. a. A smolder, or an old variant described from the word burn; a burn. Fay.
breeder. a. A reactor that produces additional fissionable material. In some usages, a reactor that produces energy, regardless of the amount. The reactor that produces energy, regardless of the amount. The breeding gain when neutrons are absorbed in the reactor. See also conversion ratio. LBL.
breeding gain. See breeding ratio. LBL.
breeding ratio. The ratio of the number of fissionable atoms produced in a breeder reactor to the number of fissionable atoms consumed in the reactor. Breeding gain is the breeding ratio minus 1. See also conversion ratio. LBL.
breezy. a. A thin deposit of metal is incorporated with the reducing agent necessary to form the metal. The usual procedure is to apply the metal as its anode dissolved in an organic solvent. Although the easiest heater to apply, it is less durable means clinker, but it may refer to coke breeze. Taylor.
breeze case. A concrete made of 3 parts coke breeze, 1 part sand, and 1 part portland cement. It has poor fire-resistant qualities and is cheap and nails can be driven into it. Nelson.
breeze oven. A oven for the manufacture of small coke. Fay. b. A furnace designed to consume breeze or coal dust. Fay.
breezing. Buckwheat anthracite coal or coarse sand spread on seage before setting of pota. ASTM C162-66.
breithauptite. Nickel antimonide, NiSb. See also nicalcite. Fay.
breithauptite. Nickel antimonide, NiSb. See also nicalcite. Fay.
brick. a. A molded block of clay or other material, usually fired and sintered together to form a coherent mass. The standard size of building brick unit is 8 1/2" X 4 1/2" X 2 1/4" inch, while the standard size firebrick unit is 2 1/4" X 2 1/4" X 3 1/2" inch. However, many firebrick consumers now prefer to use a 9 X 4 1/2" X 3 1/4" inch brick as the standard unit. A.S.I. No. 24, b. A solid masonry unit, such as clay or shale, usually formed while plastic into a rectangular prism and burned or fired in a kiln. ASTM C43-65T.

brickbat. A piece, usually half, of a brick. See head brickbat.


brick coal. Eng. Small, dirty coal used to fire brick kilns as well as in the firing zone of rotary lime, cement, or dolomite kilns. ACSG.

brick coalty. a. A variable color averaging a moderate reddish-brown that is redder, lighter, and stronger than mahogany, ox-blood, or rustic brown, paler than Tuscan red, yellower, lighter, and stronger than roan. Webster 3d. b. A moderate brown that is redder, lighter, and stronger than chestnut brown, bay, coffee, or auburn, and deeper and slightly redder than toast brown. Webster 3d.

brick saw. A mechanically driven abrasive disk used for cutting brick. ACSG, 1963. See chemical brick saw.

brick settings. A wire or cable used with carbide brick as they are extruded in a column. ACSG, 1963.


brick setting. A permanent support for circular shafts. On reaching the rockhead, a firm ledge is prepared to receive the first bricking curb or ring. The curb is fixed correctly with reference to the center-line of the shaft. The bricks are then built upwards from the curb, the space behind being firmly packed with bricks on the sides with bricks and mortar. Concrete is replacing brickwork as a shaft lining.

brickcutter. A wire or cable used with carbide brick in the manufacture of refractories. CCD 6d, 1963.

brick cutting. a. A trade, in the manufacture of bricks or tile. See also brickcutting.


brick cutting. a. An oven for drying green bricks, so as to prepare them for burning. C.T.D.


brick cutting machine. a. A device to measure the resistance of a wire or other conductor forming a part of an electric circuit. Fay. b. A piece of timber held above the cap of a set of bricks and used to convey fuel or ore to the mouth of a shaft when landing coal, rock, or men at the surface. Fay. c. A brick furnace. Webster 3d.

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brick machinery. A variable color averaging a moderate reddish-brown that is redder, lighter, and stronger than mahogany, ox-blood, or rustic brown, paler than Tuscan red, yellower, lighter, and stronger than roan. Webster 3d. b. A moderate brown that is redder, lighter, and stronger than chestnut brown, bay, coffee, or auburn, and deeper and slightly redder than toast brown. Webster 3d.

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brick yard. A place where bricks are made and stored. Standard, 1964.

bridgel. A conveyance used in coal mining to prevent cars from overturning upon steep inclined planes having a rise of over 3 or 4 feet. Hess.

bridge. a. A device to measure the resistance of a wire or other conductor forming a part of an electric circuit. Fay. b. A piece of timber held above the cap of a set of bricks and used to convey fuel or ore to the mouth of a shaft when landing coal, rock, or men at the surface. Fay. c. A brick furnace. Webster 3d.

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bridge break. The time which elapses between the application of current and the fusion of the bridge wire when using instantaneous blasting caps. Streetler, p. 44.

bridge cup. The highest portion of a bridge pier, on which the bridge bearing is seated. Ham.

bridge conveyor. A conveyor which is supported at one or both ends by a loading unit and at the other end by a receiving unit in such a way as to permit changes in the position of either end without interrupting the operation of the loading unit. NEMA MBI-1961.

bridge deck. See bridge wall cover. ASTM C162-66.

bridged. A borehole plugged by debris lodged at some point above the bottom of a hole. The hole may be bridged deliberately by introducing foreign material into the hole or by rock fragments sloughing off the sidewalls of the borehole. Lord.

bridge deck. The load-bearing floor of a bridge, carrying and distributing the loads to the main beams. The present trend is to form such decks in prestressed concrete, welded steel, or aluminum alloy. Ham.

bridge operator. One who operates an ore bridge of the gantry crane type. Fay.

bridge over. Collapse of well bore around the drill stem. Williams.

bridge pier. The support for a bridge, which may be of masonry, concrete, steel, or timber; it must be erected on a firm bearing stratum so as to provide the necessary stability, and therefore sometimes entails excavation. Ham.

bridge rails. Aust. Rails made in the form of an inverted U, generally in short lengths, which are light to handle, and can be brought within easy shoveling distance of the face. Fay.

bridge rock. Delicate plugging of a borehole at a point some distance above the bottom by introduction of some type of foreign material or a plug. See also e and f. Long.

bridge thrust. The horizontal force exerted by the arch of an arch bridge under load. This force is resisted by a horizontal reaction at the abutment, or in a bowstring girder by reaction in the tie beam. Ham.

bridge tramway. Consists of two steel bridge trusses braced together so as to form between them a trestle on which to carry trolley runs. The bridge is carried at or near the ends on steel towers supported which are wheeled rails running lengthwise of the storage. The bridge thus spans the area over which material may be piled, and the length of this area is limited only by the length of the track. Either of each end of the bridge may be fixed or seated on expansion rollers. Fay.

bridge truss. A truss designed to carry bridge loads, which differ from those in building structures. Ham.

bridge wall. A low separating wall usually of firebrick which forms the back of such a wall in a reverberatory furnace. Webster 3d.

bridge wall cover. Refractory blocks spanning the space between the bridge walls. ASTM C162-66.

bridge wire. The fine platinum wire which is heated by the passage of an electric current to ignite the priming charge of an electric blasting cap, an electric squib, or similar device. Fay.

bridging. a. In crushing practice, the obstruction of the receiving opening by two or more pieces wedged together, each of which could easily pass through. Nelson. b. Formation of arches of keyed or jammed particles across the bottom of a hole through aperture or of small particles through filter pores. Fryor, s. e. Arching of the charge across the shaft in a blast furnace or cupola. Bureau of Mines Staff. d. Premature solidification of metal across a mould section before the metal below or beyond solidifies. ASTM Gloss. e. Solidification of slag within the cupola at or just above the tuyeres. ASTM Gloss. f. Welding or mechanical locking of the change in a downdraft melting or smelting furnace. ASTM Gloss. g. Preclude metallurgy, the formaed, or rafted cavities in a powder mass. ASTM Gloss. h. Closing of a section of a drill hole by debris of rock material or by squeezing of plastic shale etc. Bureau of Mines Staff.

bridging oxygen. An oxygen ion placed between two silicon ions, for example, in the structure of a silicate glass. Dodd.

bridgeman sample. A mechanical device that automatically selects two samples as the ore passes through. Fay.

bridle bar. See bridle rod. Fay.

bridle cable. An anchor cable that is at right angles to the line of pull. Nichol.

briddle chains. a. The chains used for supporting the cage from the winding rope. Usually four chains are used, one for each corner, and are gathered together at their upper ends to be connected to a attaching hook by a spreader plate. The plate is made large enough to receive the four D links to which the respective chains are attached. Nelson. b. Safety chains to support the cage if the shackles should break, or to protect a train of cars on a slope should the shackle or drawbar fail. Fay.

bridle hitch. A connection between a bridle cable and a cable or sheave block. Nichol.

briddle iron. A strong, flat iron bar 90 bent as to support, as in a stirrup, one end of a derrick, where no sufficient bearing can be had. Webster 2d.

briddle rod; bridle bar. A steel tie bar used to join the ends of sections of a drawbar to hold them to gage in the proper position. Webster 3d.

bridle rope. A fixed rope supporting a jib or boom. Ham.

brider. N. of Eng. A beam or girder fixed across a shaft, etc. Ham.

bridesman. Member of a Rand mine rescue team equipped with Proto breathing apparatus. Bruggs.

briggs climophones. An instrument used in measuring borehole deviation which transmits electrical signals, communicating to the surface the position of a plum bob fitted with a needle relative to four electrodes arranged laterally, and W, the needle and electrodes being immersed in the electrolyte. Signals are matched with a similar arrangement of needle and electrodes at the surface and the deviation is then read off on a deviation and the direction of deviation. Sinclair, 11, p. 243.

briggs equalizer. This consists of a head hammer for firing a charge of up to 30 pounds of nonexplosive, corrugated breathing tube, Briggs equalizing device, 120 feet of reinforced air tubes, and a strainer and spike. It has neither bellows nor rotary blower but depends entirely on the action of the equalizer for comfortable respiration. The resistance to breathing is so low that reasonably hard work can be done by the wearer over a period of 2 hours or more. The supply tubing is attached to the waist by a strong leather belt. Mason, v. 1, pp. 237-259.

briggs stretcher carriage. A stretcher used as an ambulance trolley in transporting casualties from underground workings. The stretcher has rests which are supported by coil and tension springs to protect the patient from bumps, and also an adjustable wheel base which allows the carriage to be maneuvered around sharp corners or to be raised or lowered to correspond to the mine haulage system. McAdam, pp 105-106.

bright annealing. Annealing in a protective medium to prevent discoloration of the bright surface. ASTM Gloss.

bright attrition. A field term to denote the degree of luster of attritol coal compared to the brilliant luster of associated vitrain. Compare moderately bright attritium; crudely dull attritu; dull attritur. A.G.I.

bright-banded coal. Coal consisting of vitrain and clarain, more or less durain and minor fusain. See also banded coal. Compare dull-banded coal. A.G.I.


bright-cherry-red heat. Division of the color scale generally given as about 815° C (1,490° F). Bureau of Mines Staff.

bright coal. a. The constituent of banded coal which is of a jet black, pitchy appearance, more or less brightly attritum, and breaking with a conchoidal fracture when viewed macroscopically, and which in thin section always shows preserved cell structure of woody plant tissue, either of stem branch, or root. Same as anthraxylum. A.G.I. b. A constituent of anthraxylum and attritum, in which the translucent cell-wall degradation matter or transversely cut hemic matter predominates. Compare semiplate coal; intermediate coal; semidull coal; dull coal. A.G.I. c. A banded coal containing less than 20 percent opaque attritium and more than 5 percent anthraxylum. Compare semiplate coal; splint coal. A.G.I. d. A type of banded coal containing from 100 percent to 81 percent pure bright ingredients (vitrain, clarain, and fusain), the remaining consisting of clarodurain and durain. Compare semiplate coal; intermediate coal; semidull coal; dull coal. A.G.I. e. An old mining term for lustrous coal. In 1931, R. Thompson defined this coal as being composed of anthraxylum and attritium in which the translucent matter predominates and thereby established the concept of remaining coal as a piece of anthraxylum. In 1948, B. C. Parks and H. J. O'Donnell provided a quantitative definition based on the macroscopic appearance of the coal to a person with normal vision. According to their definition, bright coal is a type of banded coal composed macroscopically of at least 81 percent anthraxylum and less than 20 percent opaque matter, the measurements being made perpendicular
bright coal
to the bedding across the entire thin section (2 to 3 centimeters in width). This coal can be entirely or in greater part of anthracitoly; it can also be attirial providing the content of opaque ataraxic remains or gangue from the external surfaces of the table and other faces of a gemstone. See also total reflection; luster; brillitation (of a gemstone). The amount of light reaching the eye as a result of (1) reflections from the internal surfaces of facets (called total internal reflection); and (2) transmission from the external surfaes of the table and other faces of a gemstone. See also total reflection; luster; brillitation.

brilliation of diamond. The most effective form of cutting for diamond, and so usual for this microscopic, and determines hardness number of sample from chart that expresses hardness in terms of diameter of impressions produced under standard test conditions. Also called Brinell operator. D.O.T. 1.
bright. A smooth parting or separation. A. York. A smooth parting or joint in coal; a plane of cleavage. Fay.
bright. b. The principal cleat in coal. Arkel.

brilliance: brilliancy (ok a gemstone). The amount of light reaching the eye as a result of (1) reflections from the internal surfaces of facets (called total internal reflection); and (2) transmission from the external surfaes of the table and other faces of a gemstone. See also total reflection; luster; brillitation.

brilliant-cut. The most popular cut for most stones; with round girdle outline and usually 58 facets, sometimes or combination of these facets are.

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Bristol recorder

equation, it will indicate when a support is operating with a faulty valve. Nelson.


Britannia cell. In mineral processing, a pneumatic flotation cell 7 to 9 feet deep. See also flotation cell. Fryer, 3.

Britannia metal. Alloy of from 80 to 90 percent tin with antimony, copper, lead, or zinc or a mixture of these. Fryer, 3.

britching. See also breeching, b. Fay.


brittle crack propagation. A very sudden brittle fracture that occurs without appreciable plastic deformation. ASM Gloss.

brittle-ring test. A test to determine the behavior of a ceramic material under tensile stress; a test piece in the form of an annulus is loaded along a diameter so that maximum tensile stresses develop on the inner periphery of the annulus in the plane of loading. Compare Brauns test. Dodd.

brittle substance. A substance for which the yield point and the point of rupture lie close together. Brigg, p. 189.

broach. a. To restore the diameter of a borehole by reaming. Long, b. To break down the walls between two contiguous drill holes. Long, c. A bar-shaped cutting tool provided with a series of cutting edges or teeth that increase in size or diameter in shape from the starting to the finishing end. The tool cuts in the axial direction when pushed or pulled and is used to enlarge bores or outside surfaces. ASM Gloss. e. A sharp-pointed chisel, used especially for rough-dressing stone. Winser 2 to 3 feet. Fay, g. To shape (a block of stone) roughly by chiseling with a coarse tool. Webster 3d.

broaching. a. Trimming or straightening a mine workroom of rock excavation employed where it is important that the adjacent rock formation should not be shattered by explosive. A line of closely spaced holes is drilled along the required line of breakage. The rock between the holes is kept out with a broach and removed with the aid of wedges. Ham. See also channeler, a. c. Removing metal stock from a workpiece with a broach. ASM Gloss.

broadside shooting. A refraction type of seismic shooting used to determine the structure across a strike. The broadside lines are ordinarily laid out in conjunction with the standard-type profiles that run along the strike. The shot points and detector spreads are laid out along parallel lines which are generally across the strike. The distance between each line of shots and the receiving line is chosen so that it will always be greater than the double offset distance for the primary refracted event will be received as a second arrival. When this spacing is used, the refracting point associated with the shot will be very close to that associated with the detector and each of the further shots will be at an intercept time. A single depth point (based on half the intercept time) is then plotted midway between shot and receiver. The depth points are thus placed along the "control lines" which are located halfway between the shooting line and the receiving line. Dobrin, pp. 96-97.

broadside. A paving slab, so called because it is broad and thin, and cut from out of the quarries, not above 2 or 3 inches in thickness. Arkell.

breadstone bind. Eng. Shale or clay that breaks up into large blocks or slabs. Fay.

broad veins. Where a broad vein apexes so that the boundary splits the apex, the extralateral rights go to the senior locator, who takes the entire width of the vein on the dip; that is, a broad lode that is bisected by the division sideline between two mining claims belongs to the claim having the prior location. Lewis, p. 34.

broad. a. A heavy spike, driven alongside the end of an abutting timber to prevent its slipping. Fay, b. Mid. A short, thick timber, proper or sprag for supporting the coal while it is being hauled. Fay. c. An English term for a wrought-iron spike driven into bars and stiles to steady the head or foot of a prop. Stauffer.

brocadel. A type of bronze powder consisting of coarse metal flakes prepared from the waste of metal-leaf factories. Camm.

Brocatelle marble. A variety of marble from the French Revens. The body of the stone is fine, compact, and of light yellow color traversed by veins and dull red blotches. The name being that of a coarse kind of tapestry, which the marble somewhat resembles. Fay.

bronzite. A mineral, Cu(OH)2SO4, common in the oxidation zone of copper sulfide deposits; monoclinic; emerald-green to dark green color; formed by the decomposition of chalcopyrite. A.G.I.; Dana 17.


B rod. A former standard diamond drill rod having an outside diameter of 14Inches. p. 328.
Brod

Superseded in 1954 by a new standard drill rod designated by the letter name BW. Long.


Broil. A collection of loose rock fragments usually closely spaced, and indicating the presence of a mineral vein beneath; outcrop; gossan. Also spelled bryle; broyl. Fay.

Broken. a. Eng. That part of a mine where the mineral has already been partly worked away, and where the remainder is in course of being extracted. Fay. b. The dislocation of a vein by faulting. Weed, 1922. c. Term used to denote a mixed succession of depositions; a broken sand usually has shaly layers in it. Wheeler. c. See broken coal.

Broken. a. Ashlar in which the stones are rectangular, but of different sizes and shapes Webster 3d.

Broken charge. A charge of explosive in a broken ground.

Broken coal. In anthracite only; coal that has been rounded through use and repeated forcing the diamonds to seat themselves. Gradually removing the excess matrix and rotated slowly under a light load for a length of time.

Broken coal. a. A newly set bit, which has been worked away, and where the remainder is in course of being extracted. Fay. b. A newly set bit, which has been worked off in transit leaving only some part of a skip load. Fay. c. Shattered rock that has been shattered in use. Long. d. A diamond that, in use, has lost a portion of its mass by cleaving action. Long. e. A diamond, the size and shape of which have been changed by deliberate cleaving. Long. d. See crushed stone. Mined coal, 630, 1965, p. 685.

Broken working. The working away or removal of blocks or pillars of coal formed by whole workings. Fay.

Brokens; robbery; robbing pillars. Eng. The removal or extraction of pillars previously formed in bord and pillar working. Brokens usually is preceded by its principal alloying element as, for example, aluminum bronze, silicon bronze, tin bronze, etc. Henderson. a. Any of the copper-base alloys including all copper alloys other than zinc and in sufficient amounts to be predominant over the zinc in the alloy. Henderson. d. An alloy composed mainly of copper and tin. Various other elements may be added in small amounts for certain specific purposes. A number of copper alloys are referred to as bronzes although they contain no tin. The American Society for Testing Materials has classified all copper-base alloys on a basis of composition ranges of the principal alloying elements. Henderson.


Bronze mica. Synonym for phlogopite. Fay.

Bronze pearls. The variety of so-called black pearls with a bronze-like color and sheen. Shipley.


Bronze tubes. Tubes of bronze or copper embossed with a ridge at the outer (principally) for the circulation of water to counteract the intense heat. Mersereau, 4th, p. 19.

Bronze welding. Gas welding of copper, steel, or other metals using a filler rod of silicon brass alloy. This process is easier than fusion welding because the temperature is lower, yet it generally exceeds 850° C, and the joint is therefore usually unnecessary and can be carefully controlled in a factory.

Bronzite. A mineral consisting of a ferriferous variety of enstatite often having a luster like that of bronze, (Mg,Fe)SiO3; orthorhombic. Webster 3d; Dana 17. b. It is often used as a prefix to the names of rocks containing the mineral. Rocks of the gabbro family are the most common ones having the prefix. Fay.


Brooking. See broaching. Fay.


Brooking. See broaching. Fay.


Brookfield viscometer. An electrically operated rotating cylinder viscometer in which the drag is recorded directly on a dial; it has been used in the testing of vitreous-cast alloy. Dodd.

Brookhill wafer. A coal cutter with the ordinary horizontal jib and also a shearing or mowing jib. In some cases, a flight loader follows it along the face to load the cut coal onto the face conveyor (named after Brookhill-collie.)

Brookite. Titanium dioxide, TiO2. Identical in composition with rutile, but occurs in

with a hammer or a gend in rock that is loose and liable to fall. Fay.


Bronze. a. Any of the many copper-base alloys in which tin is the principal alloying element, with or without other alloying elements. Also called tin bronze. Henderson. b. Any of the many copper-base alloys having, as the principal alloying element, any element other than zinc. The term usually is preceded by its principal alloying element as, for example, aluminum bronze, silicon bronze, tin bronze, etc. Henderson. c. All copper-base alloys containing all copper alloys other than zinc and in sufficient amounts to be predominant over the zinc in the alloy. Henderson. d. An alloy composed mainly of copper and tin. Various other elements may be added in small amounts for certain specific purposes. A number of copper alloys are referred to as bronzes although they contain no tin. The American Society for Testing Materials has classified all copper-base alloys on a basis of composition ranges of the principal alloying elements. Henderson.


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brown translucent orthorhombic crystals. Fay.

brouse. The crushing and spreading of the head of a timber pile not fitted with a driving band when driven into ground. Fay.

bros. Eng. In Sutherland, the imperfect coal in the lower part of the oolite formation. Fay.

Broseley tile. An old name for a plain clay roofing tile; such tiles were made in the Broseley area of Shropshire, England. Dodd.

browning; broom time. Scot. Mealtime. Fay.

browser. A rope or chain sling, the term applying to both two- or four-leg types. Fay.

browse. A sort of coarse stopping, made of small boughs of trees, and placed in back of shaft timbers to prevent rock from falling. Fay.


brown bar. Mid. A massive curb or beam of timber fixed in the wall of the shaft. Fay.

brown COAL a. A low-rank coal which is containing 20 or more percent water, brown coal between 10 and 20 percent water, and bituminous coal less than 10 percent water. Hess. b. A type of low-rank coal that is isolated from the bituminous and semianthracite coals by differences in ash content. Brown coal contains 20 or more percent water. A.G.I. Used as a building stone. Fay. c. A coal with a moisture content ranging from 30 to 55 percent and a total carbon content ranging from 65 to 75 percent. A.G.I. b. Same as brown coal. Tomkiewicz, 1954.


brown metal coal. Eng. Term used among Yorkshire miners for bituminous coal which when brown gives much brown or red dust. Tomkiewicz, 1954.


Brown muffle furnace. A mechanically raked roofed furnace of the straight-line type, with a series of longitudinal combustion flues placed under the hearth. Fay.


Brown panel system. a. Same as pillar-and-breeze. Fay. b. Coal mining by long rooms opened on the upper side of the gangway. The breasts are usually from 5 to 12 yards wide and are separated by pillars (solid walls of coal broken by crossheadings for ventilation) 5 to 12 yards thick. The pillars are robbed by mining from them until the roof comes down and prevents further working. Hess.

brown petroleum. A natural solid or semi-solid product produced by the action of air upon fluid bitumens. Fay.


brown soil. A zonal group of soils having a lower horizon which grades downwards into lighter colored soil and finally into a layer of carbonate accumulation. It is developed under shrub forests, bunch grasses, and shrubs in a temperate to cool, semiarid climate. A.G.I.

brown spar. Any light carbonate that is colored brown by the presence of iron carbonate, as ankerite, dolomite, magnesite, or siderite. Fay. Standard, 1964.

brownstone. A ferruginous sandstone, the grains of which are generally coated with iron oxide, whereas true hematite is an oxide of iron. Applied to a dark brown sandstone derived from the Triassic formations of the Connecticut River Valley. A.G.I. Used as a building stone. See also sandstone. Fay. b. Eng. Toadstone. Arkell.

brown turby furnace. A cylindrical tank or vat, tall in proportion to its diameter, with the bottom ending in a 60° cone. Within the tank is a hollow column extending from the bottom to within about 8 inches from the top. The apparatus works on the air-lift principle, the aerated pulp in the tube flowing upward, and discharging at the top while more pulp flows in at the bottom to take its place. It is in reality a pulp agitator. Also called Pachuca tank. Liddell 24, p. 390.

brown tum. A long-handled, pierlike device similar to a certain type of blacksmith tongs used to handle wash or drill rods in place of a safety clamp in shallow borehole drilling. Also called adjustable pipe tongs; extension tongs; lowering tongs. Long.

brown turpentine. An Irish name for the layer of bituminous coal that is situated between the white turf and the black turf and in composition intermediate between these two. Tomkiewicz, 1954.

brown umber. A brown earthy variety of limonite. Fay.

brownpiece. A heavy upright timber used for underpinning in opening a station for a level in a mine. Webster 3d. See also brown piece. Fay.

brown. Ore imperfectly smelted, mixed with cinder and clay. Fay.

Broxburn oil shale

33 to 40 pounds of ammonium sulfate per ton. Fay.

broyl. Corn. See broil. Fay.


Brunswick. A nearly colorless mineral, CaHPO$_4$. 2H$_2$O, consisting of calcium hydrogen phosphate in slender crystal or massive. Webster 3d.

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Brunson, cosmet. A. An impure system of oil firing, particularly for the top-firing of annular kils, developed by A. A. Niesper in Switzerland, in 1864. Dodd.

broling man. A. A terns used in Arkansas and Missouri for one who removes fine ore from a working place, especially when the work is done with the hands. See also broining. Fay. b. In metal mining, one who loosens ore, blasted from the working face, with a pick or bar and pushes it down from a pile into contact with the scoop of a mechanical shovel or within reach of other muckers, to assist in loading cars. Also called brush hand. D.O.T. 1.


brushvigne. An olive-green to yellowish-green hydrous magnesium-iron, and magnesium, 9[Fe,Mg]O2Al$_2$O$_3$SiO$_2$OH. O. A chlorite near the metachlorite of the Buchholzite. Fine scale masses. From Rudaushal, Harz, Germany. English.

Brunswick. A small pocket compass with sights and a reflector attached, used in sketching mine workings, as in mine examinations, or in preliminarily surveys. Fay.

Brunswick compass. Synonym for Brunton. Long.
b. s. gang. The production crew, which, by
B-scope. A cathode ray oscilloscope indicator
Btu Abbreviation for British thermal unit.
B to B Abbreviation for back to back. Zim-
bubble. a. Air bubble in spirit level mounted
bu Abbrevation for
bubble hoick. A lightweight brick developed
bubble cap. A small, hollow, chemical stone-
bubble bear & peace. A process in which
bubble imp/endo. Small depressions, not
bubbles. Air introduced near bottom of flota-
tion cell containing pulped ore forms cour-
bubbles, which rise through the liquid and
bubbles; superficially resembling raindrop im-
bubbles sized and arranged to produce a dec-
bubbles; the train of bubbles they produce as
bushel. BuMtn Style
buck. a. A typically round and wooden
bucket. a. A round and wooden vessel for
drawiing up water from a well.
bucket. b. A vessel (as a tub or scoop)
bucket. c. A laborer who breaks ore.
bucket drill; bucket drilling. Originally de-
veloped as an aid in making excavations for
civil works and septic tanks; now used
mostly in drilling holes for
bucket. d. A small auger incorporat-
ing a steel tube to help hold
the bit. It is
bucket elevator. A conveyor consisting of a con-
tinuous line of buckets attached by pi-
nels to two endless roller chains running on
tracks and driven by sprockets. The buckets
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bucket drill. A drill having two pon-
toons, between which passes a
chain of digging buckets. These buckets
excavate material at the bottom of the
pond (pump) in which the dredge floats, and
deposit it in concentrating devices on
the decks. Pryor, 3.
bucket elevator. b. A typical round and wooden
vessel for drawing up water from a well.
bucket 3d. b. A vessel for hoisting and conveying
material (as coal, ore, grain, gravel, mud, or concrete).
bucket 3d. c. The device for the end of the arm of a
bucket dredge. Webster 3d. d. One of the receptacles on
the rim of a water wheel such as by which the water
rushed causing the wheel to revolve. Webster
3d. e. A float or paddle of a water
wheel or of a boat’s side wheel or stem
window.
bucket 4d. a. A large vessel or vessel for
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pond (pump) in which the dredge floats, and
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the decks. Pryor, 3.
bucket elevator 2 inches in size. Nelson.
bucket elevator belt. A belt fabricated for bucket elevator use, to which elevator buckets are attached. ASA MH4.1-1958.
bucket elevator, perfect discharge. See positive discharge bucket elevator. ASA MH4.1-1958.
bucket elevator, positive discharge. See positive discharge bucket elevator. ASA MH4.1-1958.
bucket hooker. See can hooker. Q.T. 1.
bucketing. Eng. The operation of removing a wornout pump bucket or clack, and replacing it with a new one. Fay.
bucket-ladder dredge; bucket-ladder dredge. A dredge whose digging mechanism consists of a ladderlike frame on which is attached an endless chain which rides on sprocket wheels and on which buckets are attached. Bureau of Mines Staff.
bucket-ladder excavator. A mechanical excavator working on the same principle as a bucket-ladder dredge, but adapted for use on land. C.T.D. See also trench excavator.
bucket line. An endless line of digging buckets of a derrick, or on a bucket elevator. Pryor, 3.
bucket loader. a. A form of portable, self-feeding, inclined bucket elevator for loading bulk materials into cars, trucks, or other conveyors. See also bucket elevator; portable conveyor, b. ASA MH4.1-1958.
b. A machine having a digging and gathering rotor, and a set of chain-mounted buckets to elevate the material to a dumping point. Nichols.
bucket machine. See elevator pump. Fay.
bucket mounting. Scot. Leather or gutta percha packing of a pump bucket. Fay.
bucket piece. Scot. The pipe carrying the bucket door of a pump. Fay.
bucket pump. a. An iron or wooden receptacle for holding ore, or for raising rock in shaft sinking. Fay. b. A reciprocating lift pump formerly much used in shafts in this country. Nelson.
bucket rig. Synonym for rotary bucket drill. Long.
bucket rods. Eng. Wooden rods to which a pump piston is attached. Fay.
bucket sheave. A pulley attached to a shoveling bucket in order to prevent the rope from slipping off the sheave, or the point or drag cable is reeved. Nichols, 2.
bucket shell. Scot. The cast-iron or brass frame of a pump bucket. Fay.
bucket sword. Eng. A wrought-iron rod to which a pump bucket is attached, having at its upper end a knocking-off joint. Fay.
bucket temperature. The surface temperature of the bucket, as measured by a bucket thermometer or by immersing a surface thermometer in a freshly drawn bucket of water.
bucket thermometer. A water-temperature thermometer provided with an insulated container around the bulb. It is lowered into the sea until it has had time to reach the temperature of the surface water, then withdrawn and read. The insulated water surrounding the bulb preserves the temperature reading and is available as a salinity sample. HBG.
bucket tree. Eng. The pipe between the working barrel and the windbore of a pump. Fay.
bucket tripper. A device that tilts or turns the buckets of a pivoted bucket conveyor causing them to discharge. It may be fixed or movable. ASA MH4.1-1958.
bucket wheel excavator; BWE. A continuous digging machine originally designed and used in large-scale stripping and mining of East German brown coal deposits. Its digging mechanism is essentially a boom on which is mounted a rotating vertical wheel having buckets on its periphery. As the rotating wheel is pressed into the material to be dug, the buckets cut, gather, and discharge the material onto a conveyor belt where it is moved to the mined materials transport system. Bureau of Mines Staff.
buckling. a. Derb. The act of breaking or pulverizing ore. The bucking hammer or bucking pin is a broad-headed hammer used for this purpose, and the ore is broken on a flat piece of iron (bucking plate). Fay. b. Sawing a long log into shorter pieces. Nichols.
buckling load. The maximum load expressed in tons which will cause a structure to buckle. Fay.
buckling length. The length of drill rod that will subject the material to a specified feed pressure or compressional load. Long.
buckling stress. See buckling load.
buckling strength. See buckling load.
buckshot land; buckshot soil. a. Land or soil filled with rounded lumps of the size of buckshot, or which, by centrifuging, could be made into such lumps. Standard, 1964. b. Land or soil containing many limonitic nodules, Standard, 1964.
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buddy. A shortwall coal cutter designed for
buffer. a. Any of various devices, apparatus,
buffed top. A term used for any stone which
buff brick. A light-colored brick usually light
buff wheel. A buffing wheel. Webster 2d.
buff bar. The heavy iron bar of a railroad
bung. A partner; each of two men who
bug dust. A. The fine coal or other materials
buhrmill. a. A stone disk mill, with an upper
buhrer. a. A fire clay brick used for
buhrstone. A type of sandstone used because of
buhrstone mill. A grinding mill with two
buhrer kiln. The zigzag kiln invented by J.
bugger. Braz. Pockets of yellow clay, r.:ch
bug hole. a. A small cavity, in a rock, usually
buffing oil. A viscous oil used with polishing
bug hole. A small cavity, in a rock, usually
buck. a. A mine car of small dimensions,
bug light. Slang for a miner’s electric cap
bugger. N. Wales. A dolomite bed in the
buhrstone mill. A grinding mill with two
buhrmill. a. A stone disk mill, with an upper
buhrstone. A type of sandstone used because of
bug hole. A small cavity, in a rock, usually
buck. a. A mine car of small dimensions,
bug dust. An attachment used on shortwall
bugger. A. A mine car of small dimensions,
bulking agent. Chemically inert materials for increasing the volume of a composition, for example, clay. Bureau of Mines, p. 124, 1962. Also called a filler. See also filler. Bureau of Mines Staff.

bulk measurement. A method of mining in which large quantities of low-grade ore are mined without attempt to segregate the high-grade portions. Nelson, p. 6. Compare selective mining, a.

bulk modulus. a. The number that expresses a material's resistance to elastic changes in volume; for example, the number of pounds per square inch necessary to cause a specified change in volume. Laid. b. Under increasing force per unit area a body will decrease in size but increase in density.

bulk modulus of elasticity. The ratio of a tensile or compressive stress, triaxial and equal in all directions (e.g., a vacuum pressure), to the relative change it produces in volume. Ro.

bulk oil flotation. a. A flotation process in which large amounts of oil are used. Fay. b. In this process the separation of mineral from gangue is accomplished by virtue of the fact that mineral is hydrophobic while gangue such as sulfides, or hydrocarbons, as coal and graphite, are wetted preferentially by oil in the presence of water and consequently pass into the interface between oil and water; while gangue or rock is wetted by water and remains in the medium. Mitchell, p. 570.

bulk oil separation. A concentration process based on selective wetting of minerals by oil in the presence of water and in the absence of air. E.C.T., v. 8, p. 955.

bulk pit excavation. Primarily the excavation of considerable length as well as of substantial volume or bulk that must be hauled from the site of operations. Also called embankment digging. Caron, pp. 29, 30.

bulk samples. Large samples of a few hundredweight or more taken at regular though widely spaced intervals. In the case of coal, a car load may be taken at intervals for size analysis and dirt content. See also grab sample. Nelson.

bulk specific gravity (specific mass gravity). Ratio of the weight of a given volume of permeable material, including both permeable and impermeable voids normal to the material at a stated temperature to the weight in air of an equal volume of distilled water at a stated temperature. ASCE P1826.

bulk spreader. A machine for carrying and spreading cement or other material in soil stabilization. Nelson.

bulk strength. The strength per unit volume of an explosive and depends upon the weight strength and density. Nelson. It is obtained by multiplying the weight strength of an explosive by its density and dividing by the density of the blasting gelatin, which is 1.55 McAdam II, p. 17.

bulk volume. A term used relative to the density and volume of a porous solid, for example, a refractory brick. It is defined as the volume of the solid material plus the volume of the sealed and open pores present. Dodd.

bulk wide-area excavation. In this kind of excavation, there is complete access to the site from many directions, and the excavation banks can be shaped or modified. Usually shallower in depth than bulk pit excavations but larger in area. Compare bulk pit excavation. Car-
bull. a. An iron rod used in ramming clay to line a shothole. Staufer, b. A rod for drilling members, such as bent bars, in a shothole. C.E. N.S.W. To enlarge the bottom of a drilled hole to increase the explosive charge. New South Wales. To break up large stones with a sledge hammer. C.E. N.S.W. To emphasize the hope that their price will rise. Hoo. p. 285.


bull block. A machine with a power-driven revolving drum for cold drawing wire through a drawing die as the wire winds around the drum. ASM Gloss.

bull clam. A bulldozer fitted with a curved face with protective layer of tin. Pryor, 3.

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bull clam. A bulldozer fitted with a curved face with protective layer of tin. Pryor, 3.
bull plugs. Plugs that are screwed into the end of an unfinished pipeline to keep out debris and small animals; made of soft pipe material or pipe nipples having one end closed by welding or pressed in oval form and the other end threaded.

bull pump. Corn. A direct single-acting pump, the steam cylinder of which is placed over the top of a shaft or slope, and the piston rod attached to the pump rods. The steam lifts the piston end pump rods and the weight of these produces the downstroke.

bull pup. A worthless mining claim. Fay.

bull quartz. A miner’s or prospector’s term for a quartz deposit.

bull’s-eye. Labradorite with a dark sheen.

bull’s-eyes. Nodules of pyrite in roofing slate.

bull’s-eye. a. A pattern of miners’ hammer, varying in size and shape, used for banding. b. A metal point driven into the ground. c. A man who pushes loaded cars.

bull’s-kiln. A clamp of a type designed by W. Bull in which the bricks to be fired are set in a trench below the floor or walk of a mine opening, generally accompanied by a loud report and a sharp shock. Long. e. The earth tremor occasioned by a rock failure, when that failure causes no damage to the workings. Fay. f. A noise caused by a break in the roof underground. The actual movement due to the break. A sudden floor uplift due to a break in the floor. Mason. g. In coal mining, shock due to the movement of coal, floor, or roof strata, with sufficient violence to be heard and to shake the workings. Pryor, 3.

bumped heads. Convex or concave. Heads that have been bumped. Fay.

bumped heads. a. A man who pushes loaded cars. b. A man who handles loaded cars or cans into the station for the hooker and other moving equipment. c. A man who sorts and shifts cars in a rail yard. d. A machine-mined coal which has been moved, moved, or churned up and down, generally accompanied by a loud report and a sharp shock. Long. e. The earth movement due to the break. A sudden floor uplift due to a break in the floor. Mason. f. The actual movement due to the break. A sudden floor uplift due to a break in the floor. Mason. g. In coal mining, shock due to the movement of coal, floor, or roof strata, with sufficient violence to be heard and to shake the workings. Pryor, 3.

bump knocker. Ark. Local term used at mines for a person who drives dark clogs into portions of machine-mined coal which have not been shot down by blasting. Fay.

bumps. Sudden, violent explosions as coal from the seam is mined cause violent bumps and the crushing and bursting of pillars left for support. There are two distinctive types of bumps: (1) pressure bumps, which appear to be due to the unit loading of a pillar being too great for its bearing strength and where the coal roof and floor are strong, the pillar is ruptured suddenly and with violence; and (2) shock bumps, which are thought to be the result of the impact of thick, massive, rigid strata somewhere above the coalbed which causes a great hammerlike blow to be sent to the immediate roof which it transmits as a shock wave to the coal pillar or pillar. Kentucky, 1924, 237; Lewis, pp. 99, 151.

buna. A synthetic rubber based on butadiene and acrylonitrile; butadiene and styrene. Fay, 3.


bunch of ore. Corn. An ore body, usually a small one. Fay.

bunch of veins. A group of parallel or almost parallel veins, usually they will be fairly close together. Hok.

bunchy. a. An ore body containing small scattered masses or bunches of ore. Weed, 1924. b. A mine that sometimes rich and other times poor. Hess.

bunch reef. S. Afr. A succession of blows, or outcrops, following a certain course. See also blow, a. Penny, 1924.

bund. An earth retaining wall. Austin.

bundling. A staging of boards on stools or stemples, to carry dead. See also still covering, a. Fay.

bung. a. A small column of saggers, one placed on another. The bung rests on the stemples, to carry dead. See also still covering, a. Fay. b. A stack or column of saggers, one placed on another. The bung rests on the stemples, to carry dead. See also still covering, a. Fay.

c. A stag or column of saggers, one placed on another. The bung rests on the stemples, to carry dead. See also still covering, a. Fay.

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bung arch, 9-inch. A special bung brick with an arch 9 inches across the top. Bureau of Mines Staff.

bung brick. A special type (quality, size, and shape) of five clay brick, used in roofs of air furnaces. Bureau of Mines Staff.

bung. a. A built-in frame that usually has low sides and a canvas, mesh, or spring bottom, and that serves as a bed or sleeping place. Webster 3d. Common in mining and lumber camps. Fay.

bung. A vessel for the storage of materials; the lowermost portion is usually constructed in the form of a hopper. Also called bin. B.S. 35, 1962. See also hopper, a. Bureau of Mines Staff.

bunker coal. Applied to coal consumed by ocean steamers, tug, ferries, or other vessels.
bunker coal

steam watercraft. Also called bunkers. Fay.

bunker conveyor. A high-capacity conveyor which takes peaks of production from another conveyor and discharges the material when production drops. Such a conveyor may be built under or alongside a trunk belt near its discharge end. The floor of the bunker comprises a slow-moving steel plate conveyor operated by hydraulic or other power. A movable plough gate situated over the trunk belt diverts the material sideways into the bunker conveyor. Nelson.


bunker plate. An iron plate covering a hole in a ship's deck leading to the coal bunker. Nelson.


bunker, surface. A large capacity hopper or staiki in mines and used to store coal or other material coming from the winding shaft. The provision tends to equalize the run of mine going to the preparation plant and smooth out any minor breakdown in the plant. Nelson.

bunker, underground. Arrangements, such as high capacity supplementary conveyors, staple pits, hoppers, or standage room for coal or other material stored below the crackling of crude petroleum. HW.

bunker plate. An iron plate covering a hole in a ship's deck leading to the coal bunker. Nelson.


bunkers, surface. A large capacity hopper or staiki used to store coal or other material coming from the winding shaft. The provision tends to equalize the run of mine going to the preparation plant and smooth out any minor breakdown in the plant. Nelson.

bunky. Shrop. The basalts on Clee Hill. Arkell.

burette. A laboratory apparatus consisting of a long tube with a small aperture and stopcock, that is used for delivering measured quantities of liquid or for measuring volumetrically the liquid or gas received or discharged. Webster 3d.

burial. Engl. In lead mining, a floor or staging of wood built across the lode over the miners' heads, and on which the refuse was thrown, so that the mine, originally begun as an open work, became covered over for its whole length except the windlass opening. Also spelled chaldron. Fay.

bunny. Corn. An isolated body of ore. Hess. See also bonny.


bureaucracy. Eng. In lead mining, a floor or staging of wood built across the lode over the miners' heads, and on which the refuse was thrown, so that the mine, originally begun as an open work, became covered over for its whole length except the windlass opening. Also spelled chaldron. Fay.

bus. Narrow, or small coal. Fay. See also burgy.

Burgos luster. A red luster for porcelain made by suitably diluting a gold luster with a bismuth luster; some tin may also be present. Ford comes from Burgos, Spain.
Burn of or to permit a bit to become overheated.

Burial ground. A place for burying unwanted bodies or objects to prevent escape. A burial is the act of interring a dead person in a grave, vault, or other receptacle set in or under the earth. Burying objects such as radioactive materials in a burial ground is a common practice to prevent them from spreading harmful substances or causing radiation exposure to the environment or people.

Buried hill. A hill of resistant older rock overburden. The hill is formed from a natural or artificial deposit of earth and rock material that has been accumulated on top of another layer or a series of layers. Blind apex. Buried rivers. Riverbeds which have been covered by other layers of soil or rock materials.

Buried outcrop. A resistant rock layer that is covered by younger deposits of soil or rock. Buried water. Water that is confined to a layer of permeable rock or sediment that lies below the land surface.

Buried clay. A clay containing burls, okilites, and other minerals that have been covered by younger deposits of soil or rock. Burial hill. A hill formed from a natural or artificial deposit of earth and rock material that has been accumulated on top of another layer or a series of layers. Blind apex. Buried rivers. Riverbeds which have been covered by other layers of soil or rock materials.

Burial mounds. A mound or heap of earth or other material that has been deposited on top of a natural or artificial deposit of earth and rock material. Burial mound. A mound or heap of earth or other material that has been deposited on top of a natural or artificial deposit of earth and rock material.

Burial or to permit a bit to become overheated. Burial of or to permit a bit to become overheated.
burnishing. A method applied to artificially colored yellow transparent quartz (topaz), powdered; AlNi4(SO4)2 or AlK(SO4)2. pigment. Hess.

burnt alum. A term applied to a copious discharge of methane, carbon dioxide, or coal dust. Also called outburst; bounce; rock burst. BuMines Bull. 309, 1929, pp. 1, 13.

burnt bag. A hydraulic mechanism which, when inserted into a large diameter shot-hole, breaks down the strata by means of pistons operating transversely. B.S. 3618, 1964, sec. 6. b. Scot. A shot in a coal seam which has not been sheared or undercut. Equivalent to “shot off the solid.” Also called bursting shot. Fay. c. See buster, a. Fay.

bursting. The phenomenon sometimes exhibited by refractories containing chrome ore, when exposed to iron oxide at high temperature, of having the exposed face swell and grow until it breaks away from the brick mass. A.R.I.

bursting expansion. In the refractories industry this term has the specific meaning of surface disintegration of basic refractories caused by the absorption of iron oxide. The expansion that leads to this form of failure results from cold solution of magnetite (Fe3O4) in the chromite or chrome-magnesite refractories. A laboratory test submits a test-piece cut to the action of 40 grain of mill-scale (crushed to pass a 30 B.S. sieve) for 1 hour at 1,600° C; the
Butters and Mein distributor

bypass; byepass

1954.


byhead. A small amount of gas and tarry oil. A.G.I.

byerlite. An artificial asphalt made from petroleum by driving off the volatile products. Webster 2d ed.

by ever. by-saw. Fay. d.

bwpd Abbreviation for barrels of water per day. Also abbreviated BWPD. BuMin Style Guide, p. 58.

by-level. A side level driven for some undefined or unimportant purpose, besides to provide a means of emergency access. Fay.

byheads. Term used when a well flows out of a tubing string, seven or eight inches above the packers used. Fay.

byerlite. Applied by Mallett to a dry-burnt coal, for which he is paid by the ton; a substitute for coke. Fay. d.

byerite. Applied by Mallett to a byerite, an artificial asphalt made from petroleum by driving off the volatile products. Also abbreviated BWP. BuMin Style Guide, p. 58.

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Cable reel

cable cover. A fired clay—in this context generally (but erroneously) known as earthenware, or concrete conduit for covering underground electric cables; the principal objects of these covers are to give warning of the cable's presence and to protect it from excavating tools. Dodd.

cable drill. a. A heavy drilling rig in which a rope is used for suspending its tools in the borehole. See also churn drill, b. Nelson. b. A churn or percussion drill rig, consisting of a tower (derrick), wire rope for moving tools vertically, a power unit, and a reciprocating device. It drills holes of up to 10 inch diameter vertically to considerable depths. Can be light and mobile. Prior, 3.

cable driller. In petroleum production, one who supervises setup and operation of the drilling equipment, and operates the controls of a cable drilling rig which is used to drill oil and gas wells; controls flow of well when it is brought in (first begins flowing) by capping it or regulating control valves; keeps record of nature and location of strata encountered, number of feet drilled per shift, and materials used. Also called cable tool driller; driller; well driller. D.O.T. 1. cable reel. Prior, 3.

cable duct. A protective earthenware or concrete pipe through which electric cable or prestressing wires are pulled. The latter are generally grouted into the ducts with cement grout. Ham.

cable excavator. A long, range, cable-operated machine which works between a head mast and an anchor. Nichols.

cable, flame-resistant. See flame-resistant cable.

cable hook. A round hook with a wide beveled face. Nichols.

cable hooker. One who couples hoist cable to loaded cars in a clay pit and signals to have cars drawn up inclined rails to mouth of pit. Also called hookup man. D.O.T. 1.

cable-laid rope. a. An ordinary lay rope. Nelson. b. A compound-laid rope consisting of several ropes or several layers of strands laid together into one rope, as, for instance, 6 by 6 by 1. HBG, p. 129. c. A rope in which both the laying of the strands and the strands themselves are twisted to the left. Long. d. Wire cable made of several ropes twisted together, strands of hawser-laid rope, twisted right-handed without limitation as to the number of strands or direction of twist. A fiber cable-laid rope is composed of three strands of hawser-laid rope, twisted right-handed. Zern.

cable lay. Of wire cable, several wire ropes each composed of strands not limited in number or direction of twist. Of fiber cable, strands of several twisted into one twisted right-handed. Prior, 3.

cable length. A maritime unit of length based on the length of a ship's cable and variously reckoned as equal to 100 fathoms; one-tenth of the nautical mile of 6,060 feet; or 120 fathoms. Webster 3d.

cable loader. One who sets up and loads brick and tile onto a conveyor used for transporting dried pieces of clay for burning. Also called deracker. D.O.T. 1.

cable railway. An inclined track up and down which travel wagon types of conveyors. These conveyors are generally grouted into the ducts with cement grout. H.B.G.

cable loader. A drum on which conductor cable is wound, including at least one spool and associated brackets, by means of
cable reel

which the electric circuit is made between the stationary winding on the locomotive and the moving device. A device with a drum, loop, or other mining device and the trailing cable on to the stationary winding on the locomotive which the electric circuit is made between the cable conveyor of which the propelling load or load carriers are supported by a cable and are not dependent on a solid steel chisel-faced bit working vertically at the end of a string of solid steel tools suspended in the hole at the end of a steel line or rope, and activated by a walking beam. A method of driving a bucket, as in a bucket wheel; a system in which a cable is attached to the drilling rig and which is used to control the drilling while the bucket is being raised. It is used increasingly for mechanical bucking in shaft sinkings. A stationary double rope grab for shaft sinking which has cables about 20 cubic feet, weights about 5,500 pounds, and can fill a 3-ton capacity hopper in about 4 minutes. Also called spud; spud bit. Long.

cable-tool cuttings. The rock fragments and sludge produced in drilling a borehole with a cable-tool rig. Long.
cable-tool drill. Synonym for churn drill, a.
cable-tool driller, Synonym for churn driller, b. Long.
cable-tool drilling. Procedure of drilling with a solid steel chisel-faced bit working vertically at the end of a string of solid steel tools suspended in the hole at the end of a steel line or rope, and activated by a walking beam. Wheeler; Bureau of Mines Staff. Synonym for churn drilling. Long. 
cable-tool men. Men experienced in drilling holes with churn-drill equipment. See also churn driller. Long.
cable-tool outfit. Synonym for churn-drill rig. Long. 
cable-tool rig. Synonym for churn-drill rig. Long. 
cable tools. The bits and other bottom-hole tools and equipment used to drill boreholes by percussive action of a rope, instead of rod, to connect the drilling bit with the machine on the surface. See also churn drill. Long. 
cableway. A system in which the carriers are supported by a cable and are not dependent on the operating span. The travel of the carriers is wholly within the span. ASA MH4.1-1958. See also aerial cableway. 
cableway excavator. A slackline cableway used for excavating a restricted area. Ham. 
cableway transporter. A transporter crane on which the track for the carrier is a steel wire rope. Ham. 
cadaver. A little pocket oilcan for miners. Fay. 
cadmium. Tin-white; malleable; ductile; toxic; bivalent metallic element; capable of taking a high polish; and it emits a crackling sound when heated. Occurs in the mineral greenockite (CdS) and also in small amounts in ores of zinc from which it is separated as a byproduct. Used chiefly in the protective electroplating of iron and steel and in the manufacture of bearing metals. Symbol, Cd; hexagonal; atomic number, 48; atomic weight, 112.40; specific gravity, 8.642; melting point, 320.9° C; and boiling point, 767° C. Webster 3d; Handbook of Chemistry and Physics, 45th ed., 1964, p. 104-6. 
cadmium acetate. [Cd(GO)4]3H2O, molecular weight, 284.53; specific gravity, 2.01; forms colorless flakes, deliquescent, monobromide prisms that are highly soluble in water and alcohol. It becomes anhydrous when heated to 130° C and attains a specific gravity of 2.34 and a melting point of 286° C; it decomposes at higher temperatures. I.C. 7881, 1958, p. 22. 
cadmium bromide. (CdBr2); a yellow crys
cadmium carbonate.

(\text{CdCO}_3); a white, crystalline solid, soluble in acids, water, alcohol, and ammonium hydroxide. Used in the production of pigments, phosphors, and analytical reagents. Its solution is used in dyeing and as a depolarizing agent in the production of cadmium oxide.

cadmium cyanide. \text{(CdCN)}; obtained as an off-white solid, soluble in water, alcohol, and ammonium hydroxide. It is used as a reagent in the production of organic and inorganic compounds, and as a catalyst in the production of hydrogen cyanide.

cadmium oxide. \text{CdO}; a white, crystalline solid, soluble in water, alcohol, and ammonium hydroxide. It is used as a reagent in the production of organic and inorganic compounds, and as a catalyst in the production of hydrogen cyanide.

cadmium chloride. \text{(CdCl}_2); a white, crystalline solid, soluble in water, alcohol, and ammonium hydroxide. It is used as a reagent in the production of organic and inorganic compounds, and as a catalyst in the production of hydrogen cyanide.

cadmium nitrate. \text{(Cd(NO}_3)_2); a white, crystalline solid, soluble in water, alcohol, and ammonium hydroxide. It is used as a reagent in the production of organic and inorganic compounds, and as a catalyst in the production of hydrogen cyanide.

**Cadmium Bromide**

talline powder with a molecular weight of 272.24; specific gravity, 5.20; melting point, 1,050°C; and boiling point, 368°C. I.C. 7881, 1958, p. 22.

cadmium carbonate. \text{(CdCO}_3); a white, crystalline solid, soluble in acids, water, alcohol, and ammonium hydroxide. Used in the production of pigments, phosphors, and analytical reagents. Its solution is used in dyeing and as a depolarizing agent in the production of cadmium oxide.

**Cadmium Chloride**

(\text{CdCl}_2); a white, crystalline solid, soluble in water, alcohol, and ammonium hydroxide. Used in the production of pigments, phosphors, and analytical reagents. Its solution is used in dyeing and as a depolarizing agent in the production of cadmium oxide.

**Cadmium Cyanide**

(\text{CdCN}); obtained as an off-white solid, soluble in water, alcohol, and ammonium hydroxide. It is used as a reagent in the production of organic and inorganic compounds, and as a catalyst in the production of hydrogen cyanide.

**Cadmium Oxide**

(\text{CdO}); a white, crystalline solid, soluble in water, alcohol, and ammonium hydroxide. It is used as a reagent in the production of organic and inorganic compounds, and as a catalyst in the production of hydrogen cyanide.

**Cadmium Nitrate**

(\text{(Cd(NO}_3)_2}); a white, crystalline solid, soluble in water, alcohol, and ammonium hydroxide. It is used as a reagent in the production of organic and inorganic compounds, and as a catalyst in the production of hydrogen cyanide.

**Cadmium Bromide**

talline powder with a molecular weight of 272.24; specific gravity, 5.20; melting point, 1,050°C; and boiling point, 368°C. I.C. 7881, 1958, p. 22.

**Cadmium Carbonate**

(\text{CdCO}_3); a white, crystalline solid, soluble in acids, water, alcohol, and ammonium hydroxide. Used in the production of pigments, phosphors, and analytical reagents. Its solution is used in dyeing and as a depolarizing agent in the production of cadmium oxide.

**Cadmium Chloride**

(\text{CdCl}_2); a white, crystalline solid, soluble in water, alcohol, and ammonium hydroxide. Used in the production of pigments, phosphors, and analytical reagents. Its solution is used in dyeing and as a depolarizing agent in the production of cadmium oxide.

**Cadmium Cyanide**

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cage mills

cage a whim. Corn. The barrel on which the rope is wound; a drum. Fay.

cage. a. A small hole or opening through which the coal or materials are delivered or which is the opening through which the coal is taken out of the cage.

cage operation. The process of loading, hoisting, and unloading coal in a cage.

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cage在外貌. The barrel on which the rope is wound; a drum. Fay.

cage runner. A man who runs a cage up and down the shaft.

cage shoes. Fittings bolted to the cage to prevent the free movement of the lining.

cage sheets. Short props or wedges used to support the cage walls.

cage standing. The act of maintaining the cage in a vertical position.

cage workers. Those who load, hoist, and unload coal in cages.

caling. The process of loading or unloading coal in a cage.

caling index. A measure of the degree of caking or binding together of the coal.

caling index; agglutinating power. A laboratory test to determine the degree of caking or binding together of the coal.

calin. The mineral chloride, CaCl₂.

calin chloride. A white crystalline substance used as a disinfectant.

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calverite

posure; metallic luster; contains 40 to 43 percent gold, 1 to 3 percent silver. Found in the Mother Lode district (California, Colorado); Australia; Canada. An important source of gold. C.G.I. 6d, 1961.

calk. Prefix meaning containing calcium carbonate. C.G.I.
calk-alcaline series. An igneous rock series having an alkali-lime index of 55 to 61. C.G.I.
calk-alcaline rock. An igneous rock in which the proportion of lime and alkalis (in relation to the other constituents) is such that the dominant minerals are feldspars, hornblende, and/or augite, specifically, the alkali minerals, such as feldspatoids and sodas, pyroxenes and soda amphiboles, are absent. The term includes granodiorite, sodium-biotite, andesine, and their volcanic analogues and excludes alkali and amphibilitic rocks and most peridotites. The term is used rather loosely to contrast a rock that is not calcareous with one that is, and it cannot be strictly limited by definition. Webster 3d.
calkaphanite. A variety of diabase showing patches of secondary calcium carbonate embedded in a green groundmass. Webster 3d.
calcar. a. An oven, or reverberatory furnace used in early glassmaking processes for calcination of the batch into grit. Webster 3d. b. An annealing arch or oven. Webster 3d.
calkarene. Suggested by Grabau for a limestone or dolomite composed of coral sand, shell sand, or calcite sand derived from the erosion of limestones. Fay.
calkareous. a. Like calcite or calcium carbonate, especially in hardness. Webster 3d. b. Consisting of or containing calcium carbonate. Webster 3d. c. Containing lime or any calcium compound. Webster 3d. d. Relating to rocks containing calcium carbonate. Webster 3d.
calkareous clay. A clay containing the minerals calcite and/or dolomite in amounts sufficient to cause obvious effervescence with dilute HCl. If the carbonates are in sufficient excess over Fe(OH)3, the clay fires to a cream color and has a short vitrification range. ACSB-1.
calkareous algae. Algae that forms deposits of calcium carbonate. Fossil calcareous algae are found in the United States. MacCracken.
calkareous clay. A clay containing the minerals calcite and/or dolomite in amounts sufficient to cause obvious effervescence with dilute HCl. If the carbonates are in sufficient excess over Fe(OH)3, the clay fires to a cream color and has a short vitrification range. ACSB-1.
calkareous crust; caliche. An indurated horizon of calcium carbonate. Webster 3d.
calkareous glazes. Glazes in which lime or calcium carbonate is such a constituent in a ceramic composition. Fay.
calkareous grits. Sandy beds, intermixed with or cemented by calcium carbonate. Fay.
calkareous stone. FeO(CO3), containing some calcium. Heiss.
calkareous marl. Unconsolidated material that is mainly calcium carbonate and clay. AIME, p. 132.
calkareous ooze. a. Sediment consisting mostly of the shells of one-celled animals and which becomes chalk when hardened. MacCracken. b. These contain more than 30 percent calcium carbonate, which represent the skeletal material of various plankton animals and plants. The calcareous ooze may be further divided into three types, depending upon a characteristic kind of organism present in the sediment, namely: (1) globigerina ooze, in which the calcium carbonate exudes in tests of pelagic foraminifera; (2) pteropod ooze, containing conspicuous shells of pelagic molluscs; and (3) coccolith ooze, containing large numbers of coccoliths and rhodoliths that form the protective structures of the minute Coccolithophorids. HOG, p. 73.
calkareous ores. Iron ores in which the gangue consists mainly of carbonate of lime. Osborne.
calkareous peat. Same as euphratic peat. Tomkiewicz.
calkareous rocks. Rocks which are wholly or largely calcium (lime) carbonate. Mason, p. 13.
calkareous sandstone. A sandstone containing a considerable proportion of calcium carbonate. Fay.
calkarose spar. Crystalline calcium carbonate. See also calcite. Fay.
calkarose tufa. A spongy, porous or vesicular deposit or calcium carbonate. When the carbonate of calcium is deposited in a solid form it is called travertine or calcite. Stalactites and stalagmites are of this nature. Fay.
calk. Native calcium oxide, CaO, found on Mount Vesuvius in Italy. It formed from limestone enveloped in lava and altered by the heat of the lava. Heiss.
calkedony. See calcite, and calcite, and calcite luster. Webster 3d.
calk-eight. A very fine-grained metamorphic rock of flinty aspect derived from a calcareous mudstone. The new minerals are in part due to pneumatolytic processes, and include feldspars and lime-silicate minerals, the latter being less abundant than in a calc-silicate hornfels. Heimer, 1928.
calk. The chemical compound, calcium oxide (CaO). Boynton.
calk. a. Of, pertaining to, or containing calcium. Said especially of minerals, particularly feldspars, in which calcium is an important constituent. Fay. b. Refers to igneous rocks having an alkali-lime index of 61 or higher. A.G.I. Supp.
calkcalcite. Proposed by Johannsen for the calcite plagioclases from An95 to An25, commonly calcareous. The term alcaline would be reserved for the pure end-member. Obotele. A.G.I.
calkcalcic series. Those igneous rock series having an alkali-lime index of 61 or higher. A.G.I.
calkdefers. Bearing, producing, or containing calcium, calcium carbonate, or calcite. Webster 3d.
calkility. To make or to become hard or stony by the deposit of calcium salts. Standard, 2d.
calkinite. a. Suggested by Grabau for a limestone or dolomite composed of calcareous rock flour, the composition of which is typically nonsilicious, though many calcitites contain an intermittent clay. Fay. b. A consolidated lime mud. Webster 3d.
calkitable. Capable of being calcined or reduced to a friable state by the action of fire. Fay.
calkination. a. Heating ores, concentrates, precipitates, or residues to decompose carbonates, hydrates, or other compounds. ASTM G51. b. A heat treatment to which many ceramic raw materials are subjected preparatory to further processing or use, for the purpose of driving off volatile chemically combined components and effecting physical changes. HW, c. To heat metals at high temperatures to convert them into their oxides. See also roasting. Nelson.
calklnary. See calciner. Fay.
calkine. a. Ore or concentrate after treatment by calcination or roasting and ready for smelting. C.T.B. b. To expel volatile matter by heat, as carbon dioxide, water of sulfur, with or without oxidation; to roast; to burn (said of limestone in making lime). Fay. c. To decompose or make friable, as with heat. Hess. d. A ceramic material or mixture fired to less than fusion for use as a constituent in a ceramic composition. AST. c. Friable material which is often fire clay, that has been heated to eliminate volatile constituents and to produce desired physical changes. ASTM C71-64.
calkined aluminous. These are available in several grades based on the degree of heat treatment received. Traces of residual water remain and they are more easily broken down by milling than other types of alumina. They are fluffier, less pure, and usually contain less alpha phase than the tabular grades. They are normally produced in 100 mesh and finer sizes. Lee.
calkined bauxite. Bauxite from which the water has been driven off by heating. Mersereau, 4th, p. 255.
calkined clay. Ball clay or china clay that has been located until combined water is removed and plastic character of the clay is destroyed. CCD 6d, 1961.
calkined kaolin. A claylike, mealy, white, grayish or reddish aluminum silicate, used in making porcelain. Crispin.
calkined refractory dolomite. Raw refractory
calcined refractory dolomite

dolomite that has been heated to a temperature sufficiently high and for a long enough time to decompose the carbonate structure and remove volatiles. Fay.
calcin. A furnace or kiln for roasting. Fay.
calcining. a. Roasting of ore in oxidizing atmosphere, usually to expel sulfur or carbon dioxide. If sulfur removal is carried to practical completion, the operation is termed, overroasting, dead roasting. Priy, 3. b. Reducing to powder by heating. Mercier, 4th, p. 294.
calcining furnace. A furnace in which ores or metallurgical products are calcined. Fay.
calcining of refractory materials. The heat treatment to which raw refractory materials are subjected, preparatory to further processing or use, for the purpose of eliminating volatile chemically combined constituents and producing volume changes. ASTM C177-64.
calcioferrite. A yellow-green calcium-iron hydrate, CaFe(SO)4·(OH)·H2O. The substance is partly replaced by calcium and iron oxides from the pegmatites of the Khibine Peninsula, northern Russia. Also called calcium-aluminum garnet. Fay.
calciocoplate. The calcium member of the copiapite family, CaFe(SO)4·(OH)·H2O. Mohs hardness, 2.5; specific gravity, 3.23; in scales (monoclinic) 7; or as nodules. Fay.
calciopropite. A bright brownish-yellow variety of ancyelite with the formula, (Sr, Ca)2Ca3(CO3)2(OH)·3H2O. The mineral is partly replaced by calcium and strontium carbonates; from the pegmatites of the Khibine Peninsula, northern Russia. Also called calciostrontianite. Fay.
calcicrete. A soft, white limestone, calcite, deposited by water as it passes through a calcareous soil. Fay.
calcite. A mineral having the composition, CaCO3; molecular weight, 100.09; boiling point, 1,339° C (at 1,025 atmospheres); decomposes at 989.6° C; and soluble in water, in acids, and in ammonium carbonate. Fay.
calcite bubble. A hollow sphere of calcite formed by the decomposition of calcite around a gas bubble. Schüblerdecker.
calculcite. A ledge of calcite projecting horizontally into a pool at its water level. Schüblerdecker.
calcite limestone. A limestone containing not more than 3 percent of magnesium carbonate. ASTM C119-56.
calcite marble. A crystalline variety of limestone containing not more than 5 percent of magnesium carbonate. ASTM C119-56.
calcite satin spar. See satin spar. Shipley.
calcite skin. A thin coating of calcite on clay walls, formed by ascending solutions. Schüblerdecker.
calcite dolomite. A carbonate rock composed of between 10 and 50 percent calcite and between 50 and 90 percent dolomite. A.G.I.
calcite. A rock composed of calcite, for example, limestone. A.G.I. Supp.
calcium. Silvery-white; rather soft; bivalent metallic element of the alkaline-earth group; quickly tarnishes in air; and when heated burns with a brilliant light. Used chiefly in alloys and in various metallurgical processes, especially as a carbonate (as in limestone), a sulfate, or a phosphate; in practically all natural waters; and in most rocks, soils, and plants as an essential constituent. Webster 3d Symbol, Ca; isometric; atomic number, 20; atomic weight, 40.08; L. calx, lime; G. Calcium, 1,339° C (at 1,025 atmospheres) ; decomposes at 989.6° C; and soluble in water, in acids, and in ammonium carbonate. Fay.
calcium carbonate; chalk; calcite; aragonite. a. Calcium carbonate; chalk; calcite; aragonite. Fay. b. Calcium carbonate (molecular weight, 100.09) crystallizes in two crystal systems: Hexagonal and rhombohedral. A.G.I.
calcium silicate. A rock composed of calcite, for example, limestone. A.G.I. Supp.
calcisilicate. A yellowish, or rarely pale gray, red, green, blue, or violet; specific gravity, 2.71 (at 18° C); Mohs' hardness, 3; melting point, 1,339° C (at 1,025 atmospheres); decomposes at 899.6° C; and soluble in water, in acids, and in ammonium carbonate. Fay.
calcium carbonates. Calcium carbonate (aragonite) is colorless, white, yellow, red, bluish, black, or brown; specific gravity, 2.930; ranging from 2.85 to 2.94; Mohs' hardness, 3.5 to 4.0; transforms to calcite at 450° C; decomposes at 2,025° C; and soluble in water, in acids, and in ammonium carbonate solution. Handbooks of Chemistry and Physics, 45th ed., 1964, pp. B-161, B-242. c. Source of quicklime and of calcium metal. Bureau of Mines Staff.
calcium carbonate, precipitated. See chalk, precipitated. CCD 6d, 1961.
calcium carbonate, prepared. See chalk, prepared. CCD 6d, 1961.
calcium chloride; anhydrous calcium chloride. A deliquescent salt; CaCl2. Obtained from brine wells, dry lake beds, and as a by-product for making soda ash and other chemicals. In the anhydrous state, it is a white powdery solid. Used as a drying and dehumidifying agent. In a more or less hydrated state, it is in solid, colorless flakes or in a water solution. Used for controlling dust; for melting snow and ice on roads; for freezing-proofing in freezing mixtures; in refrigeration brines; and in concrete as an accelerator or an aid in curing. Webster 3d. Molecular weight, 110.99; colorless; isometric; deliquescent; specific gravity, 2.15 (at 25° C, referred to water at 4° C); melting point, 772° C; boiling point, above 1,600° C; very soluble in water; and soluble in alcohol, in acetone, and in acetic acid. The common hydrates of calcium chloride are calcium chloride monohydrate (CaCl2·H2O); calcium chloride dihydrate (CaCl2·2H2O); and calcium chloride hexahydrate (CaCl2·6H2O). Handbooks of Chemistry and Physics, 45th ed., 1964, p. B-161. Anhydrous calcium chloride is the source of calcium metal produced by electrolysis having a melting point of 1011° C. A.G.I.
calcium chloride process. A method used to consolidate floor dust in mine roadways in which calcium chloride is used as a wetting agent. This wet calcium-chloride process is widely used in Europe. Roberts.
calcium-chloride process


1. calcium-chromium garnet. Same as uvarovite. Shipley.

2. calcium cyanamide. CaCN2; molecular weight, 80.10; colorless; hexagonal; hemihedral; and melting point, 1,190° C. Bennett 2d, 1962.

3. calcium cyanide. Colorless crystals or white powder; gray-black (technical grade); Ca(CN)2; or for gold plating and silver ores. CCD 6d, 1961.

4. calcium diammide. Ca-A2AlO3; melting point, 1,705° C; thermal expansion, 2.0 x 10^-6. Present in high-alumina cement but does not itself have cementing properties. Dodd.

5. calcium ferrite. In the binary system, two ferrites are formed—CaO-Fe2O3; and 2CaO-Fe2O3; the former more or less occurs in high-alumina cement. Dodd.

6. calcium fluoride; fluorite; fluorspar. CaF2; colorless crystals or white powder; deliquescent; 6H20; melting point, about 2,500° C; slightly soluble in water; and insoluble in acetone. The calcium fluoride (fluor spar) is colorless, often yellowish green, and violet, and rarely red. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-161, B-243. An important constituent of opal glass.

7. atom fluoride. CaF2; molecular weight, 78.08; isometric; specific gravity, 3.180, ranging from 3.071 to 3.263; Mohs' hardness, 4; melting point, 1,360° C; boiling point, about 2,500° C; slightly soluble in water and dissolves in ammonium salt solutions; and insoluble in acetone. The mineral fluorite (fluor spar) is colorless; often yellowish green, and violet, and rarely red. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-161, B-243. An important constituent of opal glass.

8. calcium molybdate. Colorless; tetragonal; CaMoO4; specific gravity, 4.38 to 4.53; and melting point, above 1,200° C. A mixed addition promotes good adhesion on certain enamels when used in conjunction with antimony oxide. Lee; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-161.

9. calcium monaluminate. CaO-Al2O3; melting point, 1,605° C. A principal constituent of high-alumina cement. Dodd.

10. calcium nitrate; lime nitrate; Ca(NO3)2; molecular weight, 164.08; colorless; deliquescent; 4H2O; melting point, 2,572° C; boiling point, 2,850° C; and specific gravity, 2.51. Bennett 2d, 1962; Handbook of Chemistry and Physics, 45th ed., 1964, pp. B-161. A useful material for signal charges.

11. calcium nitrate. White; crystalline; Ca(NO3)2; molecular weight, 60.04; crystalline; insoluble in water; and insoluble in ethyl alcohol and in ether. Lee; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-161.

12. calcium silicate. See calcium silicate. Dodd.

13. calcium sulfate; gypsum. CaSO4·2H2O; monoclinic; specific gravity, 2.70 to 2.72; melting point, about 1,600° C. Used for signal flares. Bennett 2d, 1962; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-162.

14. calcium phosphate. Ca3(PO4)2; molecular weight, 310.18; colorless; needle-like crystals; 4H2O; melting point, about 1,700° C. Bennett 2d, 1962; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-162.

15. calcium phosphate. White; colorless; needles; Ca3(PO4)2; melting point, 1,575° C; boiling point, 2,575° C; and specific gravity, 2.95 to 2.98. Mohs' hardness, 3 to 3.5; melting point, 1,550° C; slightly soluble in water; soluble in acids, in ammonium salt solutions, and in glycerol. The mineral anhydrite is colorless, white, gray, black, brown, or reddish. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-161. A useful material for signal charges.

16. calcium salt; acid calcium sulfate. Colorless; pearly; triclinic; scales or powder; in clear, pale yellow, or colorless; in air; Ca(H2O)2SO4·H2O. Used in glass manufacture. CCD 6d, 1961.

17. calcium salt; tribasic calcium orthosilicate; calcium orthosilicate; dicalcium silicate. 2CaO·SiO2; melting point, 1,210° C. Occurs abundantly in nature as quartz, hornblende, and in glass. Bennett 2d, 1962; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-162.

18. calcium salt; tribasic calcium sulfate. White; colorless; needles; Ca3(PO4)2·3H2O; melting point, about 1,600° C. Used in ceramics in porcelain, potteries, enamels, and in the manufacture of glass. Bennett 2d, 1962; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-162.

19. calcium salt; tribasic calcium sulfate. Oranges to brown; crystalline; CaSO4·H2O; and decomposed by hot water or carbon dioxide. Used in glass and as an oxidizing agent. CCD 6d, 1961.

20. calcium salt; potassium sulfate; kaleuzite; syngenite. CaK2(SO4)2; molecular weight, 280.28; specific gravity, 2.5; and insoluble in water. Used in the production of ceramics and in the manufacture of pigments. Bennett 2d, 1962; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-163.

21. calcium salt; calcium silicate. See calcium silicate. Dodd.

22. calcium salt; calcium oxalate; calcium orthosilicate; dicalcium silicate. 2CaO·SiO2; melting point, 1,750° C. Occurs in four crystalline forms: a, stable below 800° C; stable from about 800° C to 1,447° C; b, stable from 800° C to 1,447° C on heating; 1,447° C to 670° C; c, stable from 670° C to 1,200° C; y, stable below 800° C to 830° C. Material in which a considerable amount of 2CaO·SiO2 has been formed by high temperature treatments, falls to a powder—dusts—on cooling because of the inversion (accompanied by a 10 percent increase in volume) to the y-form at 520° C. The inversion can be prevented by the addition of a stabilizer, for example, B2O3 or P2O5. Calcium orthosilicate is a constituent of Portland Cement and may be found in dolo mite refractories. Dodd.

23. calcium salt; calcium oxalate; calcium nitrate; calcium orthophosphate; secondary calcium phosphate. White; tasteless; triclinic; CaHPO4·2H2O; and insoluble in water. Used in the manufacture of glass. CCD 6d, 1961.

24. calcium salt; calcium oxide; calcium phosphate; secondary calcium phosphate. White; tasteless; triclinic; CaHPO4·2H2O; and insoluble in water. Used in the manufacture of glass. CCD 6d, 1961.
calcium sulfo-aluminates. Two compounds exist: the high form, $\text{CaSO}_4\cdot\text{Al}_2\text{O}_3$, and the low form, $\text{CaSO}_4\cdot\text{Al}_2\text{O}_3\cdot\text{H}_2\text{O}$. Both forms may be produced by reaction between $\text{CaSO}_4\cdot\text{Al}_2\text{O}_3$ and gypsum during the hydration of Portland cement. The high form is also produced when cement and concrete are attacked by sulfate solutions. Dodd.

calcium titanate; calcium metatitanate; pe-roroskite. $\text{CaTiO}_3$; melting point, 1,725°C. Used in high-potassium bodies either alone or blended with barium titanate and other alkali-earth zirconates and/or stannates. Also used in conjunction with some barium-titanate lead titanate piezoelectric compositions. Lee; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-163.

calcium tungstate scheelite. $\text{CaWO}_4$; molecular weight, 287.99; colorless or white; tetragonal; and specific gravity, 3.60 (at 20°C). Bennett 2d, 1962; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-163.

calcium zirconate; calcium metazirconate. $\text{CaZrO}_3$; soluble in nitric and in other acids. Used as a chemical raw material. CDD 6d, 1961. Melting point, 2,550°C. Has high refractive characteristics; low firing shrinkage; and is stable under highly reducing conditions up to 1,750°C. Lee; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-163.

calci-silicate. White solid; $\text{CaZrSi}_3\text{O}_9$. Used in electrical resistor ceramics and as a glaze opacifier. CDD 6d, 1961.

calciate. Hydrated chloride and acetate of calcium, $\text{CaCl}_2\cdot\text{Ca(CH}_3\text{CO}_2)_2\cdot\text{H}_2\text{O}$, formed as a film on electrical insulators and other stones stored in wooden drawers. Named from the composition, $\text{Ca},\text{Cl},\text{Ac.}$ Spencer 19, M.M., 1949.

calci-limestone. Contains 50 or more percent of fragments of older limestone eroded from the land and redeposited. A.G.I. Supp.

calcocalcites. A mixture of malachite and calcite, and also, often, gypsum. An ornamental stone often sold as malachite. Skipley.


calcrete. Suggested by Lamplug for conglomerates formed by the cementation of surficial gravels by calcium carbonate. Calcrete was suggested by Bonney as preferential in surficial gravels by calcium carbonate.Where evaporation goes on steadily deposit of calcium carbonate (calc-tufa). Fay.


calc-tufa. Where evaporation goes on steadily at the surface while water is being brought up from below by capillary action, calcium carbonate may be found as a cement to the soil, or to the crumbling rock near the surface, and a solid, porous, or spongy deposit of calcium carbonate (calc-tufa) may arise by continued precipitation of calcium carbonate in solution from lower levels. A.G.I. Supp.

calciiform. Pebble-shaped. Webster 3d.

calculus. Branch of mathematics which deals with rates of change $\surd$ infinitesimal increments of coordinates. Corresponding change over finite increments. Pryor, 3.


calcedon. A very large basin-shaped volcanic depression, more or less circular or circular-like in form, the diameter is many times longer than that of the included volcanic vent or vents, no matter what the steepness of the walls or the floor. Another similar arrangement is the Callow cone. These, and others, are developed from split tuff.

caldera. a. A large basin-shaped volcanic depression, more or less circular or circular-like in form, the diameter is many times longer than that of the included volcanic vent or vents, no matter what the steepness of the walls or the floor may be. There are three major types according to origin: Explosion caldera, collapse caldera, and tronon caldera. A.G.I. b. A very large crater produced by a violent explosion. Webster 3d.

calderon. A volcanic gas bubble containing the manganous-ferric molecule, $3\text{MnO}_2\cdot\text{FeO}\cdot\text{SiO}_2$. From Nagpur, India. English.

calodon. a. A soil mass with a 3-square-inch core of material differing from standard, especially as to ascertainment of the California bearing ratio. The ratio of the floor of the included volcanic vent or vents, no matter what the steepness of the walls or the floor may be. There are three major types according to origin: Explosion caldera, collapse caldera, and tronon caldera. A.G.I. b. A very large crater produced by a violent explosion. Webster 3d.

calderon bottom. a. Mud-filled prostrate trunk of a sigillaria in the roof of certain coal seams. The trunk is a separate mass of rock, with a film of coal around it. It is liable to collapse without any warning sound. Also called Horshack. See also pot; e; bell sord; caldon. Nelson, b. Eng. A cone-shaped mass with slippery surfaces found in the roof of some seams. It sometimes comprises a ring of coal around a core of material differing slightly from the original roof. Also called pot hole; kettle bottom. SMRB, Paper No. 61.

caldron process. Recovery of silver, in which a slurry of the ore in a copper vessel is saturated with salt, Bennett 2d, 1962.

caldrone substantia. The sinking part of the roof of an intrusion within a closed depression. More or less circular, elliptical, or oval in plan. Schieferdecker.

calodon. A cone-shaped mass with slippery surfaces found in the roof of some seams. It sometimes comprises a ring of coal around a core of material differing slightly from the original roof. Also called pot hole; kettle bottom. SMRB, Paper No. 61.

calido. A soil mass with a 3-square-inch core of material differing from standard, especially as to ascertainment of the California bearing ratio. The ratio of the floor of the included volcanic vent or vents, no matter what the steepness of the walls or the floor may be. There are three major types according to origin: Explosion caldera, collapse caldera, and tronon caldera. A.G.I. b. A very large crater produced by a violent explosion. Webster 3d.

calcochrome. See split block. Skaw.

calcalch. Mex. Second-class silver ore carrying 150 to 1,000 ounces per ton. At Fachuca, Hidalgo, the best or first-class ore separated in the mine, the second-class being known as azogues. Fay.


calculated block. A local name for a Triassic conglomerate from Frederick County, Md., under the column of the Old Chamber of Representatives in the Capitol at Washington, D.C. Fay.

calci-nites. Mex. Silver ores, generally colorados, with some iron sulfate, the result of weathering. Hey.

calci-ferric. Synonym for calcium. "Calciferous" is sometimes used instead of "calcic." Calif.

calci-siderite. Limestone deposited from springs and hot springs with dissolved calcium carbonate; travertine. Also called calcareous tufa. Fay.


caledonides. A mountain system raised during the late Silurian to the early Devonian time, particularly in Scandinavia and in Scotland. A.G.I. Supp.

calceinate. A green basic sulfate of lead and copper of uncertain composition. Sanford.


calcerr. A smaller version of the bulldozer. Ham.

calf line. A wire rope or cable wound on the calf wheel of a churn or rotary-drill machine and used in handling casing. Also called casing line. See also calf wheel.

calf wheel. A churn-drill winch used for handling casing and for odd jobs. Also called casing reel. Nichols.

calf wheel, a. A short hoisting drum with a large-diameter driving sprocket, used to wind up the casing line or cable line which is multiple-reved over the sprocket. The crown and traveling blocks by means of which casing and/or drill pipe is handled. Long. b. A reel used in rope drilling to accommodate the rope by which the casing is raised or lowered. B.S. 3618; ASCE P1826.

caliber. The inside diameter or bore of a tube, pipe, or cylinder. Long.

calibar. a. To ascertain the caliber of, as a thermometer tube. Webster 3d. b. To determine or to mark the capacity or the graduations of, or to rectify the graduations of, a graduated measuring instrument. Webster 3d. c. To standardize, as a measuring instrument, by determining the deviation from standard, especially as to ascertain the proper correction factors. Webster 3d.

calibrated block. See split block. Skaw.

calch. Mex. Second-class silver ore carrying 150 to 1,000 ounces per ton. At Fachuca, Hidalgo, the best or first-class ore separated in the mine, the second-class being known as azogues. Fay.

calculator. A. In the southwestern United States, gravel, sand, or desert debris cemented by porous calcium carbonate; also, the calcium carbonate itself. Fay. b. Surface or near-surface deposits of soluble salts precipitated by evaporation. Bateman. c. Natural Chilian salt peters. Bennett 2d, 1962.

calco marble. A local name for a Triassic conglomerate from Frederick County, Md., under the column of the Old Chamber of Representatives in the Capitol at Washington, D.C. Fay.

calci-siderite. Limestone deposited from springs and hot springs with dissolved calcium carbonate; travertine. Also called calcareous tufa. Fay.
Californian cat’s-eye. Shipley.


California moonstone. White or whitish chalk from California. Shipley.

California morganite. Morganite from California; some of fine color but more often a salmon pink color. Shipley.


California samplers. A drive sampler equipped with a wooden box through which an endless belt with floats is operated; used for pumping out of turn, irregularly, so that each miner

california sampler. A drive sampler equipped with a piston that can be retracted mechanically to any desired point within the barrel of the sampler. Long.

california tiger-eye. Same as California cat’s-eye. Shipley.

California topaz. Topaz from California. Bureau of Reclamation.


California-type dredge. A single-lift dredge consisting of a graduated beam to measure the diameter of logs and trees. Webster 3d. d. A device for measuring the dimensions of an object, usually with movable plates or contact points, but occasionally with fixed points or contact points, but occasionally with fixed points or contact points, but occasionally with fixed points or contact points.

caliper brakes. Brakes in which two brake-shoes are curved to the brake pad and anchored near the centerline of the drum. This gives an increased arc of contact but does not increase uniformity of pressure. This causes the brake linings to wear unevenly. Sinclair, V., p. 197.

caliper diameter. The distance measured across the bottoms of two opposite tooth gaps on a roller chain sprocket having an even number of teeth, and measured between one tooth gap and the nearest opposite gap for a sprocket with an odd number of teeth. ASM.

caliper log. Continuous record of the variations in mean diameter or in cross-sectional area of a bore with depth. Institute of Petroleum, 1960.

calist. Eng. Hard sand intermixed with gravel, which will stand without lining tube during boring operations, until washed from below rises up, which will cause it to fall away. Arkell.


calk. a. To drive tarred oakum into the seams between planks and fill with pitch. Fay. b. A tapered wedge or cone-shaped piece of iron or steel projecting downward from the shoe of a draft animal to prevent slipping of the collar. Long. c. To peen and draw metal toward and around a joint or beam being hand-set in a malleable-steel bit blank. Also called peen. Long. c. To wick. Long. c. A tapering of the lock end of a barrel. Long. d. A tapered bit blank. Also called peen. Long. e. To drive or withdraw at low pressure, through a porous septum the material so treated by calorizing. Hess.


california sampler. A drive sampler equipped with a piston that can be retracted mechanically to any desired point within the barrel of the sampler. Long.

california tiger-eye. Same as California cat’s-eye. Shipley.

California topaz. Topaz from the Mesa Grande and Ramona districts of southern California. Usually pale blue to almost colorless, but occasionally as fine in color as any blue topaz. Shipley.


Callan's rule. A rule stating that when a pillar has to be left in an inclined seam for the support of a shaft or of a surface structure, a greater width should be left on the rise side of the shaft or structure than on the dip side. Briggs, p. 76.

Callow flotation cell. An early form of pneumatic flotation cell, still in limited use. Air is blown in at the bottom of the tank at low pressure, through a porous septum such as a blanket, and mineralized froth overflows along the sides while the tailings progress to the discharge end. Pryor, 3.

Callow process. A flotation process embodying the usual principles but in which agitation is secured by air forced into the pulp through the canvas-covered bottom of the cell. Fay.

Callow. a. A name given to a thick coal seam. Temkefie, 1584.

Callow screen. A continuous belt formed of fine wire mesh travels horizontally between two drums. Pulp is fed from above and flows through together with the finer solids, while coarser material is discharged between the same drums. Pryor, 3.

Callow flotation cell. An early form of pneumatic flotation cell, still in limited use. Air is blown in at the bottom of the tank at low pressure, through a porous septum such as a blanket, and mineralized froth overflows along the sides while the tailings progress to the discharge end. Pryor, 3.

Callows. Corn. See Killas, a. Fay.


calmstone; caustonstone. Scot. Argillaceous limestone or white clay used for whitening houses. Fay.

calcar. A white earth or clay. Fay.

calcomel. A mineral, [HgCl2] colorless,
white, grayish- and yellowish-white, yellowish-gray to ash-gray, brown color. Occurs as a secondary mineral, and originally found at Montschalhem, Bavaria, Germany. Also, for calomel; calomel; horn quicksilver; mercurial horn ore. Dana 7, 2, pp. 26-27; Hey 2d, 1955; A.G.I.
calomel electrode. Half-cell used to measure e.m.f. of a fuel is completely burned. Newton, p. 128.
calorific value. See gross calorific value; net calorific value. A.G.I.
calorimeter. Any apparatus for measuring the quantity of heat generated in a body or substance by observing the quantity of a solid liquefied or of a liquid vaporized under given conditions. Used in determining specific heat; latent heat; the heat of chemical combinations; etc. Standard, 1964.
calorific value. See gross calorific value; net calorific value. A.G.I.
calorimeter. Any apparatus for measuring the quantity of heat generated in a body or substance by observing the quantity of a solid liquefied or of a liquid vaporized under given conditions. Used in determining specific heat; latent heat; the heat of chemical combinations; etc. Standard, 1964.
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calorimetry. The phenomenon of glowing when a substance is stimulated by the heat rays which lie beyond the red end of the visible spectrum. Same as thermoluminescence. Hey 2d.
cam. a. A rotating piece, either noncircular or eccentric, used to convert rotary motion into reciprocating motion, often of irregular outline, and giving motion that is irregular in direction, rate, or time. Standard, 1964. In stamp mills, the cam projects below a trussed beam. Ham.
cambridge. A miner's term sometimes applied to such structures as bels, pots, kettle bottoms, or other rock masses that tend to fall easily from the mine roof. See also tortoise. A.G.I.
cambridge. A layered stone (onyx, agate, opal, etc.) or shell carved in relief to show the design in a layer of one color or colors and the background in another color or colors. Hey.
cameo. Fine pottery with figures in relief of a different color from the ground as Wedgwood ware and Jasper ware. Standard, 1964.
camouflet. A cavity formed in a borehole by the detonation of an explosive charge placed in the borehole. Also called chamber. A.G.I. 1. A charge of shot or shaped charge en- larged by chambering. Nelson. c. In military mining, an explosive charge designed to shatter adjacent ground without disturbing the surface. Pryor, 3. d. In civil mining, a small explosive charge designed to enlarge an excavation, to spring or chamber out a hole so that a bigger explosive load can then be charged. Pryor, 3.
campaign. a. The working life of a tank or other melting unit between major cold repairs. ASTM G162-66. b. The period during which a furnace is continuously in operation. Fay.
campasian. Upper Middle Senonian. A.G.I.
campasite. A sodic-potassic variety of leucite tephrite sometimes containing crystals of leucite; from Monte Somma, Italy. Holmes, 1928.
campa marble. A pale, yellowish-green marble mottled with white. A dark green variety of marble containing red blotches is known as canaman rouge. A.G.I.
campbell process. A method of rotary drilling for steel manufacture in which ore and pig reverts to the greatest deviation of side edge from a straight line. A.G.I. c. Sometimes used to denote crown rolls where the center of the roll has been in- creased to compensate for deflection caused by the rolling pressure. A.G.I. d. A vertical or convex curling barrel. Hey 2d.
canal. d. Outward lean from a straight line. Fay.
iron are used as raw materials in a tilting furnace. *Bennett 24, 1962.*

camper. Scot. Coal slightly camed. From the manufacture of explosives; cellular; and disinfectants. *Crispin.*
camshaft. A variety of white translucent jadeite resembling crystallized camphor in appearance. *Shipley.*
can press. A mechanical press in which one or more of the slides are operated by cams; usually a double-action press in which the blank-holder slide is operated by cams through which the dwell is obtained. *ASM, 417.*
camp sheathing. A retaining wall to support a river bank, formed by timber piles and wattlings, the piles being 6 to 10 feet apart. *Ham.*
camp sheathing. A sheathing used in foundation work to hold back gravelly soils or sand. *Ham.*
campstone. A lanugrophyre containing pyroxene, hornblende, and olivine as dark constituents, and labradorite as the light constituent; Sodic orthoerz may be present also. *A.G.I.*
cam shaft. In stamp mill, a horizontal shaft on which rotate the canes which lift the five individual stamps in a battery. *Pryor, 3.*
camshaft bearings. The bearings that support the camshaft in the engine block. *Shell Oil Co.*
cam stone. In stamp battery crushing, a square-sectioned wooden stick greased on underside and leather-lined above, inserted between canes and hoppet as a surface to facilitate jacking-up on finger bar. *Pryor, 3.*
can. a. A term used in the manufacture of explosives; cellular; and disinfectants. *Crispin.*
candelite. A nepheline syenite containing albite, or a sodic plagioclase, as the principal feldspar and abundant mafic minerals which contain lime and alumina, that is, normative anorthite; the rock is intermediate between a laths-pyroxene syenite and shonkinite. *Holmes, 1928.*
canary. a. Sometimes used by rescue teams to give early indication of the presence of carbon monoxide in mine air. At least three birds should be taken by exploring parties and the distress of any one bird is taken as an indication of carbon monoxide danger. A small cylinder of oxygen may be carried for the resuscitation of an affected bird. A good type of carbon monoxide detector is the most convenient and reliable indicator. *See also F.S. detector tube. Nelson, b. Yellow diamond. *Schaller.*
canary ore. A yellow, earthy argentiferous lead ore, generally pyromorphite, bismuthinite, or massicot, more or less impure. *Fay.*
canary stone. A somewhat rare yellow variety of cannel coal. *Fay.*
canfieldite. A hexagonal mineral, [(NaCa)6(AlSiO4)3(OH)2] = AISiO4·2H2O occurring in nepheline syenites. *A.G.I.*
cand. Corn. Fluorapatite, or fluorite occurring as a veinstone; called by the Derbyshire joiners, blue John. Also spelled calcite. *Pryor, Fay.*
can- and-white. A term used for areas in which one quality fire clay is encountered, but with a white engobe in the inner surface. See also ripping face. *Dodd.*
candela, Candelina, (pleonaste) the iron-magnesium spinel, (Mg,Fe)2(Al,Fe)2O4. *Ch. Dana 6d, p. 226.*
canale. The unit of light intensity defined as the light given out in a horizontal direction by the flame of a sperm candle weighing one-twelfth of a pound and burning at the rate of 120 grains per hour. *Mason, v. 1, 244.* b. See ceramic filter. *Dodd.*
candela-foot. A unit of illumination. The light given by a British standard candle at a distance of 1 foot. *Crispin.*
candent. A luminescing power of a standard sperm candle. Used as a measure for other illuminants. *Crispin.* b. The British standard candle is defined as a sperm candle, that burns at the rate of 120 grains of sperm per hour. *Fay.* c. The Heimer's candle now used in the United States as a standard is about 0.88 part of the British standard. *Hey, d.* The luminous flux emitted by a source of light per unit solid angle in a given direction. It is expressed in terms of the international candle and new candle. *C.T.D.*
candela quartz. A faced quartz crystal having a long prismatic and often tapering shape. *AM, 1.*
candeus. A dirty, yellowish-white variety of peat which has the consistency of soap, and when dried is very flammable and burns with a clear, bright, steady flame. Also called gas turf. *Tomkief, 1954.*
cane marble. Local name for one of the low quality clay-flints associated with the Bassey Mine, Littlebow and Peace River coals seams of North Staffordshire, England. *Dodd.*
camstone. Eighteenth century English stone ware of a light brown color; it was a considerable advance on the coarse pottery that preceded it but, for use as tableware, camstone was soon replaced by white earthenware. During the 19th and the earlier part of the present century, however, camstone continued to be made in the Burslem, Barlaston and the Burton-On-Trent area as kitchenware and sanitary ware; it has a fine textured cane-colored body with a white engobe on the inner surface, often referred to as cane-and-white. *Dodd.*
canfieldite. a. This name was first given to an isometric silver sulphogermanate, believed
cannel coal. a. This is an old term for a coal burning with a steady luminous flame. The sapropelic origin of cannel coal was recognized at the beginning of the present century. The term is now used for sapropelic coal containing spores, in contrast to sapropelic coal containing algae, which is termed algal coal. Viewed microscopically, cannel coal shows no stratification. It is generally dull and has a more or less pronounced waxy luster. It is very compact and fractures conchoidally. There are transitions between cannel coal and boghead coal, and it is not possible always to distinguish macroscopically between cannel coal and boghead coal. Such a distinction can, however, be easily made with a microscope except in high rank coals. In American nomenclature, cannel coal must contain less than 5 percent anthracite. Cannel coal occurs in layers or lenses up to several centimeters in thickness. These seams consisting entirely of cannel coal are known. It occurs widely but in limited amounts. Synonym for gayet; analogouls term is parrot coal. See also sapropelic coal; boghead coal. IHCP, 1963, part 1. b. A variety of bituminous or subbituminous coal of uniform and compact fine-grained texture. See also general absence of banded structure. It is dark gray to black in color, has a greasy luster, and is noticeably of conchoidal or shellflake fracture. It is noncaking, yields a high percentage of volatile matter, ignites easily, and burns with a luminous smoky flame. ASTM D4739-39.
cannel shale: cannel slate. a. A shale in which the mineral and the organic matter are approximately equal proportions. Tomkeieff, 1954. b. A black shale formed by the accumulation of sapropel accompanied by the presence of inorganic material, chiefly clay and silt. A.G.I.
canns marble. Same as grotto marble, a reddish brown marble formed by fossil shells (gastropods). Hess.
cannaling. a. A diapered distortion in a flat or nearly flat surface, sometimes referred to as oil capsule. ASTM Gloss. b. Enclosing a highly reactive metal within one relatively inert for the purpose of heating without undue oxidation of the active metal. ASTM Gloss.
cannalisarina. A lead, bismuth sulfosalts; monoclinic crystals as thin lead plates; from Vulcano, Lipari Island, Italy. American Mineralogist, v. 38, No. 5-6, May-June 1953, p. 536.
cannock. S. Staff. A ferruginous nodule occurring in a fire clay; the name derives from the town of Cannock in that area. Dodd.
cannonsball mill. A mill for grinding tough materials by attrition with cannonballs in a rotating drum or chamber. See also ball mill. Fay.
cannonball. See blown-out shot. Fay. cannonball-grape shot. Eng. Quaternary boulder gravel in Nebraska, so named on account of the size and roundness of the cobbles, which the mineral and the organic matter are approximately equal proportions. Tomkeieff, 1954. b. A black shale formed by the accumulation of sapropel accompanied by the presence of inorganic material, chiefly clay and silt. A.G.I.
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cannalisarina. A lead, bismuth sulfosalts; monoclinic crystals as thin lead plates; from Vulcano, Lipari Island, Italy. American Mineralogist, v. 38, No. 5-6, May-June 1953, p. 536.
cannock. S. Staff. A ferruginous nodule occurring in a fire clay; the name derives from the town of Cannock in that area. Dodd.
cannonsball mill. A mill for grinding tough materials by attrition with cannonballs in a rotating drum or chamber. See also ball mill. Fay.
cannonball. See blown-out shot. Fay. cannonball-grape shot. Eng. Quaternary boulder gravel in Nebraska, so named on account of the size and roundness of the cobbles, which the mineral and the organic matter are approximately equal proportions. Tomkeieff, 1954. b. A black shale formed by the accumulation of sapropel accompanied by the presence of inorganic material, chiefly clay and silt. A.G.I.
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canvases

distributed across the upper margin. As it flows down, the concentrates settle in the corrugations of the canvas. After the mesh is filled, the remaining quartz is washed off with clear water, and finally the concentrates are removed (by hose or brooms). *Liddat 2d*, p. 386.


canvas. a. A precipitous valley; a gorge. Also spelled covey. *Fay.* b. A mine-level drift or gallery. C. De guia, a drift along the vein. *Fay.* c. A deep valley with steep sides located as a part of the ocean floor. The deep floors of ocean canyons contain sand and deep-sea mud. The Hudson Canyon is an example. It cuts the continental shelf to a depth almost as great as that of the Grand Canyon in southwest Arizona. *MacCracken.*

casiol flint. A form of cryptocrystalline silica occurring at Ulyon, Loocey Cork, Eire. It has a specific gravity of 2.26 and is readily ground, without the need for calcination, in lustrous bodies. *Bedd.*

cap. 1. A piece of plank or timber placed on top of a prop, stull, or post. *Long.* b. A flat piece of wood inserted between the top of a prop, stull, or post. *Hudson.* c. The horizontal member of a set of timber used as a roadway support. *Nelson.* d. A top piece in a three-piece timber set used for tunnel support. *Nichols.* e. The blue halo of ignited fire damp which shows about the yellow flame of a safety lamp when in air containing small quantities of fire damp. The percentage of fire damp can be roughly measured by the height of the cap. Also called gas cap. *Fay.* f. A detonator or blasting cap. *Nelson.* g. The top of a saddle reef; sometimes used synonymously with gossan to describe an outcrop. *Nelson.* h. Decomposed vein-stuff at the outcrop or lode. *Gorden.* i. S. Fr. A mine when the vein matter is barren or when the vein is pinched, or contracted, is called a *Nelson.* j. For the purpose of excavating and thereby provide voltage improvement. *Kentucky,* pp. 261-262. b. An adjustable electric appliance used in circuit with a motor to adjust the power factor. Also called capacitor. *Fay.*

capacity. a. As applied to diamond and rotary drills, the load that the hoisting and braking mechanism of a drill is capable of handling. b. The current in a capacitive circuit is less affected by changes in voltage than that in an inductive circuit. Therefore, should there be a sudden drop in mains voltage, the capacitively controlled lamp is less likely to be extinguished than the inductively controlled lamp. *Roberts,* II, p. 197.

capacitor. a. Electrical appliance working on the condenser principle. Two conducting plates are separated by an insulating layer. When alternating current is applied the capacitor is adjusted so that its leading current balance the lag of the circuit giving a high-power factor. *Fryor.* b. The principal use for capacitors in mines has been in improving the average power factor of the mine system in order to qualify for a favorable power rate. The selection of a suitable capacitor is made by dividing the number of reactive kilovolt-ampere hours registered by the number of hours (730) in the average month. The selected capacitor is then connected on the high-voltage lines, usually paralleling transformers to provide a charge path. Occasionally capacitors will be used at individual motors, usually converter motors, to relieve the transformer of excessive amperes and thereby provide voltage improvement. *Kentucky,* pp. 261-262. b. An adjustable electric appliance used in circuit with a motor to adjust the power factor. Also called capacitor. *Fryor.*

cap crimper. A plierslike tool for pressing the wire ends of a blasting cap into the primer. *Nelson.*

cap crimper. a. A diamond having a yellowish tinge. *Schaller.* b. A point or extension of land jutting out into the sea, either in the form of a peninsula or projecting point on a coast. *Schimmel.*

cape blue. Crocidolite asbestos found near Prieska, Republic of South Africa. *Fay.*


cape diamond. One with yellowish tinge. *Fryor.*

cape garnet. A bright red-yellow almandite (garnet). *Schaller.*

capel. a. Corn. A rock containing quartz, schorl, and hornblende. *See also capel.* b. A wall of a lode; so called by Cornwall miners, and probably when the country rock adjacent to the lode itself has been more or less altered by the same mineralizing agencies through which the lode was formed. Also called cab. In the United States, casing is sometimes used synonymously. *Fay.* c. A steel socket used to cap a steel rope. For a hoisting cage, molten white metal is poured in around the wires. *Cape May diam. A colorless and dear Cape diamod. One with yellowish tinge. *Schaller.*

cap factor. a. Introduced by Vaughan, and is the ratio between the breaking strength of a winding rope and the load suspended on it. (Excluding the weight of the rope itself.) He stated that this capacity factor should be 12 for all depths down to about 5,000 feet. See also factor of safety, *Nelson.* b. A method of assessing the size of the rope. The capacity factor of the rope is the static factor of safety of the rope at the time it is being tensioned. *Sinclair,* V, p. 13.


capacity limitation. The ability of a mine to store heat, as a measure of the mass, density, and cgs. *AGS.*

capacity load. The maximum load which can be carried safely. *Crispin.*

capacity of air compressor. The actual amount of air compressed and delivered, expressed in cubic feet per minute, at the suction and at the pressure of dry air at the suction. The capacity of an air compressor should be expressed in cubic feet per minute. *Fay.*

capacity of car or tub. Cubic yard of solid rock per car or tub. *Fay.*

capacity of the market. As applied to mining, the ability of the market to buy, especially with regard to the quantity which can be placed in the market, and to the prices which can be obtained. *Steeles,*v. 1, p. 66.

capacity of the wind. The total amount of retent material of a given kind that can be sustained (per unit volume of air) by a wind of a given velocity. The greater the velocity of the wind, the wind transports more material than water, although water at the same speed of flow is capable of carrying much larger particles. During a dust storm, the wind may carry from 160 short tons up to 126,000 short tons per cubic mile of air. *A.G.I.*

cap board. Same as cap. *Fay.*

cap crimper. A plierslike tool for pressing the wire ends of a blasting cap into the primer. *Fay.*


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capacity limitation. The ability of a mine to store heat, as a measure of the mass, density, and cgs. *AGS.*

capacity load. The maximum load which can
capillarity. a. The quality or state of being capillary. Webster 3d. b. The action by which the surface of a liquid is elevated at the point at which it is in contact with a solid (as in a lamp wick). Skill Oil Co. b. Resembling a hair; especially, having a very small or thin bore usually permitting capillary. Webster 3d. c. A mineral exhibiting a fine hairlike structure, for example, mellite. Nelson.
capillary action. The rise or movement of water in the interstices of a soil or a rock, as the result of capillary forces. ASCE P1826.
capillary attraction. The combination force, adhesion and cohesion, which causes liquid to rise or to flow from very closely spaced solid surfaces even against gravity. ASM Glass.
capillary fringe zone. The zone above the free-water elevation in which water is held by capillary action. ASCE P1826.
capillary migration; capillary flow. The movement of water by capillary action. ASCE P1826.
capillary red oxide of copper. A common name for chalcotrichite, a form of cuprite. Weed, 1918.
capillary height of capillary rise. The height above a free-water elevation to which water will rise by capillary action. ASCE P1826.
capillary tube. A tube with so fine a bore that the rise or fall of a liquid in it by capillary attraction is perceptible to the eye. Standard, 1964.
capillary water. a. Water held above the water table in soil by capillary force. Seeley; Seelye; Seelye. b. Water that has been subjected to the influence of capillary action. ASCE P1826.
capillary waves. Waves less than 1.73 centimeter in length, having rounded crests and V-shaped troughs whose characteristic wavelength is governed primarily by the forces of surface tension. It is believed that these waves increase friction between wind and the sea surface and contribute more to sea clutter on radar than other waves. Hy.
cap light, dry cell. A self-contained light which permits free use of the hands and may be carried in a purse or explosive atmosphere. The headlamp, with focusing lens and bulb, is strapped to the head or hat, and the dry cell battery unit can be clipped on. In case of explosive ventilation, the headlamp-ejects the bulb automatically in case of breakage. Bureau of Mines Bulletin 692. See also dry cell light, wet cell light. For illumination only. Nelson.
cap lamp. That term generally applied to the lamp which a miner wears on his headlight. The headlamp-ejects the bulb automatically in case of breakage. Bureau of Mines Bulletin 692. See also dry cell light, wet cell light. For illumination only. Nelson.
cap mattress. A mine captain; de patio, a surface box. Fay.
cap sesquioxide. Basaltic white limestone in the Guadalupe Mountains. It extends into the eastern Gallo Mountains and includes the Teseey, Gilliam, and Vidrio deposits; however, the U. S. Geological Survey considers Teseey limestone as a distinct formation. Found in New Mexico and Texas. Hess.
cap lamps. That term generally applied to the lamp which a miner wears on his safety hat or cap. For illumination only. B.C.I. See also miner's electric cap lamp.
cap. Corn. A hard rock lining tin lodes. See also cap.
cap light, dry cell. A self-contained light which permits free use of the hands and may be carried in a purse or explosive atmosphere. The headlamp, with focusing lens and bulb, is strapped to the head or hat, and the dry cell battery unit can be clipped on. In case of explosive ventilation, the headlamp-ejects the bulb automatically in case of breakage. Bureau of Mines Bulletin 692. See also dry cell light, wet cell light. For illumination only. Nelson.
cap, electric. The miner's electric cap lamp. ASCE P1826.
cap or detonator crimped on before it is taken to the place of use. Nelson. See also plain detonator.
capped fuse. A length of very closely spaced solid fuse with the cap or detonator crimped on before it is taken to the place of use. Nelson. See also plain detonator.
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capped guratz. A variety of quartz containing thin layers of clay. Fay.
capped steel. Semikilled steel cast in a bottle-top mold and covered with a cap fitting into the neck of the mold. The cap causes the metal to solidify. Pressure is built up in the sealed-in molten metal and results in a surface condition much like that of rimmed steel. Fay.
capping. A fitting at the end of the winding rope to enable the bridle chains of a cage to be connected by a pin through the clevis. In Great Britain, satisfactory results have been obtained from white metal and wedge-type cappings. Normally, wedge capping are manufactured either in 1.5 percent manganese steel to B.S. 2772, Pt. 2, 1936, or in 26/32 tons tensile mild steel and are tested to a proof load of 250 percent of the static load for which they are required. See also O.H.I., white metal capping. Fay.
cappelle. A very rare, very weakly radioactive, greenish-brown, hexagonal mineral, [Fe,Al]SiO3; found in marble, slate, and slate-tile. Fay.
capillaire. A mine captain; de patio, a surface box. Fay.
cap light, dry cell. A self-contained light which permits free use of the hands and may be carried in a purse or explosive atmosphere. The headlamp, with focusing lens and bulb, is strapped to the head or hat, and the dry cell battery unit can be clipped on. In case of explosive ventilation, the headlamp-ejects the bulb automatically in case of breakage. Bureau of Mines Bulletin 692. See also dry cell light, wet cell light. For illumination only. Nelson.
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capping

capping. A special room or building used solely for the preparation of capper fuses. Nelson.
capping. A term used in square-set cap seat. The ledge inside the capstan. a. A poollike drum mounted on a vertical exis used for heave hoisting or for vertical exis used for hoisting the ore. Fay.
captain dresser. Eng. A manager of an ore-sealing or covering a borehole and/or the swivel to the end of a hoisting rope. Captain.
captive bar. Sometimes used as a synonym for cathead. Lots./
captive. A vehicle for use on a railroad, usually mounted on trucks, and often provided with mechanism for coupling, so as to form part of a train. Standard, 1964. b. A vehicle moving on wheels. Webster 3d. c. A wheeled vehicle used for the conveyance of coal or ore along the tanges or haulage roads of a mine. Zern. Also called mine car; tramcar; tub; wagon; mine wagon. Fay. d. A wheeled carrier that receives and loads the load to be conveyed. Generally attached to chain, belt, cable, linkage, or other propelling medium. See also tray. ASA M8A-1938.
captive car. a. Fay. Eng. The cap receives and supports the load to he conveyed.
captive. A lamp that is charged with acetylene. A waste lime hydrate byproduct of coke production. d. Also called carbide slag.
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carbide miner

a recovery of 65 to 75 percent of the coal within the reach of the machine. This unit is a continuous miner working from a control stand outside of the seam of coal. The operator can control both its vertical and horizontal direction of the cutting heads as shown on an oscilloscope screen. As the cutting head advances into the coal seam, it drags a series of conveyer sections behind it, which in turn deposit the coal into a truck on the outside of the coal seam. Krumlauf, p. 8.

carbide of silicon. An artificial abrasive made by fusing coke, sand, salt, and sawdust in electric furnaces. Discovered in an attempt to make artificial diamonds. See also Carborundum. Fay.
carbides. Compounds of carbon with iron and other elements in steel. A variety of hydrocarbons contain carbides. A carbonate of calcium, strontium, and barium is carborundum. A form of dynamite in which trinitrotoluene's are dispersed. A variety of hydrocarbon containing carbides. Carbonate of calcium, strontium, and barium in a form of structureless jelly. Synonym for fundamental jelly; fundamental substance; geélose; jelly; vegetable jelly. Tomkiewicz, 1954 b. Same as ultimus. A.G.I.
carbonylhydrazine. A name applied to the group of neutral compounds composed of carbon, hydrogen, and oxygen including the sugars, starches dextrins, celluloses, and pentosans, some of which are formed by all green plants and used immediately for growth or stored for future use and which as a whole constitute a major class of animal foods characterized chemically by hydroxyaldehydes or ketones and classified into monosaccharides, disaccharides, trisaccharides, and polysaccharides on the basis of the number of aldehyde or ketone groups present in one molecule. Webster 3d.
carboid. A name applied to the group of pyrobituminous insoluble in carbon disulfide. To. Teg. 1954.
carbolic. a. Of, pertaining to, or derived from carbon and oil; or of pertaining to coal-tar oil. Standard, 1964. b. Of or pertaining to carbolic acid. Hass.
carbolic acid. White; crystalline; deliquescent; G.C.H.2.8.2.0. Primary alcohol of the formula R.CILOH. Pryor, 3.
carboline. a. Of, pertaining to, or derived from carbon and oil; or pertaining to coal-tar oil. Standard, 1964. b. Of or pertaining to carbolic acid. Hass.
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carbonated spring

the water, it effervesces like soda water.

Fay.

carbonated stone. An artificial stone in the manufacture of which steam and carbon dioxide are used to hasten hardening.


carbon dots. Hardness in a water caused by bicarbonates and carbonates of calcium and magnesium. ASTM STP No. 140-D.

carbonate leach. a. Metallurgical process for dissolution of uranium values by means of a sodium carbonate solution. Used on Toldito limestone and other highlime ores. Ballard. b. Dissolution of uranium with an aqueous solution of sodium carbonate in the presence of sufficient oxygen to render uranium hexavalent and satisfy the equation: 

\[ 2 \text{UO}_2\text{CO}_3 + 3 \text{H}_2\text{O} \rightarrow \text{UO}_3 + \text{CO}_2 + 4 \text{H}_2\text{O} \]

Pryor, 3.

carbonate mineral. A mineral formed by the combination of the carbonate ion (CO₃⁻) and a positive ion. Common example: calcite, CaCO₃. See also calcite, Fay.

carbonate of barium. See witherite. Fay.


carbonate rock. See limestone. Fay.

carbonation. a. The process of introducing carbon dioxide into a fluid. A.G.I. 1816; Supp. 3.

carbonate process. A process of chemical weathering by which minerals that contain lime, soda, potash, or other basic oxides are converted to carbonates by the action of carbonic acid in water or air. A.G.I. Supp.

carbon brick. Brick usually made of graphite and one or more ceramic materials such as fire clay and silicon carbide. H.W.

carbon deposition. The deposition of amorphous carbon, resulting from the decom- position of organic substances and gases into carbon dioxide and carbon within a critical temperature range. When deposited within the pores of a refractory material, this carbon may build up such pressure that it destroys the bond and causes the brick to distend. Fay.

carbon dioxide. Carbonic acid; gas; dry ice. a. Heavy, colorless; inflammable; odorless; water-soluble; tastes bitter and pungent; acts as a nerve irritant and as a solvent for fats. It is formed in mine explosions and in mine fires and forms part of the afterdamp. Fay, b. Product of combustion of organic fuels. Transportation in liquid form in steel cylinders. Used in gaseous form as a fire extinguisher and in solid form as dry ice.
carbide.

Carbon dioxide. A greenhouse gas that results from the burning of fossil fuels, biomass, and other carbon-containing materials.

Carbon monoxide. A poisonous gas with a carbon monoxide detector. It is a product of incomplete combustion of carbon.

Carbon tetrachloride. A colorless, volatile liquid used in various industrial processes.

Carbon tetrachloride poisoning. A condition resulting from exposure to carbon tetrachloride.

Carbon steel. A type of steel that contains carbon as the major alloying element.

Carbonate. A group of minerals and rocks that are derived from calcium carbonate.

Carbonate ground-water. Groundwater that contains dissolved calcium carbonate.

Carbonate rock. A type of sedimentary rock composed of calcium carbonate.

Carbonate soil. A type of soil that contains high levels of calcium carbonate.

Carbonate vegetation. A type of vegetation that is adapted to high levels of calcium carbonate in the soil.

Carbonate water. Water that contains dissolved calcium carbonate.

Carbon dioxide. A gas that is produced by the burning of fossil fuels and is a major contributor to global warming.

Carbon monoxide. A gas that is produced by the incomplete combustion of carbon and is toxic to humans.

Carbon tetrachloride. A chemical used in various industrial processes.

Carbonic acid. A compound that is formed when carbon dioxide is dissolved in water.

Carbonic anhydrase. An enzyme that catalyzes the reversible hydration of carbon dioxide.

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Carbonic anhydrase. An enzyme that catalyzes the reversible hydration of carbon dioxide.
carboxy; carboxyl. a. Monovalent, COOH

carbosand. Fine sand that has been treated

carboxymethylcellulose; CMC. An organic

carbozite. A black liquid, made from a bitu-

carbuncle. A gem of a deep-red color, inclin-

carbaram. a. A hydrocarbon related to, or

=buret. a. Carbide. Webster 3d. b. To com-

carbariselisa. The process of imparting car-

carburetor. a. A device used on gasoline

carboxylic acid method. In flotation, a method

for treatment of various oxygen ores using

carboxylic acids as collectors with gangue

depressants to float base-metal minerals

from associated impurities. The process is

suitable for the carbonates or oxides of

lead, copper, or zinc, somewhat less useful

with other lead minerals and with hema-

morphic, unsuitable for chrysocolla.

Gaudin, 2, pp. 462, 464.

carboxymethylcellulose; CMC. An organic

compound that finds use in the ceramic

industry, sea air, and temperatures up to

200° C. Osborne.

card. a. A small bottle in which hydro-

fluoric acid is stored and transported.

Long. b. A large glass bottle enclosed in

a box or in wickerwork, used mainly as a

container in which corrosive acids are

transported and/or stored. Long.

car builder. In bituminous coal mining, one

who shapes and welds together angle iron

that forms the framework and under-

structure, sea air, and temperatures up to

570° F. D.O.T. 1.


car cutter. In metal and nonmetal mining,

one who uncouples or loads mine cars from

a train and pushes them onto a rotary
dumper on which cars are turned over to
dump ore and debris from storage bins.

D.O.T. 1.

car cleaner. In antracite and bituminous

colining, a laborer who cleans mine

(pit) cars, in which coal is transported,

shoveling off the fine coal and dust left

in the bottom and scraping the dirt and

dust from the outsides of the cars. May

be designated as railroad-car cleaner at

bituminous mines. Also called pit-car cleaner.

D.O.T. 1.

car drier. A drier in which ware is trans-

ported on cars. ACGS, 1963.


car jar. a. A mechanical device for tilt-

ting air with gasoline or kerosine

and extracting coal up to about 30

inches in diameter and about 100 feet in

length. The frame is located under the

direction of the auger section to reduce height

and the direction of drilling can be reversed

without moving. The lowering them down

6-foot section. Nation.


cardox. A baked mixtures of caustic soda

and lime, used in the container or regen-

erator of self-contained mine-rescue or oxy-

gen-breathing apparatus to absorb the

exhaled carbon dioxide. It has the advan-

tage over straight caustic soda in that it

does not cake, liquefy, or solidify when

used. Lewis, p. 760.

cardox-plaster operator. In bituminous coal

mining, one who recharges steel shells

(tubes) known by the trade name Cardox

with a compressed mixture of electrical firing

elements, and liquid carbon dioxide to pre-

pare them for blasting coal. D.O.T. 1.

cardox shell. Steel shell used to contain

carbon dioxide in the Cardox blasting

method. See also carbon dioxide blasting.

Burke.

carrier. a. A drier in which ware is trans-

ported on cars. ACGS, 1963.

card weight pipe. A term used to

measure the weight of a car, which is

standard or full weight pipe, which is

used. Lewis, p. 760.

cardinal point. a. One of the four points

specified on the ground of the four

principal compass points, such as North,

South, East, and West. Long. c. Depend-

ing on the mechanism or drum em-

ployed, a change in the speed of the

winding ropes occurs at certain definite

intervals during the winding cycle. These

change-of-speed points are known as the

cardinal points of the winding cycle. Sin-

carrier. a. A device used on gasoline

engines and some kerosine engines, for

carbureting air with gasoline or kerosine

vapor. Porter. b. A device in which the

refractory material and often filled with checkers on

which oil is sprayed to enrich the gas. Compas.

carbon dioxide in the Cardox blasting

method. See also carbon dioxide blasting.

Burke.

carbon monoxide. A black liquid, made from a bitu-


carbon dioxide in the Cardox blasting

method. See also carbon dioxide blasting.

Burke.


car-cutter. In metal and nonmetal mining,

one who uncouples or loads mine cars from

a train and pushes them onto a rotary
dumper on which cars are turned over to
dump ore and debris from storage bins.

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car-drier. A drier in which ware is trans-

ported on cars. ACGS, 1963.


car-jar. a. A mechanical device for tilt-

ting air with gasoline or kerosine

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Burke.
car-haul man

car haul (endless chain or cable) to which cars, or railroad cars underground or at the bottom of mines, are connected by compressed air. Used to control the speed of mine cars. It may take the form of a creeper or a retarder controlled by compressed air. See brake retarder.

car hooker. See coupler.

car inspector. In bituminous coal mining, one who examines mine cars for defective bodies, framework, undercarriages, or other equipment. See also inspection.

car inspector. A small reverberatory furnace with an inclined hearth, in which lead is treated by roasting and reaction, followed by cooling, and the lead is smelted in a furnaceman, and poured into cooling pans. See blast furnace.

carmand. Oxidized copper ore composed of cuprite, chalcocite, covellite, and chrysocolla; also in spherical forms. Fay.

carmine to tile-red lead-iron-aragonite. A variety of digenite. Weed, 1918.

carmine. A red or violet pigment obtained by the reduction of a chromate of lead or iron. Fay.

car oil. Black lubricating oils designated car oils. Also called carret. Car oils are usually black lubricating oils of the same general character as summer black oil. Porter.

carpenter, bank. In bituminous coal mining, one who works at the surface of a mine, repairing mine car bodies, structures, bins, and other equipment. See also carpenter, mine.

carpenter. In bituminous coal mining, one who builds and repairs the wooden parts of mine cars. See also carpenter, bank.

carpet. A bituminous surface of appreciable thickness, generally formed on top of a roadway by the application of one or more coats of bituminous material with gravel, sand, or stone chips added. Also called blanket; see also felt, felt blanket.

carpohedrite. A yellow mineral crystallizing in orthorhombic laths elongated in direction of C, with prismatic cleavage at 68°; MgAlO, 2SiO2, H2O. Larsen, p. 171.

carnallite. A massive, granular, greasy, milk-white, soluble, hydrous, magnesium-chloride, KCl.6MgCl2, crystallizing in the orthorhombic system; deliquescent. Dana 17.

carnallite plant operator. One dressing, smelting, and refining, one who makes carnallite flux used in magnesium refining, by melting carnallite ingredients according to formula, and mixing them thoroughly, using a shovel. The mixture is then loaded into a furnace, crucible, and poured into cooling pans. See blast furnace.

carriage. 1. A structure consisting of a gimbalmounted open frame, from a broad, shallow vessel. See Donald. 2. An arrangement of parts, with or without an enclosed space, such as a mine car or railroad car. See also mine car, railroad car.

carpet. In anthracite, bituminous, and subbituminous coals, a worker who handles mine cars or railroad cars underground or at the bottom of mines, or below ground level. See also mine car man, mine worker.


carpet. A China stone used to some extent in the United States pottery industry. See clay.

carpet. Any of the marbles with the commercial name, including some of the refined varieties of statuary marble. See also Carrara marble.

carnelian. A red or violet pigment obtained by the reduction of a chromate of lead or iron. Fay.

carnelian agate. Banded agate similar to carnelian but having a more compact structure. Fay.

carnelian onyx. See onyx. A carnelian onyx is in coloring except bands are not straight and parallel. Fay.

carnelian agate. Banded agate similar to carnelian onyx. Fay.

carnelian onyx. Onyx with alternating bands of white chalcedony and carnelian. See also carnelian onyx. Fay.

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carmanite. A variety of digenite. Weed, 1918.

carmanite-brick furnace process. See blast roasting.


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carriage. a. A term used with shaker conveyor supports. Carriages may be designated as ball-frame, wheel, or roller carriage, depending on their construction. The carriage may or may not be attached solidly to the conveyor trough. Jones. See also: carrier. b. Same as cage. Korson. c. A sliding or rolling base or supporting frame. Nichols.
carric bolt. An oval or buttonhead black bolt with square neck which prevents the bolt from turning while the nut is being tightened. Crispin.
carricage. One or more rock drills carried interest; revisionary interest. A workman who shifts railroad cars in a coke-yard by inserting a pinchbar between the wheels or four wheels. Hess.
carricage. a. A term used with shaker conveyor or elevator. See conveyor. b. Same as cage. Fiber.
carricage mounting. One or more rock drills mounted on a wheeled frame, used in tunneling. Pryor.
carriceway. That part of a road which is designed for vehicular traffic. Ham.
carric explosive. A new permitted explosive of medium strength, and can be used in wet boreholes provided its immersion time does not exceed 2 to 3 hours. The maximum charge weight in British coal mines is 24 ounces and can be used for coal and ripping shots in conjunction with delay detonators. Nelson.
carric rider. A brakeman or laborer employed to ride on a car to the dumper, or on cars pushed from cradle, to apply brake, and prevent hard bumping. A blast furnace term. Fay.
carric seat; revisionary interest. A working interest participation in producing property whereby the operator is reimbursed for the loss of coal or surface damage and is permitted to carry interest from a dryer to a Hoffman type of kiln. D.O.T. 1. c. The main haulage road and used especially in England. Long.
carric sour. In uranium leaching, an inert material whereby the operator is reimbursed for the loss of coal or surface damage and is permitted to carry interest from a dryer to a Hoffman type of kiln. D.O.T. 1.
carric slide. The ramped loading platform for a scraper loader. Nelson.
carric spotter. A term used for the small hoist plug. Nelson.
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cartridge brass

ing about 30 percent zinc, highly ductile. Pryor, 3.

cartridge fuse. A fuse enclosed in an insulating

and designed to confine the arc when the fuse blows. Crispin.
cartridge pin. A round stick of wood on which cartridges are deposited, usually, though not always, laid in a backstep sequence. ASM Gloss.
cascade sequence. A combined longitudinal and build-up sequence in which weld beads are deposited in adjacent layers, usually, laid in a backstep sequence. ASM Gloss.
cascade upgrading. See countercurrent de-

cascading. Movement of crop load in ball mill rotating at such a speed that the balls breaking free at top of rising load roll quietly down, to the toe of the charge. Changes with increased peripheral speed, motion changes to turbulent cascating and, still faster, to avalanching when upper layer of crushing bodies breaks clear and falls freely to top of crop load. Pryor, 3.
case. a. A small fissure, admitting water into the mine workings. Fay. b. One of the frames, of four pieces of plank each, placed side by side to form a continuous lining in galleries driven in loose rock. Webster 2d.
case bored. To bore a hole in the sides of a borehole. Flush-coupled casing is joined with a coupling which has the same outside diameter as the casing, but has two male threaded ends. Flush-coupled casing has a male thread at one end and a female thread at the other; no coupling is used. B.S. 3518, Sec. 3, 1963.
case box. A metal box used to catch a glass bottle after it has been severed from the blowpipe in the old hand blown proc-
case glass. Glassware with a superimposed layer of another glass having a different composition and usually colored. The thermal expansion of the two glasses must be carefully matched. Compare ply glass. Dodd.
case-off. See case off. Long.
case thin. Fine tin ore that is re-
treated by a gentle current of water flow-
ing over the frame or table. Fay.
casehardening. A term sometimes used for tempering glass. See also tempered glass. ASTM C162-66.
casehardening. a. The geological process by which the surface of a porous rock, espe-
cially a sandstone or a tuff, is coated by a cement or a desert varnish, formed by the evaporation of a mineral-bearing solu-
tion. A.G.P. b. Hardening a ferrous alloy so that the outer portion, or case, is made substantially harder than the inner portion, or core. Typical processes used for casehardening are carburizing, cyaniding, carbonizing, nitriding, induction hard-
ening, and flame hardening. ASM Gloss.
casein. A protein derived from milk, casein or milk curd. Casein is the main protein in cheese.
casein. Any protein that is insoluble in dilute acid solutions. Casein is the main protein in cheese.
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casing catcher

casing catcher. A safety device equipped with slips or dogs to catch and grip casing if it is dropped while being lowered or pulled. Also called tubular catcher; tubing hanger. Long.

casing clamp. A mechanical device designed to facilitate the insertion or suspension of casing in a borehole. Made by forming a half circle in a heavy steel bar. When fitted together, in pairs, the bars fit around the outside and tightly grip the casing. Size of clamp is determined by outside diameter of the casing to be handled. Long.

casing collar. A safety means to cut casing dog. a. A lifting coin.

casing drive shoe. A cylindrical clamp insert driven down a borehole. Also called casing shoe. Long.

casing elevator. A circular clamp made in halves hinged at one end and closed fast with a latch at the other end. It is equipped with two long heavy chain links that furnish a means of hanging it on the hoisting mechanism in lowering casing into a wet borehole. Also called casing valve; float valve. Long.

casing flush coupled. See flush-coupled casing.

casing flush joint. See flush-joint casing.

casing head. a. Synonym for casing drive head. Long. b. A fitting attached to top of casing on an oil well to separate oil from gas, to allow pumping and the cleaning of the borehole, etc. Also called Christmas tree.

casing head gas. Natural gas rich in oil vapors. Sometimes called oil gas, or extracted from the oil, at the casing head. Frequently called combination gas or wet gas. Fay.

casing shoe. The liquid hydrocarbon recovered from casing head gas by absorption, compression, or refrigeration. Also known as native gas. Long.

casing-shoe box. See stuffing box.

casing hanger. A hook connecting the hoisting lines to the links of the casing elevator. Long.

casing inserted-joint. See inserted-joint casing.


casing jaw hammer; jaw hammerer. A drive hammer used to extract casing. B.S. 3618, 1963, sec. 3.

casing jamb. Device similar to and used in same manner as a casing cutter. See also casing cutter. Long.

casing line. Cable or wire rope wound on a hoisting drum and used only to raise or lower casing in a borehole. Also called call line. Long.

casing of a reef. Aust. The abnormal veinstuff abutting on the solid reef. See also casing, a. Fay.

casing of a reef. Process of inserting a line of casing in a borehole. See also case, c; case off Long.

casing pipe. Synonym for casing. Long.

casing point. In borehole drilling, casing point is the depth to which the casing is entered. Fay.

casing preventer. The pressure built up in the casing when closed at the top of the well. It is usually measured by placing a pressure gage at the outside of the casing head. Porter.

casing puller. A screw or hydraulic jack used to pull casing or drill rods stuck in a borehole. Long.

casing ramming shell. A sleeve designed to serve as a reaming coupling between a casing bit or set casing shoe and a joint of corresponding-size casing, which is being used as a core barrel. Also called casing-barrel ramming shell. Long.

casing rippers. An expanding-type cutting device, which can be lowered into a casing or drill rods or a line. Cutter is designed to rip longitudinal slits to free the casing at a coupling or to prorate the casing. Long.

casing shoe. A steel sleeve threaded to fit and be coupled to the bottom end of diamond-drill casing as a cutting head and protector when the casing is driven through overburden. The inside diameter of a specific thread-length-range casing shoe (whether plain or inset with diamonds or other cutting media) is always large enough to permit other downhole drill fittings having the same letter-name-range designation to be run inside and through the casing shoe. When a casing shoe is set with diamonds or other cutting media it is called a set casing shoe, which should not be confused with casing bit. Also called casing drive shoe. Compare casing bit; set casing shoe. Long.


casing spacer. An instrument used for recovering casing which has accidentally fallen into the mud. It is in the same general form of casing spear, consists of a steel body tapered at the top, on which are attached weights or weights with serrated edges. When lowered inside the casing to be recovered the steel segments are pushed upward along the narrow part of the body, but when raised, the segments remain stationary, and the weight of the casing forces the thicker part to exert a pressure on the segments forcing them outward. The greater the pull, the greater is the corresponding lateral pressure. Also called casing puller.

casing spider. A holding device resting on the drilling floor, consisting of two or more serrated sliding wedges working inside a heavy cone-shaped bowl or collars used to suspend casing in a drill hole during makeup or breakout. Also called casing bowl and slips. Long.

casing string. The total amount of any given size of casing inserted in a borehole. Long.

casing sub. a. A coupling threaded to fit casing at one end and drill rods or other downhole drill equipment at the other end. Long. b. A connection used in fishing with a petroleum-type rotary drill. Long.

casing substitute. Synonym for casing sub. Long.

casing value. Synonym for casing float. Long.

casing wall. See breast wall. Dodd.

casing water swivel. A special swivel designed to fit on casing at the collar of a borehole around the drill rods. Allows casing to be rotated slowly while maintaining a flow of water between drill rods and inside of casing. In addition to the flow of water down the inside of the drill rods. Primarily used with Morinette expansion reamer. Beneke.

chevronian. A Member of the Upper Devonian above the Kussa formation. Long.

cinereus. Brownish; Camel earth. A brown earthy substance found in peat and lignite beds and used as a pigment; originally found near Kassel, Germany. Cologne brown or Lincoln earth is a similar substance originally found near Cologne, Germany. Hess.


classic. A term for a well. See Kassel kiln. Dodd.


classic. A deep, round, usually porcelain dish with a handle used for heating substances in the laboratory. Winter 24.

classic. A lightewight body used to contain radiographic films during exposure to X-rays or gamma rays, that may or may not contain intensifying screens or filter screens, or both. A distinction is often made between a cassette, which has positive means for insuring contact between screens and film and is usually rigid, and an exposure holder, which is rather flexible. ASM Gloss.


classic. A felispir from Delaware County, Pa., containing several percent of baryta. Fay.

classic. A feather from Delaware County, Pa., containing several percent of baryta. Fay.

classic. The stem. SoDs; tetragonal; usually black in color; Mohs hardness, 6 to 7; streak pink-white; specific gravity, 6.9. When pure contains a Flynite admixture of other metals. Fay.

classic. A feather from Delaware County, Pa., containing several percent of baryta. Fay.

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cast
structure

substance. A.G.I. c. To form in a desired shape by pouring molten metal into a mold and allowing it to harden. Long.
castable refractory. a. A refractory aggregate which will develop structural strength by hydraulic set after having been tempered with water and compacted. A.R.I. b. A mixture of a heat-resistant aggregate and a heat-resistant hydraulic cement; for use, it is mixed with water and rammed or poured into place. H.W.
cast-ender. Coro. The throwing up of one from one platform to another successively. See also shambles. Fay.
casting tool. A cutting tool made by casting a cobalt-bonded and used at machining speeds between those for high-speed steels and nitride carbides. A.S.M. Gloss.
casting. A chestnut-brown hydrous ferric

cost. A. A wheel mounted in a swivel frame

by introducing a body slip into a porous mold which absorbs sufficient water from the slip to produce a semisolid article. ASTM C162-66. d. Forming ceramic ware

casting. A. A series of iron molds on an endless belt conveyor to receive and cast the molten pig iron into form as it comes from the furnace. Mettler, 4th, p. 399.
casting machine. A. A cut-to-cord casting machine; for use on a construction site, or in factories and transported from there for erection on site. Ham.
casting iron. An iron containing carbon in excess of the solubility in the austenite that exists in the alloy at the eutectic temperature. For the various forms gray cast iron, white cast iron, malleable cast iron, and nodular cast iron, the cast iron is often left out, resulting in gray iron, white iron, malleable iron, and nodular iron, respectively.
casting iron enamel. A porcelain enamel specifically designed for application to cast irons. ASTM C229-65
casting iron molds. See electro-cast brick. Bureau of Mines Staff.
casting iron powder. A kind of blasting powder containing nitroglycerin and other nitrocellulose or a piceate, mixed with other materials Webber, 3.
castellated. Formed like a castle, as a cast-
teel. A. A long-tooth, sawtooth bit.
castellated bit. a. A long-tooth, sawtooth bit. Long. b. A series of iron molds on an endless belt conveyor to receive and cast the molten pig iron into form as it comes from the furnace. Mettler, 4th, p. 399.
casting powder. A kind of blasting powder containing nitroglycerine and other nitrobenzene or a picrate, mixed with other materials Webber, 3.
castellated beam. Trade name for a steel beam formed by cutting a rolled steel joint along the web in the form of a zig-zag. After this cutting operation the two halves are arranged so that the crests of the cut meet; these are then joined by butt welding. As a result, the depth and moment of the beam are increased by 50 percent. H.H.

casting pit. a. A quaryman's term for the operation of making a cut with a steam shovel, which, instead of loading the material on cars, moves it to one side forming a large ridge. Fay. b. The operation of reestablishing benches that have been covered or caved, and also cutting up a high bank into one or more smaller banks. Lawley, p. 399.
casting point. a. A cast bit. Set also cast bit ; cast set. Long. b. A surface-set diamond

casting shrinkage. a. Liquid shrinkage, the reduction in volume of liquid metal as it cools to the liquidus. A.S.M. Gloss. b. Solidification shrinkage, the reduction in volume of metal from the beginning to the end of solidification. A.S.M. Gloss. c. Solid shrinkage, the reduction in volume of metal from the solidus to room temperature. A.S.M. Gloss. d. Total shrinkage, the sum of the shrinkage in definitions a, b, and c above. A.S.M. Gloss.
casting spot. A fault that sometimes appears on the cast pottery as a vitrified and often discolored spot on the bottom of the ware or as a semielliptical mark on the side. It occurs where a break in the slip first strikes the plaster mold and is attributable to local orientation of platy particles of clay in the body. The fault can be largely eliminated by adjusting the degree of deflocculation of the slip so that it has a higher viscosity. A.R.I. c. A fault that is also known as a flashing. Dodd.
casting strain. Strains in a casting caused by casting stresses as the casting cool. ASM Gloss.
casting stress. Stresses setup in a casting because of geometry and casting shrinkage. A.S.M. Gloss.
casting temperature. See casting plate. Mettler, 4th, p. 399.
casting wheel. A large turntable with molds mounted on the outer edge. Used primarily in the base metal industry for casting ingots, anodes, etc. Bureau of Mines Staff.
casting-wheel operator. In ore dressing, smelt-
ing, and refining, one who operates a large rotating casting wheel to pour molten, non-
ferrous metal, such as copper or lead, into molds mounted on the edge of the wheel. D.O.T. 1.
cast in situ. Concrete which is cast in posi-
tion in a structure as distinct from precast concrete, which refers to elements made independently on a construction site, or in factories and transported from there for erection on site. Ham.
cast iron. An iron containing carbon in ex-
cess of the solubility in the austenite that exists in the alloy at the eutectic temperature. For the various forms gray cast iron, white cast iron, malleable cast iron, and nodular cast iron, the cast iron is often left out, resulting in gray iron, white iron, malleable iron, and nodular iron, respectively.
cast iron enamel. A porcelain enamel specifically designed for application to cast irons. ASTM C229-65.
cast-iron fittings. Elbows, couplings, and other small or irregular pieces for use in a pipe system or for some other subsidiary use, which have been molded from cast iron. H.N.
cast-iron pipes. Cylindrical iron tubes made from iron containing so much carbon that, as cast, it is not usefully malleable at any temperature. They may be cast in fixed molds or in whirling molds that compact the iron centrifugally. Hess.
casting machine. A series of iron molds on an endless belt conveyor to receive and cast the molten pig iron into form as it comes from the furnace. Mettler, 4th, p. 399.
casting metal. A. A cutting tool made by casting a cobalt-bonded

casting metal. See casting plate. Mettler, 4th, p. 399.
casting point. a. A cast bit. Set also cast bit ; cast set. Long.
casting matrix. For the various forms gray cast iron, white cast iron, malleable cast iron, and nodular cast iron, the cast iron is often left out, resulting in gray iron, white iron, malleable iron, and nodular iron, respectively.
casting matrix formed by pouring molten metal into a bit mold and allowing it to harden. Long.
casting metal. See casting plate. Mettler, 4th, p. 399.
cast structure

tation of crystals and segregation of impurities. ASM Gloss.
cast-ribbed. To join (parts) by placing together in a mold and pouring molten metal between or around. Webster 3d.
cast-ribbed rail joint. A welded joint between the ends of two adjacent rails, generally formed by the thermit process. Ham.
cast. a. S. Staff. A hard fire clay. Also called catch earth. Fay. b. Any heavy-duty tracklaying block, equipped either with or without a dozer blade. Long. c. To move: a heavy piece of drilling equipment utilizing power derived from the catchead. See also building. Long.
cata. A prefix to indicate that the rock belongs to a particular zone of metamorphism, which is characterized by very high temperature, hydrostatic pressure, and relatively low strain. Compare apo-; kata-; meta-; neo- A.G.I.
cataclase. Rock deformation accomplished by fracture to rotation of mineral grains or aggregates. The same as granulation. A.G.I. Supp.
cataclastic. a. Of or pertaining to a rock or rock zone that has been formed by shattering (or cataclasis) which has been less extreme than in the case of a mylonite. Cataclastic rocks are typically auto- clastic; scoriaceous; uneven chis; crush breccia; crush conglomerate; flaser gabbro; flaser gneiss; flaser granite; mylonite; protoclastic cataclase; xenotomolite. Storlone. A.G.I. Supp.
cataclastic. A breaking or rending asunder; a violent disruption. Webster 3d. cataclastic. a. Of or pertaining to a texture found in metamorphic rocks in which brittle minerals have been broken and flattened in a direction perpendicular to the pressure stress. Compare autotlastic. A.G.I. b. Refers to a coarse fragmentation of a rock in transit; for example, glacial action. A.G.I. Supp.
catalysis. See cataclastic. Fay.
cataclysmic. a. Accompanied with violent disruption. Fay. b. Of or pertaining to the nature of cataclastic; characterized by a cataclasm or by cataclastic. Standard. 1964.
cataclast. An amorphous plastic similar to bakelite. Shiplay.
catch props

supports are brought forward, Nelson. Also called watch props; safety props. C.G.D.
catch scald. Eng. A platform in a shaft a few feet beneath a working scaffold to be used in case of accident. Fay.
catch scutt. Eng. Ham.
catchwater drain. A surface drain to intercept and collect the flow of water from a disturbed zone so as to prevent it from reaching a roa' or mine sidings. See also subsurface drain. Nelson.
catch wings. Substantial wooden blocks placed in mine shaft just below point reached by reciprocating rod of Cornish pump at bottom of its stroke. Pryor, 3.
cat claw. A miner's term applied locally in Illinois to a bed of marcasite from 2 to 6 inches thick which sometimes occurs between the "clod" roof of a coal seam and the more stratified shale above. The lower surface of the marcasite bed is characterized by very irregular protuberances extending downward 1 to 3 inches into the clod. Also called cat. A.G.
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cathode reagents

compounds; for example, cetyl trimethyl ammonium bromide. C.C.D. 64, 1961.


cathode. A rope or cable wrapped around a cathead and used to spin out drill rods, casing, or pipe. Compare spinning chain; spinning cable; spinning rope.

Long.

cathodite. A red clay found in southwestern Minnesota and formerly used by the Indians for making pipes. Sanford.

cathode A. A rounded or a residual mound in a ridge which preserves a remnant of an old ore deposit. Fay.

cathode B. A type or cable wrapped around. Lowste. A general term for cetera. A monadnock or a residual mound in a ridge which preserves a remnant of an old ore deposit on its summit. Fay.

cathode C. A general term for sedimentary rocks because they were formed by deposition from above, as of suspended materials on a seafloor or hypogene. Fay.

cathode exchange. See ionic exchange. Dodd.

cathodolite. Katoprit. A black, red in thin section or a ridge which preserves a remnant of an old ore deposit. See also cawk, a and b. Fay.

cathode's effect. A zone in which any unworked mineral is transformed into consolidating minerals. The formation of new unstable deposit of material is allowed to cave and fill the void. Fay.

Long.

cathode's effect. Same as caustobiolites. Tom. 1954.

cathodolite. Suggested by Grabau to replace caustolith. To be confused with caustobiolit. A.G.I.


cationic reagents

A water softening treatment usually carried out where the water contains a fairly high proportion of temporary hardness and a quite small proportion of permanent hardness. In it, sodium carbonate reacts with the permanent hardness and the insoluble, are either precipitated or are mixed with the organic material and used in the preparation of metal for enameling.

Lae.

cave. A natural cavity, recess, chamber, or series of chambers and galleries beneath the surface of the earth, within a mountain, a ledge or rocks, etc.; sometimes a similar cavity artificially excavated. Standard, 1964. i. The ashpit in a glass furnace. Standard, 1964.

cave coral. A small, staked formation of calcium carbonate on the floor, the wall, or the ceiling of a cave. Synonym for coral formation. Schleideracker.


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caved stopes

space occupied previously by the ore. The first type comprises the caving method of stoping in which the overlying strata are left to collapse by the top-slicing method. BuMin 390, 1936, p. 12.
caved in. Depression at the surface, caused by a fall of roof in the mine. Fay.
cave-in. An odd man around (frequently under) a glass furnace. Dodd.
cave marble. A cryptocrystalline banded deposit of calcite or of aragonite that can be highly polished. Synonym for pisolite. A.G.I.
cave pearl. A smooth, rounded deposit of calcite or of aragonite that can be highly polished. Synonym for pisolite. A.G.I.
caver. a. Eng. A thief who steals ore or coal at a mine or the officer appointed to guard a mine. Standard, 1964, b. A person whose hobby is exploring caves. Also called speleologist. A.G.I.
caverna. A large, natural underground cavity or cave; a den; any cavity. Standard, 1964

caverns. Deposits of calcite or of aragonite that can be highly polished. Synonym for pisolite. A.G.I.
cavernous. Containing cavities or caverns, especially in the walls of a borehole. BuMin 390, 1936.
cavities. a. The vertical axis of crystals in all systems except the isometric or cubic system. Bureau of Mines Staff, 1948.
cavities. The voids in which they will work for the following period. Fay. c. A type of heavy sledding with one blunt and one pointed end. Used for rough shaping stone at the quarry. Fay.
caving. a. A stoping method in which the ore is withdrawn. There are several varieties of the system. See also block caving; top slicing combined with ore caving. Fay, b. Longwall coal mining in which excavated space (go) is made to collapse. Fryer, 3.
caving by raising. See chute caving. Fay.
caving ground. Rock formations that will not stand in the air. See also unsupported mining. Fay.
caving in coal mines is on the increase. Standard, 1964.
caving in of the overburden as part of the system of mining. See also block caving; sublevel caving. BuMin 390, 1936, p. 4.
caving in. Collapse of walls or roof of mine workings, or excavations. Long, d. Fall of roof underground. Statius. A.G.I.
caving by raising. See chute caving. Fay.
cave-in. The partial or complete collapse of the walls of a borehole. Brantly, 1.
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celadonite

occurring in cavities in basaltic rocks. A.G.I.

celadine green. See celadonite.


celate blue. A ceramic color made by softening
the cobalt blue by the addition
of zinc oxide. Dodd.

celastilite. A variety of sulfhydrocarbon
which is found in iron meteorites. Tombkeite, 1957.

celastilite precious stone. Olivine from a meteorite. Schlatter.


celastone. See celestite. C.M.D.

celastonite. A strontium sulfate, SrSO4; orthorhombic. Dana 17. SrSO4, decomposes
at 1,380°C. The mineral source of strontium and its compounds. Bond. The mineral and the chemical are sometimes
used to impart iridescence to glasses and glazes. Shipley.

The term has been used as fine
agents in crystal glass. Lee.


cellite. a. A constituent in a flotation machine. Hess b. One of the spaces in a hollow clay building block. According to the
standard American Dictionary and Materials, a cell must have a minimum dimension of at least .5 inch and a cross-sectional area of at least 1 square inch. Dodd. c. A single element of an electric battery, either primary or secondary. Crupin. d. A cellulosic element consisting of two electrolytes separated by a semi-permeable membrane. e. A material or a mixture of materials occurring in the interstices between allo-
genic particles of clastic rocks. Silica, carbon,
carbonate, iron oxide, or manganese or barite are the most common cements. Clay minerals and other fine
clastic particles should not be considered cement. A.G.I. c. A finely divided metal obtained by precipitation. The word in this sense is generally used in combina-
tion; as, cement copper, mercury, or cement silver. Standard, 1954. d. The substance in which iron is packed in the process of cementation. Standard, 1954. e. A material or a mixture of materials (without aggregate) which, when in a plastic state, possesses adhesive or cohesive properties, and which will harden
in place. ASM C11-60. f. A finely ground powder which, in the presence of an appro-
priate quantity of water, hardens and adheres to suitable aggregate, thus bind-
ing it into a hard mass which is known as concrete or mortar. Taylor. g. To place cement in a borehole to seal off cavities or fissures or to seal off perfo-

cements encountered in the process of drilling boreholes. Lang. h. Used in gold-mining realms to describe various consolidated
fragmental aggregates, such as breccia, conglomerate, and the like, that are aurif-
erous. Fay. i. A hard sluice box, usually of
wood, made to receive, wash, and deposit gold or silver lodes. Cooper, p. 248.

In the sense of a clean cavity filled with
water, the box is known as a sluice. Cooper, p. 247.


cementation, a. To fill cavities or place a drill
hole with cement or other material to stop
loss of water or entrance of unwanted liquids, gas, or fragmented rock material
into a borehole. Also called dental work. Lone. b. The process by which loose sedi-
ments or sands are consolidated into hard rock by injection of chemical solutions, thus
forming the so-called cemented or impregnated sand. Long. Also called cementing. c. The introduction of one or more elements into the rock or metal object by means of diffusion at high temperature. ASM Gloss. d. Usually, the process of raising the carbon content
of steel by heating in a carbonaceous medium. Generally, any process in which the surface of a metal is impregnated with carbon. Also called carburizing; carburization, C.T.D.

cementation box. The box of wrought iron in which carburizing is effected. Fay.

cementation sintering. A method of shaft king
through water-bearing strata by injecting
chemicals or liquid cement into the ground. A number of small-diameter
boreholes are put down around the shaft (and about 80 feet ahead of the shaft bottom), through which cement is forced by means of pumps. The cement, when set, seals the fissures and thus prevents
water inflows during sintering. The method is most successful in strong fissured strata,
and least successful in loose alluvial deposits. See also grouting. Nelson.

cementation steel. Steel made by a process in
which bars of wrought iron are packed
into a sealed furnace together with char-
coal. The resulting material is blister steel. Fay.

cementation water. Water containing dis-
solved copper or iron sulfates or other elements that form compounds with the metal object. Fay.

cement bacillus. This name has been applied to the compound 3GeO·Al2O3·3CaSO4·3H2O, which is formed by the action of

193
cement bacillus

cement barrel. Synonym for cement injector.

Long.

cement bond log. The problem of determining whether casing is properly cemented in place has long been a thorny one. A device, which is in all essences merely an adaptation of a continuous velocity legging tool, has been developed to throw light on the quality of a cement job. If a single-detector continuous velocity log is run in a cased or cemented hole, the minimum acoustic travel time between transmitter and detector is generally via the steel pipe. This path is generally of both the travel time through steel is about 17,300 feet per second. This travel time is less than that through sands (unless their porosity is less than 5 percent) or through carbonate rocks (unless their porosity is less than about 10 percent). Thus when drilling through most sand-shale sequences a velocity log run after casing was set would be expected to show a faster and more uniform travel time than if run through the sand: interval uncased. Wyllie, p. 162.

cement. A mineral or mixture from a mixture of Portland cement and sand or cinder. Morse, 4th, p. 260.

cement deposit. The Cambrian conglomerate containing cement that is somewhat more resistant to chemical action than the regular grade because of high tricalcium aluminate content, and also because of additives such as water glass, calcium sulphate, and other materials. C.D. 6d, 1961.


cementing. a. Operation of cementing the casing into a hole to shut off water and cave strata and to prevent the oil and gas flow from migrating or blowing out. Shell Oil Co. See also cementation. Long.

cementing furnace. a. A furnace or oven used in cementing operations. Long.

Long.

cementing material. See cement. Fay.

cementing oven. See cementing furnace.

cementing tool operator. In petroleum production, one who directs and assists workers engaged in cementing annular space between cementing elements. ASM Gloss. See cementing tools. Long.

cement joggle. An indentation left in one side of a block due to labors of one person in combining cement, as certain limestones and fine sand into rock formations so seal the joints, cracks or fissures, or to stabilize and increase the strength of unconsolidated material. Also called grouting. Long.


cement grout. a. A cement mixture containing the proper amount of water, cement, and the fine sand having the consistency of a thick liquid-like heavy cream. Long.

cement joggle. An indentation left in one side of a block due to labors of one person in combining cement, as certain limestones and fine sand into rock formations so seal the joints, cracks or fissures, or to stabilize and increase the strength of unconsolidated material. Also called grouting. Long.

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Long.
center prop; middle prop

cement stabilisation

be uneconomical or impracticable. See also soil stabilisation. Nelson.

cement steel. Same as cement steel.

cement stone; cement rock. a. Any rock which is capable of furnishing cement when properly treated. b. Same as cement rock. Argillaceous limestone-magnesite. Nelson.

cement texture. A texture produced by cementation or replacement of cement in a sandstone or conglomerate by ore minerals. Schieferdecker.

cement valve. A V, flapper, or check-type valve placed at the bottom of a string of casing, through which cement is pumped. When pumping ceases, the valve closes and prevents return of cement into the casing. Long.

cementology. The branch of geology treating of the textural, fluvial, and lacustrine deposits. Synonym for surface geology. A.G.I.

Cementos. Lower Upper Cretaceous.

center; centre. A point on an area under equal overall pressure at which such pressure can be calculated as in balance. Pryor, 2, p. 16.

center, center of. See torsional center. Ro.

center of gravity. a. Center of mass, Webster 3d. b. The single point in a body (as a homogeneous sphere toward which every particle of a mass external to the body is gravitationally attracted. Webster 3d. c. The point or area of greatest weight or significance, or interest; a predominate, or critical; a predominating or controlling situation; a focal point. Webster 3d. d. The center of mass of a cut or a fill. Nichols.

center of gravity of an area. See centroid of an area. Ro.

center of inertia. a. The point that represents the mean position of the matter in a body. Webster 3d. b. The point in a head or shaft of a body which is resistant to the forces due to the body's inertia when it is accelerated. Coincident with the center of gravity. E.T.D. c. In a cut or a fill, a cross section line that divides its bulk into halves. Nichols.

center boring. A point on an area under equal overall pressure at which such pressure can be calculated as in balance. Pryor, 2, p. 16.

center bore; center borer. Synonym for eleborator. L. Long.

center boring. Grindng the outside or inside of workpiece mounted on rollers rather than on centers. Workpiece is between the centers of a cylinder or the frustum of a cone. ASM Gloss.

centerline. A line marked on the roof of a roadway to indicate the direction of the central axis of the roadway. B.S. 3618 1963, sec. 1. b. The plumbline, hung from the roof of a mine roadway, used for controlling the direction in which the roadway is driven. B.S. 3618, 1963, sec. 1.

centerline rule. A rule in the form of a cylinder or the frustum of a cone. A.G.I.

center line. A straight line connecting opposite quarter-section or sixteenth-section corners. A.G.I.

center line, center of. a. The line that represents the mean position of the matter in a body. Webster 3d. b. The point in a head or shaft of a body which is resistant to the forces due to the body's inertia when it is accelerated. Coincident with the center of gravity. E.T.D. c. In a cut or a fill, a cross section line that divides its bulk into halves. Nichols.

center of a cut or a fill. Nichols.

centering. A method of grappling whereby a ball of day is centered properly treated.

center post; center plug; center-bole. A device attached to a scale or plate used for final close adjustment of instruments. ASPG, 1963.

center-bole lapping. The cleaning or lapping of center holes. See air lapping. ACSG, 1963.

centering. centering adjustment. a. A timber falsework used to support the parts of a mastery arch during construction. Webster 3d. b. The operation on lens elements wherein the element is optically lined up with the optical axis. ASTM C162-66.

centering adjustment. In surveying, sliding plate used for final close adjustment of vertical axis of theodolite above its station. May incorporate clamp and fine-adjustment screws. Pryor, 3.

centering of shaft. The fixing of the center spot on the bore of a shaft at the site selected and the maintenance of the shaftinking along this plumb line during its entire depth. Nelson.

centering plugging. A plug fitting both spindle and cutter to insure concentricity of the cutting. ASM Gloss.
center prop; middle prop

plank to support it before props are set at the ends of the plank. SMRB, Peter No. 61. b. Eng. See temporary prop. b. SMRB, Peter No. 61.
center, reduction. In triangulation, the process of the necessary corrections to allow for an eccentric setup (that is, a setup in which the instrument does not occupy the point under signal). See center, 2.
center roll. A horizontal center at the roll of a tugging idler that has three or more rolls. NEMA MB1-1952.
centers. a. Framed supports, usually arch-shaped, upon which are placed the lagging rounds used, in building an arch. See support center alloll. A shot in the center of the face of a ceetigrade. Symbol, C. Graduated to a scale of a centimeter, gram, gram system. Removed. b. Conical steel pins of a grinding machine by which the instrument is restrained during grinding. ACG, 1963.
center shot. A shot in the center of the face of a room or entry. Also called center line.
center spanning. A method of casting molten metal, in which the molds are spun and the metal is poured into them. See pour. Pryor, 1.
center-trace time. One of two approaches used in plotting seismic reflection data on the Earth's surface. Center-trace times are the times picked on the two traces from the respective detector groups nearest the shot gun. ABCG, p. 235. The average of the two times for each reflection is plotted at the shot-point position. The points on the plot differ for adjacent shot points if the record picks are connected by straight lines. See trace-by-trace plotting. Dobrin.
centigrade. Symbol, C. Graduated to a scale of 100; of or pertaining to such a scale. The centigrade scale of temperature is one in which the freezing point of water is 0° C and its boiling point is 100° C. If any degree on the centigrade scale is multiplied by 1.8, the result will be, in either case, the same as is described in the centigrade scale. See also centigrade.
centigram. Symbol, cg. A unit of mass equal to one hundredth of a gram; abbreviation, cm. Crispin.
centrifugal, centrifugal. a. Of or using centrifugal force. The force exerted as a result of a rotating impeller. See centrifugal force. Merriam-Webster 3d.
centrifugal force. The force exerted as a result of a rotating impeller, sometimes serving as a method of lifting material to a height against gravity. See centrifugal force. Webster 3d.
centrifugal pump. a. A form of pump in which the rotating impeller imparts a tangential velocity to the liquid that is then thrown outwards. See turbined pump. Steinhard.

centrifugal separation. The replacement of a mineral by another mineral that begins in the center of the mineral and proceeds outwards. A.G.I.
centrifugal separation, a. The separation of minerals of different kinds by centrifugal action as used in cyclone separators and centrifuges. See also coal-preparation plant.
centrifugal separation

Nelson. b. The use of centrifugal force to increase apparent density of finely divided particles so as to accelerate their movement toward an inner zone, or to cause them to coalesce. Pryor, 3. c. Accelerated settlement of finely divided particles from pulp, removal of moisture, or classification into relatively coarse and fine fractions by centrifuging. Performed on a laboratory scale in small batches, and commercially in a hydrocyclone or centrifugal classifier. Pryor, 3.

centrifugal ventilation. A mine ventilation system in which the air is led through a shaft in the middle of the field into the mine and out again at the periphery of the mining field. Stoker, 1, p. 329.

centrifugal. A rotating device for separating liquids of different specific gravities or for separating suspended colloidal particles, such as clay particles, in a single suspension, according to particle-size fractions, by centrifugal force. Colloidal particles that cannot be deposited from suspension by gravity can be deposited by centrifugal force in a supercentripetal. Bureau of Mines Staff.

centrifugal moisture equivalent. See moisture equivalent. ASCE P1976.


centrifugal drainage. Drainage or by a more and more radially inward toward a center. Stokes and Verner, 1955.

centrifugal force. The force that constrains a material particle to follow a curved path and that acts inwardly toward the center of curvature of the path causing centripetal acceleration, as a railroad train is prevented from leaving the track on a curve by the force exerted on the flanges of the outer wheels by the outer rail. Compare centrifugal force. Webster 3d.

centrifugal pump. A pump with an impeller or centrifugal action that gathers a fluid at or near the circumference of radial tubes and discharges it at the center. Standard, 1964.

centrifugal replacement. The replacement of a mineral by another mineral from the periphery of the host mineral inward. 1964.


centrioclinal. An area of strata which dips toward a center. Hess.

centroclinal. The center of area of a section; that point about which the static moment of all the elements of area equals zero. See also center of gravity. Ham.

centroclinal axis. See central axis. Ro.

centroclinal axis. A central axis of an area. That point in the plane of the area about any axis through which the moment of the area is zero; it coincides with the center of gravity of the area materialized as an infinitely thin homogeneous and uniform plate. Ro.


centroclinesymmetrical. In crystallography, having the center of symmetry at a point which is a plane of symmetry or an axis of symmetry. Key.

centroclinal point, line, or place within the earth from which earthquake waves are propagated. Stokes and Verner, 1955.

cephalopods. These have a head, mouth, and tentacles as in a cuttlefish. The shell was at one time a straight, 19th century. p. 287. d. A bottom-living mollusk, the shell of which is completely enclosed within a mantle. B.S. 3552, 1962.

ceramica. As a singular or plural noun, any of a class of nonmetallic products which are subjected to a high temperature during manufacture or use. AGG, 1963. b. Pertaining to ceramics, that is, inorganic, nonmetallic as opposed to organic or metallic, or pertaining to products manufactured from inorganic nonmetallic substances, which are subjected to a high temperature during manufacture or use, or pertaining to the manufacture or use of such articles or materials, such as ceramic process or ceramic bonding. Webster 3d.

ceramic bonding. Applying enamel clay to edges or trim of hollow ceramic articles. Bennett 2d. Add.

ceramic bond. a. The cohesion and adhesion that develops between the particles in a ceramic body by heat treatment through the formation of metallic bonds providing for the growth of new crystalline forms. Bureau of Mines Staff. b. In a ceramic body, the cohesion developed by a heat treatment which causes the cohesion of adjacent particles. HW.

ceramic cloth. A coating applied to ceramic ware which is primarily composed of nonmetallic materials. It may contain small amounts of metallic oxides for coloring purposes (that is, glasses, oxide coatings, etc.). Bureau of Mines Staff. b. An inorganic, essentially nonmetallic, protective coating on metal, suitable for use at or above red heat. ASTM C286-65.

ceramic color. See color oxide. ASTM C286-65.

ceramic color glass. An opaque-colored glass of satin or gloss finish obtained by spraying the clay body with a compound of metallic oxides, chemicals, and clays and firing at high temperature, fusing the glaze to the body, making them inseparable. AGS, 1963.

ceramic cone. See pyrometric cone. Hess.

ceramic engineer. One who conducts research and directs the technical work in the manufacture of ceramic products, such as brick, pottery, tile, asbestos, or refractories, and chemical, and heat resisting properties of various materials used in manufacture; selects materials and formulas for use in manufacture of ceramics according to the conditions under which the product is to be used; designs equipment and apparatus to improve methods of producing ceramic products; designs electrical insulation, thermal, electric or magnetic; specifies color. Bureau of Mines Staff. Originally, referred only to ware formed from clay and hardened by the action of heat, and to the art of making, temperatures. However, its significance has gradually been extended by usage, and it is now understood to include all refractory mate-
ceramic

defined in B.C.I. as dead rent. Fay.
ceramist. A person devoted to the ceramic art, whether as a manufacturer, a designer and decorator, or as a student or constructor. Fay.
ceramics. A term used by M. E. Wadsworth to include all ceramic or earthenware products, and often used in a more restricted sense, to include only art ceramics and tile. Fay.
cerargyrite; horn silver. Silver chloride, AgCl,
cerari. Minute, greenish-yellow octahedra

cerargyrite; horn silver. Silver chloride, AgCl,
cerianite. A discredited term equal to stibianite.
cerium. A metallic element of the rare earths, generally in bournonite matrix. Within earthenware, it is often used as an opacifier in glazes and enamels. Fay.
cerium chloride. See ceric chloride. CCD 6d, 1961.
cerium fluoride. An off-white powder, insoluble in water and in acids. Cerium fluoride is used in art ceramics to increase their brittleness and in the preparation of cerium metal (CCD 6d, 1961).
cerium hydroxide. See ceric hydroxide. Fay.
cerium oxide. A white gelatinous precipitate, approximately formula, Ca(UO2)2(OH)2, yellow, brown, or pink when impurities are present, which is insoluble in water and in acids, and is used in blast furnaces as a lining material. Chief source is monazite sand. Used in pure form to produce cerium salts, to impart a gray color to cement, and as an opacifying agent in glasses and enamels, and in crude form in the flame anodizing process.
cerium oxalate. See ceric oxalate. Fay.
cerium oxide. See cerous oxide. Fay.
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cerium oxide. See cerous oxide. Fay.
cerium oxide. See ceric oxide. Fay.
ceredia. A member of the subgenus Caynus, with the formula Mg6Al2(Al, Fe)2Si8O24, 2H2O, which is an opacified hornblende (Hey 2d, 1943).
ceremia. The preparation of or containing cerium oxide; see ceria. Fay.
ceremia. A discredited term equal to sili- 
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chain. The chain is a long line of links which are connected together to form a flexible rope. Chains are used in various applications such as lifting, pulling, and pulling. Chains can be made of different materials such as steel, aluminum, and plastic.

A chain is a long line of links which are connected together to form a flexible rope. Chains are used in various applications such as lifting, pulling, and pulling. Chains can be made of different materials such as steel, aluminum, and plastic.
chakotrichite. A variety of cuprite in which chakosite. Chalcocite. Weed, 1918.

chakophaake; hydrotranklimite. A hydrous iron-copper sulfide, FeCuS₄, that is found in various chambered veins. It contains 34.5% copper and 25% iron, CuFeS₄ or ChacFe.S₂.

challeneal. A pale blue incrustation on ancient bronze objects because he contains Se⁰⁺₂. Occurs in small blue mosses.

challeneal, a mineral, Cu₂Se₀.2Mn₂O₄. Named from its pale blue color; an element commonly found in sulfuric acid.

challeneal, chemical formula, Cu₂Se₀.2Mn₂O₄. Named from its pale blue color, and specific gravity of 3.7.

challeneal, powdered, used as a greenish blue pigment. ASTM C286-65.

challeneal, prepared; drop chalk; calcium carbonate. Prepared as a straight chalk line is made on the floor, or over a midpoint and allowed to snap back. A straight line on a &or tor placement of the number of tubs (cars) is well packed with chalk. ASTM C286-65.

challeneal, precipitated; calcium carbonate. For industrial uses, see whiting. CCD 6d, 1961.

challeneal, represented as: soft limestone, calcareous tufa, diatomaceous shale, or volcanic tuff. Long, b. To establish an outstanding performance record. Long, chalky; chalked. The condition of a porcelain enamelled piece that has lost its natural gloss and become powdery. ASTM C286-65.

challeneal, short, along the edges of a room. Long, chalky; chalked. The condition of a porcelain enamelled piece that has lost its natural gloss and become powdery. ASTM C286-65.

challeneal, uniform composition, resembles chalk or natural gloss and become powdery. ASTM C286-65.

challeneal, water. A mineral's working place sometimes referred to as a source point. Whisker 2d. A powder used in various forms as a galvanic cement to fill in small holes or gashes.

challeneal, white, twisters Misra, mineral, (Mn, Zn)O.2MnO₂.9H₂O. Named from its pale blue color, and specific gravity, about 2.7. For industrial uses, see whiting. CCD 6d, 1961.

challeneal, with, in a series of chambers, as much as 7,000 pounds of dynamite may be charged. The drift is well packed with earth and sand before firing. In such a chamber, or series of chambers, as much as 7,000 pounds of dynamite may be placed, throwing down 350,000 tons of rock at one blast. See also chamber, chamber blasted.

chamber blasting. A large-scale blast in which explosives in bulk are placed in excavated subterranean chambers. Also called coove blast; ensembler-hole blast. Webster 2d.

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chamolite. A mineral member of the chlorite group, approximately (Fe, Mg, Al, Fe)\(_2\)\(\text{AlSi}_2\text{O}_{10}\)(OH)\(_2\) monoclinically or orthorhombically. The characteristic constituent of many olivine iron ores. A.G.I.

chamotte. a. Fr. Burned clay used by zinc smelters. b. The refractory portion of a mixture used in the manufacture of fire-
channel sand. A sand or sandstone deposit.

channel sampling. See trench sampling.

channel man. In ore dressing, smelting, and quarry industry, one who gets up and hauls loose materials from the bottom of a shaft.

channel-machinery operator. A machine for raising water, or in which some machine work is accomplished by a group of reciprocating, hand-powered bars, operated by steam or compressed air while the machine receiving them, leaves back and forth to deliver the water only on the other ends, such as hammers, mauls, or ram. Also called channel hand.

channel milling. Cutting machine capable of cutting solid objects at once. It is used for cutting down distance off the quarry face without explosives. Pryor, 3.

channel mowers. A machine for raising water, or in which some machine work is accomplished by a group of reciprocating, hand-powered bars, operated by steam or compressed air while the machine receiving them leaves back and forth to deliver the water only on the other ends, such as hammers, mauls, or ram. Also called channel hand.

channel width. 6. The width of the beam between the outer edges of the beam supports. Pryor, 4.

channel welding. S. A customary method of joining, by sound, of the thickness of coal between two working places, or between levels of the same level and real; Pryor, 10. To remove the face of the coal, etc., for the sake of safety, be knocking on it with Fyr. A blow cap, knock, or strike Webster Id 74 capping.

channel work. A term for a kind of asphalt or bitumen. Also called Mexican asphalt.

channel works. A. A thicket of dwarf evergreen bushes, a dense impenetrable thicket of stiff or thorny shrubs or dwarf trees. Webster Id 74 Characteristics of Mexico and Northwestern United States. Fay.

channel works. A. A thicket of dwarf evergreen bushes, a dense impenetrable thicket of stiff or thorny shrubs or dwarf trees. Webster Id 74 Characteristics of Mexico and Northwestern United States. Fay.

characteristic curve. See last but one paragraph.

characteristic impedance, 4. If an explosive, the amount of energy transferred to a given load, in a function of the product of impedance and form of detonation. Fay. 6. For rock, density times velocity of longitudinal waves in the rock. Fay. 8.

characteristic radiation. High intensity, single wavelength X-rays, characteristic of the compound of the rays that appear in addition to the continuous white radiation whenever the voltage of the X-ray tube is increased beyond a critical value. Fay.

characterizing necessary minerals. Synonym for characterizing mineral. Fay. 74

characterous. A. A term for a substance that will not change, as by carbonization, under ordinary conditions. Fay. 74

charcoal. A dark-colored or black porous form of carbon made from vegetable or animal substances (as from wood by heating in a kiln or retort from which air is excluded) and used for fuel and in various mechanical, artistic, and chemical processes. Webster 5d.

charcoal blackening. Charcoal used in the pulped form as dry blacking or in suspension with clay as a black wash and either dusted or coated on the surface of molds to improve the surface. Osborne.

charcoal furnace. A furnace in which wood or any other substance is reduced to charcoal by dry distillation. Standard. 1964.

charcoal. A. A dark-colored or black porous form of carbon made from vegetable or animal substances (as from wood by heating in a kiln or retort from which air is excluded) and used for fuel and in various mechanical, artistic, and chemical processes. Webster 5d.

charcoal blackening. Charcoal used in the pulped form as dry blacking or in suspension with clay as a black wash and either dusted or coated on the surface of molds to improve the surface. Osborne.
A man specially appointed by the manager for the work of raking the furnaces, the charging of which is generally done by examination. 11am.

A man who loads metal or metal in the form of a charging machine.

A machine for driving coal, ore, or metals in a furnace gas, except coke or coke over.

A machine or machine powerer, driving a charging machine.

A laborer who charges an electric furnace with metals, alloys, and other materials. Also called furnace charger; furnace feeders. D.O.T. Sapp.

The iron pan adjusted on the charging scale for holding and conveying the scrap in the charging machine.

A long arm or extension at the end of the charging scale for holding and conveying the scrap in the charging machine.

A device used for holding hot metal and for conveying the scrap in the charging machine.

A locomotive engineer, or one who load., and is charged, furnace charging machine operator, in power, and pusher runner. D.O.T. 1 b.

A device used for holding hot metal and for conveying the scrap in a reverberatory furnace. D.O.T. 1.

A laborer who loads metal or metal in a furnace gas, except coke or coke over.

A man specially appointed by the manager for the work of furnaces, the charging of which is generally done by examination. 11am.

A machine or machine powerer, driving a charging machine.

A long arm or extension at the end of the charging scale for holding and conveying the scrap in the charging machine.

A device used for holding hot metal and for conveying the scrap in a reverberatory furnace. D.O.T. 1.

A long arm or extension at the end of the charging scale for holding and conveying the scrap in the charging machine.

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A man who loads metal or metal in the form of a charging machine.
...
check vain, a. Generally, a ball typ vaht dc...cbvckiheeL... check rat e.eh *w*s ow4... 

direction but automaticnlly closes when...through the rods. Lo,ig. b. Any device... upward flow of... circulation liquid through the inner tube.

check blocks the downward flow of the...1ril1in en proressini .SM Girt.,,.r.*,,'ed P'v ce'ntrifu(al ft'.rc...the IN,44.F t.*,1 .14'.tw4 ('r... C...r4-4

c4-4 C

check...the flow i...When uscd on a rod string, it blocks the...the uhits necessary to do various roatine...itsrmhlies with the con p.-.rwnt items shown...4444'0.

check...stopped or reversed. Long. See...the...v'eIIhakI,,...the...cheeie wels. Aust. The circular cheese-

check...check blocks the downward flow of the...1ril1in en proressini .SM Girt.,,.r.*,,'ed P'v ce'ntrifu(al ft'.rc...the IN,44.F t.*,1 .14'.tw4 ('r... C...r4-4

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check...the flow i...When uscd on a rod string, it blocks the...the uhits necessary to do various roatine...itsrmhlies with the con p.-.rwnt items shown...4444'0.
chemical configuration

energy, energy released as a result of nuclear fission, or the release of energy by radioactive disintegration, is called the energy of a nuclear reaction. One of the most important sources of energy is the energy released by the fission of uranium or plutonium. The energy released by the fission of a single atom of uranium-235 is equivalent to the energy released by the explosion of about 20,000 tons of TNT. The energy released by the fission of a single atom of plutonium-239 is equivalent to the energy released by the explosion of about 100,000 tons of TNT.

chemical combination of metals. The process by which metals combine is called chemical combination. The process by which metals combine is called chemical combination. The process by which metals combine is called chemical combination. The process by which metals combine is called chemical combination. The process by which metals combine is called chemical combination.

chemical composition of matter. The chemical composition of matter is the arrangement of the atoms of the elements that make up a substance. The chemical composition of matter is the arrangement of the atoms of the elements that make up a substance. The chemical composition of matter is the arrangement of the atoms of the elements that make up a substance. The chemical composition of matter is the arrangement of the atoms of the elements that make up a substance. The chemical composition of matter is the arrangement of the atoms of the elements that make up a substance.

chemical definition. The definition of a chemical term is a statement of the meaning of the term. A chemical term is a statement of the meaning of the term. A chemical term is a statement of the meaning of the term. A chemical term is a statement of the meaning of the term. A chemical term is a statement of the meaning of the term.

chemical disposition. The process of disposing of waste or unwanted materials is called chemical disposition. The process of disposing of waste or unwanted materials is called chemical disposition. The process of disposing of waste or unwanted materials is called chemical disposition. The process of disposing of waste or unwanted materials is called chemical disposition. The process of disposing of waste or unwanted materials is called chemical disposition.

chemical dissolution. The process of dissolving a substance in water is called chemical dissolution. The process of dissolving a substance in water is called chemical dissolution. The process of dissolving a substance in water is called chemical dissolution. The process of dissolving a substance in water is called chemical dissolution. The process of dissolving a substance in water is called chemical dissolution.

chemical energy. Energy released as a result of chemical changes is called chemical energy. Chemical energy is released as a result of chemical changes. Chemical energy is released as a result of chemical changes. Chemical energy is released as a result of chemical changes. Chemical energy is released as a result of chemical changes.

chemical equilibrium. A chemical equilibrium is a state of balance between two or more chemical reactions. A chemical equilibrium is a state of balance between two or more chemical reactions. A chemical equilibrium is a state of balance between two or more chemical reactions. A chemical equilibrium is a state of balance between two or more chemical reactions. A chemical equilibrium is a state of balance between two or more chemical reactions.

chemical engineering. Chemical engineering is the study of the design and operation of chemical plants. Chemical engineering is the study of the design and operation of chemical plants. Chemical engineering is the study of the design and operation of chemical plants. Chemical engineering is the study of the design and operation of chemical plants. Chemical engineering is the study of the design and operation of chemical plants.

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chemical expression. A chemical expression is a statement of the chemical composition of a substance. A chemical expression is a statement of the chemical composition of a substance. A chemical expression is a statement of the chemical composition of a substance. A chemical expression is a statement of the chemical composition of a substance. A chemical expression is a statement of the chemical composition of a substance.

chemical fusion. The process of fusing two or more elements together is called chemical fusion. Chemical fusion is the process of fusing two or more elements together. Chemical fusion is the process of fusing two or more elements together. Chemical fusion is the process of fusing two or more elements together. Chemical fusion is the process of fusing two or more elements together.
chemical weathering. The weathering of rock
material by chemical processes that trans-
form the original material into new chemi-
cal combinations. Thus chemical weather-
ing of orthoclase produces clay, some
silica, and a soluble salt of potassium.

chemiluminescence. Luminosity connected
with chemical changes in a luminous sub-

chemise. A wall built as a lining to an earth
bank. See also revet. Ham.

chemistry. The study of the composition of
 substances
and the laws of their interaction. Branches
are inorganic chemistry, organic chemistry,
and physical chemistry. C.T.D.

chemoseparation. A process that separates
two or more substances of similar physical
properties.

chemotherapy. The treatment of diseases
by chemicals, which generate oxygen.

chemotaxis. The migrating of organisms
according to chemical stimuli.

chemosorption. Irreversible sorption, an ad-
hesion
of a substance to a surface.

chemoseparation. A technique for separat-
ing mixtures based on differences in chemi-
ical properties.

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chemoseparation. A technique for separat-
ing mixtures based on differences in chemi-
ical properties.

chemist. One who conducts research in the
chemistry of glass, and develops and controls
processes involved in the manufacture of glass products. Also called

chemistry. The study of the composition of
substances and their interactions, which
undergo. The main branches are inorganic chemistry, organic
chemistry, and physical chemistry. C.T.D.

chelate. A complex molecule, formed by
the coordination of a central metal ion with
several ligands.

chelating agent. A substance that forms
complexes with metal ions, used in water
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chelate. A complex molecule, formed by
the coordination of a central metal ion with
several ligands.

chelating agent. A substance that forms
complexes with metal ions, used in water
processing.
chew; chows. Scot.

chew.

chevron fold. A very sharp fold that is usu-


chicken ladder. A notched log or pole used

chicharra sampling. A sampling technique in

chiastolite; made. A variety of andalusitc,

Chezy formula. A formula expressing the

childrenite. A hydrous phosphate of alumi-


Chiddy's test. Cupellation assays for gold con-

Long. b. To tear through material in a

surface water into buttress drains arranged

along the line of steepest slope. Ham.

cheyta formula. A formula expressing the

relation between velocity of water, hydrau-

ricus, and friction slope; thus, V = C

R,Sr, in which V equals velocity, R equals

hydraulic radius, S equals sine of the

slope angle due to friction, and C equals

a coefficient. See also Kutter's formula; Ham.

chistophite. A variety of andalusite, aluminum silicate, Al₂O₃·SiO₃ in which

(carbonaceous impurities are arranged in a regular manner along the longer axis of the crystal, in some varieties like the X (Greek di), hence the name. Sanford.

chiastolite. A fine-grained, metamor-

phosed, carbonaceous shale without any

prominent cleavage or schistosity and con-

taining conspicuous crystals of chiastolite.

Hess.

chimblinite. A coarse-grained eudialyte syenite in which soda amphiboles are more abun-

dant than soda pyroxenes. It differs from

lujurite in having a more granular tex-

ture than soda pyroxenes. It differs from

Hess.

chilled contact; chilled zone. a. That part of

the crystal, in some varieties like the X

(related to pituiticinatc. Structure, earthy.

Formula, uncertain. From Chile. Weed,

1918.

dant than the interior of the intrusive which

was formed by the contact; the interior is gray. C.T.D.

chilled cast iron. Cast iron cast in molds

constructed wholly or partly of metal, so that

the surface of the casting is white and hard

while the interior is gray. C.T.D.

chilled shot. In hard-rock boring with ada-

manite or Callyx drill, chilled iron or steel points which are driven by a drill bit and do the actual abrasive cutting

Pray, 3.

chilled shot bit. A flat-surfaced bit used with

hardened steel shot to drill rock by a mill-

ing action. B.S. 3618, 1963, sec. 3.

chilled shot drill. See shot drill. Nelson.

chilled-shot drilling. A method of rotary drill-

ing in which chilled steel shot is used as the cutting medium. B.S. 3618, 1963, sec. 3.

chillers. A piping system through which a

wax distillate is run to chill the wax and thus make it separate from the oil. Bureau of Mines Stall.

chill hardening. See chill. Fay.

chill mark. A wrinkled surface condition on
glassware resulting from uneven cooling in the forming process. ASTM C162-66.

chill point. a. The temperature at which a metal solidifies (usually in a metal spray gun) starts to cool. Long. b. The temperature at which a molten metal, lubricating oil, or grease starts to congeal. Fay.

chill time. Same as quenching time. ASTM.

chiming. Crowning. Jarring a keeve to settle concentrate more thoroughly.

chimney. a. An ore shoot. Compare chute, e. Fay. b. A steep and very narrow cleft or fissure in a bed of rock. Fay. c. A pipe or pipe-like structure used to carry off the smoke or gases from a furnace. Fay. d. A pipe or pipe-like structure used to carry off the smoke or gases from a furnace. Fay. e. A metallic lead as sponge on aluminum, This

is precipitated together with

containing veins of white matrix; often

covered by a surface of white. Fay.

chilled shot. In hard-rock boring with ada-

manite or Callyx drill, chilled iron or steel points which are driven by a drill bit and do the actual abrasive cutting

Pray, 3.

chimney draught. A. The column of igneous rock fill-


chimney arch. An arch in the base of a chim-

ney used to admit a flue. A.C.S.G., 1963.
chip sampling

working difficulty, a true channel sample can't be taken. R. H. O. Olson used in preliminary prospecting.


chir; chirrels. Scotch. Coal that passes through a screening shovel; small coal free from dirt or dirtiness.


chiral twin. See Brazil twin. Bureau of Mines.

chid; chirtt. Dcrb. See chert. Fay.

chisel draft. The dressed edge of a stone, to keep the chisel to convert the chippings into the borehole. Water or mud is strike a series of blows at the bottom of the borehole. The chisel

chisel point. Mt. Synonym for chopping bit.

chittering. A fault that works another's mine without permission. The term is said to have originated at Silver Reef in southwestern Utah when the rich silver-chloride ores were being worked. The thin seams were followed by lessees with the least possible handling of barren rock, hence the miner became a chlordite, and his operations chlordoring. The words were later extended to similar workers and their operations in other fields. Fay. b. A compound of chlorine with another element or radical. A salt or ester of hydrochloric acid. Crispin.

chlorine. a. To follow a thin vein or discontinuous ore deposit by irregular workings, intent only on extracting the profitable parts and with no regard for development; usually said of a lessee, sometimes of one who works another's mine without permission. The term is said to have originated at Silver Reef in southwestern Utah when the rich silver-chloride ores were being worked. The thin seams were followed by lessees with the least possible handling of barren rock, hence the miner became a chlordite, and his operations chlordoring. The words were later extended to similar workers and their operations in other fields. Fay. b. A compound of chlorine with another element or radical. A salt or ester of hydrochloric acid. Crispin.

chloride of lime. CaO; Ca(OH)$_2$. Obtained by treating lime with chlorine gas. Used as a bleaching agent. Crispin.

chloride. A. salt. Usually said of a lessee, sometimes of one who works another's mine without permission. The term is said to have originated at Silver Reef in southwestern Utah when the rich silver-chloride ores were being worked. The thin seams were followed by lessees with the least possible handling of barren rock, hence the miner became a chlordite, and his operations chlordoring. The words were later extended to similar workers and their operations in other fields. Fay. b. A compound of chlorine with another element or radical. A salt or ester of hydrochloric acid. Crispin.


chlorine. a. The total amount in grams of chlorine, iodine, and bromine contained in one kilogram of seawater, assuming that the bromine and iodine have been replaced by chlorine. Hy. b. The number giving the chlorine in grams per kilogram of seawater sample is identical with the number giving the mass in grams of atomic weight silver just necessary to precipitate the halogens in 0.320323 kilogram of the seawater sample. Fay. c. In chemistry, solution of the halogen such as chlorine, bromine, or iodine, in a solvent, usually a liquid or gaseous chlorine to a stream of chloride after roasting and chemical treatment. Holmes, 1928.

chlorite. A schist containing chlorite. Fay.

chlorite. A schist containing chlorite. Fay.

chlorite schist. A schist containing prominent chlorite. Fay.

chlorite slate. A schist or slate rock composed largely of chlorite. Fay.

chlorite sand. A sand colored green by sand-size chlorite grains as one of the constituents. Fay.

chloritic. a. The replacement by alteration of ferromagnesian minerals to chlorite. C.T.D.

chlorite. A dark green britle mica, ($Fe^2^+$, $Mg$)$_4$(Al$_2$Si$_3$O$_9$)(OH)$_6$); monoclinic. Found in metamorphic rocks. Dana 17; A.G.I.

chloritoid. A yellowish or greenish earthy, po-

tassium silicate, with a specific gravity of about 2.0. C.T.D.

chloromanganakolite. A yellowish or greenish earthy, potassium silicate, with a specific gravity of about 2.0. C.T.D.


chlorine. A common nonmetallic univalent and polyvalent element belonging to the halogens. A heavy gas, irritating, toxic gas of disagreeable odor. Usually made by the electrolysis of aqueous solutions of sodium chloride. Used chiefly in powerful bleaching, oxidizing, and disinfecting agent in water purification and in making bleaching powder. The words were later extended to similar workers and their operations in other fields. Fay. a. A substitute for blackpowder in which potassium chloride is used in place of potassium nitrate. This class of explosive has received little attention because of greater sensitiveness to shock and friction. Fay.

chirch. a. A tool of great variety whose cutting principle is that of the wedge. Crit-}

chisel. a. A tool of great variety whose cutting principle is that of the wedge. Critical. b. A sharp, straight-edged drill bit. Bureau of Mines Staff. See also bit. c. The steel cutting tool used in percussive boring. It ranges from 6 to 12 inches in length with variously shaped bits to suit the nature of the ground. The chisel is made to strike a series of blows at the bottom of the borehole. Water or mud is circulated to convert the chippings into sludge and to keep the chisel cool. Nelson. d. See chisel.

chisel. Mr. a. Synonym for chopping bit. Long. b. A percussive-type, rock-cutting drill. Steel cutting tool used in percussive boring. It ranges from 6 to 12 inches in length with variously shaped bits to suit the nature of the ground. The chisel is made to strike a series of blows at the bottom of the borehole. Water or mud is circulated to convert the chippings into sludge and to keep the chisel cool. Nelson. d. See chisel.

chisel-end. A syphon end extending across the diameter and through the center point of the bit face. Also called chisel-edge bit; chisel-point; chisel-end bit. Fay.

chisel draft. The dressed edge of a stone, which serves as a guide in cutting the


chisel steel. A carbon steel containing 1 percent carbon. It is readily forged and used for chisel making, large punches, miner's drills, etc. Comm.


chkalovite. Sodium and beryllium silicate, Na$_2$Be(SiO$_2$)$_2$.

chiver. See shiver. Arkell.


chilienne. The group of schizometric meteor-ites composed essentially of enstatite. Bra-

chilienne. The group of schizometric meteorites composed essentially of enstatite. Bramina extended the term to include birefringent stones of the diogenite group. To avoid confusion, Prior proposed the term ambrite to replace chilienne as used by Rose and Murray.

chichon. Holmes, 1928.

chilanthites. Chilanthite. An arsenide of nickel, NiAs, occurring in the cubic system: tin-

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chilanthite. An arsenide of nickel, NiAs, occurring in the cubic system: tin-

chilanthite. An arsenide of nickel, NiAs, occurring in the cubic system: tin-

chloride after roasting and chemical at-

chalcophanite. A yellow chloride of po-


chlorite schist. A schist containing prominent chlorite. Fay.

chlorite slate. A schist or slate rock composed largely of chlorite. Fay.

chlorite sand. A sand colored green by sand-size chlorite grains as one of the constituents. Fay.

chloroletic. a. The replacement by alteration of ferromagnesian minerals to chlorite. C.T.D.

chloritoid. A dark green britle mica, ($Fe^2^+$, $Mg$)$_4$(Al$_2$Si$_3$O$_9$)(OH)$_6$); monoclinic. Found in metamorphic rocks. Dana 17; A.G.I.

chloromanganakolite. A yellowish or greenish earthy, potassium silicate, with a specific gravity of about 2.0. C.T.D.
induced draught. Nelson.

chimney effect. See stack effect. Strock, 10.

chimney-flue checkerwork. See basket weave.

chimney rock. a. A column of rock rising above its surroundings or isolated on the face of a cliff. b. A small fragment of rock, also chim- ney. Fay. b. Gulf States. A local name for any rock soft enough when quarried to be cut or sawed readily, refractory enough for domestic chimneys, and which may or may not harden on exposure to the air, as some limestone, siliceous basaltic clay, or soapstone. Hess.

chimney shot. A local term in New York applied to the effect of an overcharge of explosive in a line of drill holes, the effect being to throw the rock to some distance, forming a deep trench. Fay.

chimney tile. Special tile for chimney flues soft that it is readily broken in the finger. Material to supply alumina and silica in ware, when they are vitreous. See also bone.

China clay process. The method of producing glazed ware by which the ceramic body is applied and matured by firing at a lower temperature. ASTM C242-60b.

China clay. a. A finely sized clay-like material made from a conglomerate of quartz, calcite, and Chinaman pebbles resembling jasper. Fay. b. Same as Cornwall stone. Hess. c. Partly decomposed granite. Arkell. d. A similar microstructure is found in cast magnesium alloys containing silicon and aluminum, 5NaF.3A1F3, crystallizing in the tetragonal system and also occurring as Mg2Si. ASM Gloss.

china, or soapstone. Hess.

china process. The method of producing glazed ware by which the ceramic body is applied and matured by firing at a lower temperature. ASTM C242-60b.

China ore. a. A material to supply alumina and silica in ware, when they are vitreous. See also bone. b. Sometimes called bone. Hess.


China stone. a. Eng. White, cherty lime- stone ironstone in patches 10 to 30 yards square, and 16 to 20 feet in thickness. The iron ores from these were first worked out, and then the higher ones, by miners standing upon the fallen debris; and so on upward in lifts. See also rake. Compare overhand stopping. Fay.

Chinese blue; Mohammedan blue. The mel- low blue, ranging in tint from sky-blue to grayish-blue, obtained by the early Chinese and Persian potters by the use of impure cobalt compounds as colorants. Dodd.

Chinese glass. A glass article with a chipped or otherwise produced intentionally. ASTM C162-66.

Chinese silver. An alloy used as an imitation of silver containing 58 percent copper, 15 percent nickel, and 27 percent tin. ASTM C162-66.

Chinese stone. a. Made from a conglomerate of quartz, calcite, and Chinaman pebbles resembling jasper. Fay. b. A similar microstructure is found in cast magnesium alloys containing silicon and aluminum, 5NaF.3A1F3, crystallizing in the tetragonal system and also occurring as Mg2Si. ASM Gloss.


Chinese writing and Chinese silver. An alloy used as an imitation of silver containing 58 percent copper, 15 percent nickel, and 27 percent tin. ASTM C162-66.

chipped. a. When referring to character of the ore or coal, with a small pick, along a joint or in a manner similar to the mining of coal. b. A similar microstructure is found in cast magnesium alloys containing silicon and aluminum, 5NaF.3A1F3, crystallizing in the tetragonal system and also occurring as Mg2Si. ASM Gloss.

Chinese porcelain. A redish mirror alloy containing 80.03 percent copper and 5.50 percent antimony. Comm.

chipped glass. Pieces of material removed from a workpiece by cutting tools or an abrasive medium. ASM Gloss.

chip breaker. a. A notch or groove in the face of a tool parallel to the cutting edge, to break the continuity of the chips. ASM Gloss. b. A step formed by an adjustable component clamped to the face of the cutting tool. ASM Gloss.

chip breaker operator. In metallurgy, a laborer who shovels scrap metal sheetings into a machine that automatically crushes scrap to reduce its size. Fay.

chip diamond. See chip, a. Long. b. A material to supply alumina and silica in ware, when they are vitreous. See also bone. c. Partially decomposed granite.

chip effect. See stack effect. Strock, 10.

chipping. Pieces of material removed from a workpiece by cutting tools or an abrasive medium. ASM Gloss.

chippings. Crushed angular stone fragments ranging from 1/2 to 1 inch in size. See also aggregate.


chip. a. A chip sample. A regular series of ore chips taken either in a continuous or in discontinuous manner. Fay. b. A small fragment of a diamond, usually taken daily and often confined to exploration or reasonable care is taken to chip a weight of material which corresponds to the length of sample line. See also bulk sample. c. A variant of channel sampling, in which, owing to extreme hard- ness of rock, shape of deposit, or other

210
chloromanganokalite

lith.
chlorocrate. See hydrophylite; baeumelite.
chlorocyanic. Consisting of chlorine and cy-

troite. A dark green, nearly black variety of jadeite. Fay.

choice of amyloid hydrous silicate of iron, Fe₅O₃.3SiO₂.3H₂O. Fay.

choiraphite. A mineral closely related to chiorite in composition and found in the

crystal. From Franklin, N.J. English.

cholophyll. A mineral of iron necessary in the formation of chlo-

colored by the presence of copper. Fay.

cholesterol. The number expressing the cholesterol in grams per 20° C liter. Obtained by

choke block; choke lumps. Pieces of wood, gravel, or similar material. Used to choke a

choke point. Bottle-neck of any crushe.

choke point. A chain or cable so fatended that it

choke hook; round hook. A hook that

choke valve. A valve to regulate flow of fluid from an oil well. Different choke sizes are used for different producing rates. The choke is generally referred to as a beam. The size of opening is measured in sixty-

choke feeding. As deliberately used in roll crushe.

choking, or suffocation, due to insufficient

choke point. A narrow part of any crushe.

choke point. Bottleneck of any crushe.

choke point. A point at which the discharge arrange-

choke point. A point at which the discharge arrange-

choke point. Bottleneck of any crushe.

choke and block. Newc. Tightly filled

choke blocks. Pieces of wood, gravel, or similar material. Used to choke a crushe.

choke blocks. Pieces of wood, gravel, or similar material. Used to choke a crushe.

choke blocks. Pieces of wood, gravel, or similar material. Used to choke a crushe.

chocolate. A very fine-grained mica schist

chocolate-colored drilling mud or

chocolate. A very fine-grained mica schist

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choc_Line. A term used to describe the digging action of a dragline or other subsoil equipment when excavating and placing dirt in a hole.
chopping; chopping down

lip. This term is usually used when referring to an operating method where the dragline bucket excavates above the line of the fairlead and fills above tub level.

chopping bit. A steel, chisel-shaped cutting-edge bit designed to cut a string of drill rods and used to fragment, by impact, boulders, hardpan, and lost core in a borehole. Also called chisel bit, chisel-edge bit, chisel-point bit, long-chopping bit. A straight chopping bit. Compare cross-chopping bit. Long.


chord. a. In public land surveys the line of a great circle connecting any two selected corners on a base line, standard parallel, or latitudinal township boundary. Selys, 2. b. Any straight line joining any two points on the circumference of a circle. Jones, 2, p. 102.

circular effect; chordal action. The effect produced by the chain joint centers being forced to follow arcs instead of chord of the circle. JBM.

chordal pitch. The length of one side of the polygon formed by the lines between the joint centers as the chain is wrapped on the sprocket. It is a chord of the sprocket pitch circle, and is equal to the chain pitch. JBM.

chortmites. A general term for a group of mixed rocks, the fabric of which is described as macropolyhematite. They are the result of the injection of the crystallization products of intruding magmas into, and/or the mixture of such material with, the existing pre-existing rocks or metamorphic. According to Sederholm, they are a type of migmatite, but Niggli would restrict migmatite to the mixed rocks which have originated by a process of partial or complete differentiation, and/or the mixture of such material with, the existing pre-existing rocks or metamorphic. They are similar in chemical, physical, and mineralogical composition to the mineral chromite. Bate.

chromatograph. An instrument for analyzing gases and vapors from liquids with boiling points up to 300°C. The gas chromatograph analyzes the mixture of the gas in increasing size, and each group emerges from the column, a detector measures the quantity of each. All the molecules of one type emerge within the same time interval, it is possible to identify quickly the constituents present. Sensitiva detectors can determine concentrations as low as 1 part in 1,000,000. Used in lyc-pop production and in the B.O.S. process. Nelson.

chromatography. The separation of components of mixture into zones, or one or more of which can be identified by color, etc. (1) by adsorbing or absorbing from solution in tube packed with cellulose, alumina, lime, etc., 2) by electrochromatography, paper chromatography across column, or paper strip down which solvent mixture is flowing, causing migration to side of flow-line; (3) by electromicroscopy, use of electric current to aid migration and, (4) by paper partition, separation into bands as suitable solvent flows past drop of solution which contains compounds (qualitative and quantitative analysis. Pryor, 3.


chrome. a. Same as chromium. Fay. b. Commonly used to indicate ore of chromium consisting of the mineral chrome. Bate.

chrome, alumina. A ceramic color consisting principally of Cr₂O₃, Al₂O₃, and ZnO; when used as a glaze stain, the glaze should contain iron. If the glaze is free of oxide, it is called chrome. If it is free of oxide and contains iron, it is called chrome iron. Chrome iron is used as a smalt for enamels. Fay.

chrome-brick. A refractory brick made of chrome ore. Chrome brick is used for burning bars. Hanes.

chrome-magnesite brick. A refractory brick that may be either fired or chemically bonded, manufactured substantially of a mixture of chrome ore and dead-burned magnesite, in which the chrome ore predominates by weight. HW.

chrome ocher. A bright green clay material, containing 2 to 10.5 percent Cr₂O₃. Hess.

chrome ore. A rock having as its essential constituent the minerals chrome or chrome spinel, which is a combination of FeO and MgO with Cr₂O₃, Al₂O₃, and usually a small proportion of FeO. The composition, which is represented by the formula, (Fe, Mg)O(Cr, Al)₂O₃, is extremely variable. Refractory grade chrome ore has only minor amounts of accessory minerals, and has physical properties that are suitable for the manufacture of refractory products. HW. The steel industry consumes more than three-fourths of the production of chrome refractories or in the production of chrome alloys, and especially stainless steel; the mineral is used also for tanbark for the manufacture of refractory products. HW.

chromatic aberration. The effect of different colors or wave lengths of light on one side and reddish or orange on the other when immeasurable in the liquid of the same refractive index as the mineral for certain colors or wave lengths of light. Hess.

Christmas tree. The assembly of pipes and valves on top of the casing of an oil well that controls the flow of oil from the well. Shell Oil Co. See also casing head. Christobalite. Same as cristobalite. Standard, 1964.

Christy's equation. In reciprocation of gold by zinc from auriclyde (cyanide process): 2KAu (CN)₂ + Zn + 4KCN + 2H₂O = 2K₂[Cr(CN)₄] + Zn(CN)₂ + 2H₂, Pryor, 3.

chromizing; chromizing; chromatizing. Forming an acid surface to improve the paint adhesion on aluminum or aluminum alloys, mainly aircraft skins, by treatment with a solution of chrome acid. ASM Gloss.

chromate. A salt or ester of chrome acid; a compound containing the radical, CrO₂⁻₃. A.G.I.

chromate treatment. A treatment of metal in a solution of a hexavalent chromium compound to produce a conversion coating consisting of trivalent and hexavalent chromium compounds. ASM Gloss.

chromatic aberration. See aberration. Shipley.

chromic color. A hue, as distinguished from white, black, or any tone of gray. Opposite of achromatic color. Shipley.

chromating. Performing a chromate treatment. ASM Gloss.


chromatics. Used by Wadsworth to include mineral coloring matter, paints, pigments, etc. Fay.

chromatograph. A refractory brick that may be either fired or chemically bonded, manufactured substantially of a mixture of chrome ore and dead-burned magnesite, in which the chrome ore predominates by weight. HW.

chrome iron ore. Synonym for chrome. Fay.

chrome ironstone. See chrome.

chrome. A heat resistant cast iron alloy used for burning bars. Hanes.

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chromate. A salt or ester of chrome acid; a compound containing the radical, CrO₂⁻₃. A.G.I.

chrome refractories
but may react with strong acids or bases. "Henderson, p. 264."

chrome spinel. Another name for the mineral perovskite, a member of the spinel group. C.M.D.

Chrome Stainsless. A trade name for a steel containing 17 percent chromium and other alloying elements. Pryor, 3.

chrome-in-pink. A color for ceramic glazes. The color is probably p-dyed by the precipitation of fine particles of chrome oxide on the surface of tin oxide in an opaque glaze. Lime must also be present. Dodd.

crume tournamical. A variety of tournaminal obtained from the Ural Mountains, U.S.S.R. (10.86 percent Cr2O3); and Maryland (4.32 percent Cr2O3). Spencer 1949.

chrome vesuvian. Same as chrome idocrase. English.

chrome yellows. Yellow pigments of lead chromate: PbCrO4. A very light greenish-yellow to the lemon shade to a medium yellow. Medium yellow is about a normal lead chromate containing 95 percent or more lead chromate, PbCrO4. The light hues containing varying amounts of copper-pentahydrate lead chromate and lead sulfate. Chrome yellows are used in paints and enamels, also calcimines, but not in casein paints or finishes that are to be applied to surfaces that are alkaline, such as cement or stucco. CCD 6d, 1961.

crume, zircon-pink. About 70 percent of the SnO2 used in chrome-pink can be replaced by zircon without impairing the color or stability. See also chrome-pink in pink. Dodd.

cromia. See chrome oxide. "Bennett 2d, 1962."

crume. Of, pertaining to, or containing chromium in the trivalent state; for example, chromic oxide (CrO3), Webster 3d.


chromic iron. Chromite. Schneider.

chromic phosphate; chromium orthophosphate; chromium phosphate. Violet tridrnic crystals; CrPO4, 6H2O; soluble in acids; and insoluble in water. Used in pigments. CCD 6d, 1961; "Handbook of Chemistry and Physics, 45th ed., 1964, p. B-188."

chromic sulfide, hydrosulfide. e. Violet. amorphous scales; Cr2(SO4)3, 15H2O; specific gravity, 1.867 (at 17°C); and soluble in water. Used in ceramic - (glazes and green effects). CCD 6d, 1961, b. Violet; isometric; Cr2(SO4)3, 18H2O; specific gravity, 1.896; and soluble in water and alcohol. Used in ceramics (glazes and green effects). CCD 6d, 1961.

chromite. Chrome iron ore, FeCr2O4; cubic; iron-black; Mohs' hardness, 5.5; brown streak; specific gravity, 6.6. A commercial source of chromium. Chemical grade has high purity. Metallurgical grade is known as a biotite-chromite, bronzite-chromite, etc. Hess.

chromite. A steel-gray metallic element obtained from chrome (FeCr2O4). Alloyed with nickel in heat-resisting alloys and with iron or with iron and nickel in stainless and heat-resisting steels. Also used as a corrosion-resistant plating. Symbol, Crb; valence, 2; cubic; isometric and hexagonal; atomic number, 24; atomic weight, 51.996; specific gravity, 7.130 (at 20°C); melting point, 2,492°C; and specific electrical resistivity, 1.1 microhms per cubic centimeter (at 20°C). C.C.D. "Handbook of Chemistry and Physics, 45th ed., 1964, p. B-106.

chromium aluminite. CrAl; melting point, 2,160°C; and has good oxidation resistance. Lee.

chromium borides. At least three have been described: Cr, CrB, and Cr2B. They have high melting points; are very hard and corrosion-resistant; and may be suitable for use in jet and rocket engines. CrB; orthorhombic; specific gravity, 6.2; and Mohs' hardness, 9.5; hexagonal; specific gravity, 5.13; hardness, 2010. Knopp. CrB2; may be crystalline; specific gravity, 6.1; and Mohs' hardness, 9.4. Used as mechanical additives; high-temperature electrical conductors; cermets; refractories; and coatings resistant to attack by molten metals. CCD 6d, 1961; "Handbook of Chemistry and Physics, 45th ed., 1964, p. B-167."

chromium carbides. These carbides, CrC, Cr2C, and Cr3C2, have melting points of 1250, 1665, and 1890°C respectively. Extreme hardness and excellent surface finish make these materials, together with precision gauge blocks and they are also of interest for a number of mechanical and chemical applications. Lee.


chronium minerals. The only ore commercially exploited is chromite. Metal is used in steel alloys, plating, photograph, dyeing. Ore is used for refractory furnace bricks in steel furnaces. "Bennett 2d, 1962; "Handbook of Chemistry and Physics, 45th ed., 1964, p. B-167. b. Dark purple-red crystals and soluble in ether. Used in ceramic glazes and in colored glass; in chrome plating; and in metal cleaning. CCD 6d, 1961."

chronium nitride; chromium mononitride. CrN; specific weight, 66.00; isometric or amorphous; decomposes at 1700°C; and insoluble in water. "Bennett 2d, 1962; "Handbook of Chemistry and Physics, 45th ed., 1964, p. B-167."

chronium oxide; chromium sesquioxide. Chromium oxide; chromium; cr-orange green; chrome oxide green. a. Cr2O3; melting point, 2453°C. Chromium compounds are used in glasses, glazes, and enamels mainly to impart a green color. It is most often introduced as chromium oxide or potassium dichromate, but the dichromates of sodium and ammonium and the chromates of potassium, of sodium, and iron, and iron are used occasionally. Chromium oxide may be used in glasses to produce chromium pink or chrome greens. Lee; "Handbook of Chemistry and Physics, 45th ed., 1964, p. B-167. b. Green; hexagonal; and insoluble in water, acids, and in alkali. Used in metalurgy as pigments; and in ceramics. CCD 6d, 1961; "Handbook of Chemistry and Physics, 45th ed., 1964, p. B-167. c. Red; a pigment that consists of chromic oxide and it should not be confused with chrome green. It is made by burning sodium dichromate with a reducing agent. The pure grade consists of 99 percent Cr2O3; specific gravity, 5.20. Used for metallic finishes that are to be applied to cement surfaces. One of the most permanent and indestructible pigments. It is resistant to bases, alkalis and acids. CCD 6d, 1961. d. A green pigment used to some extent in green stains or oxides and also a raw material in the manufacture of vitreous enamels. Fayon.

chronium plating. The production of a thin layer of chromium on the surface of another metal by electrolysis in order to protect it against corrosion. Thicker coatings are used to resist wear and abrasion. See also hard plating. T.B.


chronium silicides. CrSi, CrSi2, CrSi3, and CrSi4; melting points to 1/10° C; excellent resistance to oxidation in air at elevated temperatures; and great hardness. Used as wear-resistant components at high temperatures. Lee.

chronium steel. Steel containing varying amounts of chromium, very hard and tenacious. See also stainless steel. Nelson.

chronium sulfide; chrome sulfite. Violet or red powder; Cr2(SO4)3; specific gravity, 3.012; and insoluble in water and in acids. Used in ceramics (glazes and green effects). CCD 19, 18, M.M., 1949.

chronium trisilicide; chromium anhydride. a. Cr2O3; molecular weight, 99.99; red; orthorhombic; deliquescent; melting point, 2.70; melting point, 196° C; and soluble in water and in ethyl alcohol. Bennett 2d, 1962; "Handbook of Chemistry and Physics, 45th ed., 1964, p. B-167. b. Dark purple-red crystals and soluble in ether. Used in ceramic glazes and in colored glass; in chrome plating; and in metal cleaning. CCD 6d, 1961.

chronized iron; chromized steel. Iron or steel that has been subjected to burial in a mixture of pure powdered chromium and aluminum in an atmosphere of pure hydrogen, at a temperature of 1400° C. A high chromium alloy that withstands high temperatures and is highly noncorrosive. In air is thus formed on the outside of the iron or steel. Hess.

chronozing. A surface treatment at elevated temperature, generally between 400 and 800°C; and involving the reaction between the metal and carbonaceous materials at high temperatures; and great hardness and excellent surface finish make these materials suitable for precision measurements and other uses having to do with properties of the surface. Lee.

chronography. Method of identification of minerals. Polished section is placed in contact with photographic paper, a current is passed, and ions migrating to the paper are developed so as to produce a color print suitable for microscopv. Resembles microprinting. Pryor, 3d.


chromography. A chemical process of separating closely related compounds by permitting a solution of them to filter through an absorbent so that the different compounds become absorbed in separate colored layers comprising a chromatogram. 11BGC.

chromus. Of, pertaining to, or containing chromium in the bivalent state; for example, chromous chloride (CrCl2). Webster 3d.

chronowulfenite. A red variety of wulfenite, containing some chromium. Fayon.

chron. Originally introduced to designate an indefinite division of geologic time. More recently, it has been proposed as the time unit equivalent to the stratigraphic unit, subseries, and the geologic name; for example, Mohawkian. Hess.

chronic exposure. Irradiation over a long period of time, either continuous or made in parts.
chronic exposure

up of several shorter periods. N.G.B.
chronograph. An apparatus for electrometrically recording explosion phenomena simulta-
nously with a continuous time record. Rice, George S.
Christof's hardness scale. A scale for the measurement of hardness. L此处缺失了具体信息。
chrysoberyl. Beryllium aluminate, BeAl₂O₄; orthohombic; color green; Mohs' hard-

ness, 8.5; streak, vitreous; specific gravity, 3.7. Gem varieties transparent. Pryor, 3. Known as cat's-eye when it has a chatoy-

ant luster. Fay.
chrysoberyl cat's eye. See cyanophane; cat's-
eye. C.M.D.
chrysoberyllus. A confusing name, rarely applied to greenish-yellow beryl. Shipley.
chrysocarmine. A red or brown copper-bearing ornamental stone from Mexico con-
taining light and dark blue as well as numerous green spots of garnet, azure or turquoise. Shipley.
chrysocolla. Hydrated copper silicate, Cu₅SiO₃(OH)₂; usually encrusted rather than crystalline; color, green to blue; Mohs' hard-

crystalline; color, green to light blue; Mohs' hardness, 3.5; streak, bluish; specific gravity, 3.1. Gem varieties transparent. Pryor, 3.
chrysojasperite. A yellowish-green, sometimes brownish or reddish, iron-magnesium sili-
cate. A common mineral in basalt and diorite. When used as a gem, it is called morganite. The name has at various times been applied to topaz, prehnite, and apatite but is now used only to mean olivine. Fay.
chrysojasperine. Same as chrysojasper. Shipley.
chrysojasperite. A light yellow-green to yellow to yellow-green silicate. Shipley.
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chrysojasper. A yellowish-green to yellow-

sapphire colored with chrysocolla. Shipley.
chrysojasper. A yellowish-green beryl.
Schaller.
chrysojasper. A translucent apple-green com-

mon opal colored by nickel. From Sileia. See also neopaz. Shipley.
chrysojasper. A yellowish-green to yellow-

opaz. Zn₄SiO₄. Used as a gem. A.G.I.
chrysojasper colored oazy. Same as green opaz. Shipley.
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churn-drill operator

blasthole driller; blasting hole well driller; clipper blast-drill operator; well driller
corn-churn drill. A boring rig which churns. Forest of Dean. ironstone Ns orkings
corn-churn-drill rig. A churn-drill machine, complete with accessory tools and equipment required for specific drilling operations.

churn. Agitating the fluid metal in a mold by moving a small, heated iron rod up and down in the feeder in order to insulate solid castings.
churn shot drill. A boring rig which combines both churn and shot drillings. The churn drill is used for rapid penetration in barren ground where no core is required. The shot drill is used for taking core samples and important rock formations.

chute. a. A channel or shaft underground, or an inclined watercourse, natural or artificial, especially one through which ore falls or is shot by gravity from a higher to a lower level. Also spelled shoot.
b. In a crosscut mining; one connecting a gangway with a heading.
c. An inclined watercourse, natural or artificial, especially one through which ore falls or is shot by gravity from a higher to a lower level.
d. A narrow channel, especially one on the lower Miners Standard, 1964.
d. A body of ore, usually of elongated form, extending downward within a vein (ore shoot).

chute system. A method of mining by which ore is broken from the surface downward through chutes. Fay.

chute binn. Both churn and shot drillings. The chamber-and-pillar system of working. Fay.

chute caving. The method involves both over-hand stopping and ore caving. The chamber is started as an overhead stope from the head of a chute that is extended upward until the back weakness sufficiently to cave. The ore body is worked from the top down in thick slices, each slice being, however, attacked from the bottom and the working extending from the floor of the slice up to an intermediate point. The cover follows down upon the caved ore. Also called caving by raising; block caving in chutes.
fay.

curne. chote. In mining, one who keeps record of amount of ore drawn from each raise or chute in an ore body sectioned by the caving method (lower part of ore body is mined and developed with a system of chutes so that the remaining ore which sloughs, or caves, from lack of support can be drawn off). Also called tallyman. D.O.T. 1.


chute center. a. In metal and nonmetal mining, a laborer who loads ore or rock into mine cars underground by opening and closing chute gates. Also called chute draver; chute center; chute trammer. D.O.T. 1. b. In the quarry industry, one who loads crushed rock from bins into trucks or railroad cars by opening and closing the chute or bin gates by hand or by means of a lever. Also called car loader. D.O.T. 1. c. See chute man; chute center.

courage. In anthracite and bituminous coal mining, a laborer who loads coal or rock from chutes or bins into mine cars, railroad cars, trucks, or onto screens, rolls, or picking tables, opening and closing the gate or door by hand or by means of a lever. He may be designated according to type of work, as railroad-car loader; screen feeder; or slate-gate attendant. Also called basket man; gateman. D.O.T. 1.

current. a. In metal mining, one who tends chutes which convey coal from tipple down a slope to a point where it

devoted to the inside of a bend, along a trough between low ridges formed by deposition on opposite sides of the bend where water velocities were reduced. Also called chute cutoff. Compare neck cutoff. Let.


cinnabar. In southwestern United States, a moist or springy spot where there is a natural seepage of water in an arid region.

cinva. The name derives from the initials of the Commission Internationale de l'Eclairage. It is a trichromatic system of color notation that is being used, for example, in the glass industry.

cinnuron series. Red beds occurring above the salt deposits in the Permian of Kansas.

cinder bond. A low-setting, rapid-hardening cement containing 40 percent lime, 40 percent alumina, 10 percent silica, and 10 percent impurities; specific gravity 2.9 to 3.0. Bennett 2d, 1962. Sometimes called bauxite cement.
cinnaite. A volcanic rock composed essentially of sandine and pyroxene with subordinate calcic plagioclase and olivine. An olivine trachyte. A.G.I.
cinnaite. A natural mixture of clay and field-spar occurring in parts of Chile. The composition is not uniform but typically consists of 50 percent Qtz; 33 percent AlO; 1 percent FeO; 4 percent alkali, and 4 percent H2O. Dodd.

cinnaite. A white, grayish, or reddish hydroxide of aluminum, sodium, and claylike or chalklike in appearance.
fay.
cinch. cinch. a. In Nevada, the annual assessment work required to hold title to an unpatented mining claim. Bureau of Mines Staff.
cinch. b. Same as chute loader. Also indicates an old dump as distinguished from one in use. Fay.

cinder. a. One of the small commonly vesicular fragments of lava that are ejected from an erupting volcano, are about 1/8 to 1/2 inches in diameter, and are coarser than volcanic ash and smaller than volcanic bombs. Webster 3d. An uncoated volcanic ic fragment that may range from 4 to 52 millimeters in diameter. Such fragments are usually gaseous or vesicular. Stokes and Varnes, 1935. c. Eng. Inferior ironstone, North Staffordshire. Nelson. d. A derogatory synonym for carbon. Long. e. Slag, particularly from iron blast furnaces. Fay. f. A scale thrown off in forging metal. Webster 3d.
cinder block. Same as chute loader. Also indicates an old dump as distinguished from one in use. Fay.

cinder coal. a. Coal which has been cindered by niat from an igneous intrusion. Many
cinder coal

Coal seams have been affected in this way in Scotland and in Durham, England. See also metamorphism. Nelson, b. Aust. A very inferior natural coke, little better than ash. Fay.
cinder cooler. In a blast furnace, a water-cooled casting, usually of copper, that is poured into the cinder notch. Henderson.
cinder dock. A bed containing molds into which, in former practice, cinder was run, chilled, and then thrown into cars with cinders.
cinder dump. A place where cinder ladles are emptied. Fay.
cinder fall. The dam over which the slag from the cinder notch of a furnace flows. Fay.
cinder notch. The hole, about 5 or 6 feet above the cinder notch, and 3 feet below the tuyères, through which slag is flushed two to three times between casts. See also cinder instrument.
cinder pip. Pig iron made from a charge containing a considerable proportion of slag from puddling or reherning furnaces. C.T.D.
cinder pit. Large pit filled with water into which solid or cinder matter is run and granulated at cast or flush. Fay.
cinder plate. See bloomer, Fay.
cinder car. A car to carry cinder slag from the cinder runner to cinder notch or pit and ladle. See also cinder notch. Fay.
cinder shutter. A man who removes cinder skulls from cinder runners. Fay.
cinder tap; cinder notch. The hole through which cinder is tapped from a furnace. Also called cinder front. Fay.
cinder tub. A shallow iron truck with movable sides into which the slag of a furnace flows from the cinder runner. Fay.
cinder, volcanic. A fragment of lava, generally less than one inch in diameter, occurring as a volcanic weld. Mother.
cinder wool. A fibrous glass obtained by the action of a jet of air or steam upon molten slag, as it flows from a blast furnace. Commonly called mineral wool. Fay.
cinnabar. Mercury sulfide, HgS; hexagonal; color red; Mohs' hardness, 2 to 2.5; specific gravity, 8.1; 86.2 percent mercury. Pryor, 5.
cinnabar matrix. A term applicable to various varieties of minerals containing numerous inclinations of cinnabar but especially to a Mexican variety of jasper. Shipley.
cinnamite. Same as cinnamon stone. Fay.
cinnamon stone. Grossularite, a lime garnet. See also esonite; honsonite; hyacinth. Hess; Dana 17.
cippolotti weal. A measuring weir in which the notch plate has a trapezoidal opening tapering from the top, the side slopes being 1:4 opposite side, 1:5 opposite face. C.I.P.W. classification. From the initial letters of the last names of the men who originated it, Gross, Siddings, Pirson, and Washington. Synonym for norm system. A.G.I.
circle. a. In the central United States, a nearly circular lead deposit. Fay.
circle arc. A magnetic arc developed in clayey chert breccias in old sinkholes in Paleozoic limestone or in dolomite (broken horizons). Schieferdecker, b. Fay. In a grader, the rotary table which supports the blade and regulates its angle. Nichols. c. A plane figure bounded by a curved line called the circumference, and every point of the circumference is equally distant from a point within the figure, called a center. Jones, 2, p. 91.
circle agate. Agate with circular markings. Shipley.
circle brick. A brick with two opposite larger faces curved to form parts of concentric right circular cylinders. Hollow radial brick. Dodd.
circle grinding. Either cylindrical or internal grinding. ASM Gloss.
circle baulk. In strip mining, a hauleway system in which the empty units enter the mine over one lateral and leave, loaded, over the other laterals. This system is utilized where lateral entries are built into the mine from the main road, whether outside or on the wall side of the mine workings. This system reduces the haul on the coal surface to a minimum, except where there are but two laterals, one at each end of the workings. R.I. 3416, 1938, p. 9.
circle ginder. Thrust-blocked Block machine larger than punch and of sufficient area to yield a disk 2 inches in diameter free of racks and open areas. Now included in general term punch mica. Snau.
circle reverse. The mechanism that changes the angle of a grader blade. Nichols.
circle Chas. Wavy, undulating streaks of minerals developed in limestones and thin shales. See also farm mica. Shipley.
circle discharge. A revolving cone with feeder fingers around the base periphery connected at the apex through a universal joint to a revolving arch breaker arm. ASA MH4.1-1938.
circular coal. Another name for eye coal. Shipley.
circular cutting drill. See ditcher, b. Fay.
circular field. The magnetic field which surrounds a nonmagnetic conductor of electricity or which exists and is completely contained within or also surrounds a magnetic conductor of electricity. Generally applied to the magnetic field within any magnetic conductor resulting from a current being passed through the part or through a section of the part. ASM Gloss.
circular bin. Same as circular kiln. A saw pit; saw pit arch. Dodd.
circular sawyer, stone. Device installed in the positive circuit to interrupt the flow of electric current when it becomes excessive or merely exceeds a predetermined value. Circuit breaker breakers are provided at the substations to protect the generating equipment between substations to break a faulted section, so that a distance station cannot feed through to a fault; and in the circuit to each mining section. A circuit breaker feeding such a mining section is called a sectionalizing circuit breaker. Kentucky, p. 235, b. Fay. While automatically interrupting an electric circuit under an infrared abnormal condition (as overload). Webster 3d. See also cutoff, g. Fay.
circulars: roundabouts. Circular galleries made at the core of a mine to contain a chute which enable empty trucks to be pushed out of the cage on one side and simultaneously for the full ones to be pushed in on the other side, thus ensuring a more rapid journey of the cage. Circuits also aid the circulation of the air. Stots, 1, p. 257.
circuit tester. A galvanometer used for testing circuit breakers before firing by touching the terminals of the circuit to the posts of the test. One type contains a silver chloride cell which generates such a small current that a single cap may be tested. Lewis, T. 1937.
circuit voltage. Voltage is the greatest root-mean-square difference of potential between any two points in the circuit system. All points in the circuit to each mining section. This system reduces the pressure from roof, sides, and floor. With close lagging between the rings, the finished roadway resembles a tube. See also steel arches. Nelson.
circular saw. A saw that moves around a central arbor. Crispin.
circular cutting drill. See ditcher, b. Fay.
circular arch. A roadway support consisting of an H-section girder of circular form and usually made in three parts. The joints are secured by flapholes and bolts. This type of steel arch is useful for supporting high pressures from roof, sides, and floor. With close lagging between the rings, the finished roadway resembles a tube. See also steel arches. Nelson.
circular mil. A unit used for the measurement of the area of wires. It is equal to 0.7854 of a square mil. One square mil is 1,974 circular mils. Standard, 1964.
circular saw. A saw pit; pit as a circle. Shipley.
circumference. A circle which includes all the points on the boundary of a circle or a sphere; the line passing through the center of a circle or sphere and connecting two different points on its boundary. Also called the circle's perimeter. The longest straight line that can be drawn through a circle or sphere, passing through its center. Bayer, 1.4. In the case of a cylinder, the circumference is the length of the curved line that forms the boundary of the cylinder. Bayer, 1.4. Also called the perimeter of a cylinder. Bayer, 1.4.

circumferential. Adj. Of, relating to, or occurring around the circumference of a circle or sphere. Bayer, 1.4. As in circumferential view, which refers to a view that includes the entire circumference of a circle or sphere. Bayer, 1.4.

circumferential vision. The ability to see objects that are located on the periphery of the visual field, as opposed to objects that are located in the center of the visual field. Bayer, 1.4. Also called peripheral vision. Bayer, 1.4.

circumflex. A dot that is placed above a letter, usually to indicate a special pronunciation or to signify a diacritic mark. Bayer, 1.4. As in circumflex accent, which is a diacritic mark that is placed above a vowel to indicate a special pronunciation. Bayer, 1.4.

circumflex accent. A diacritic mark that is placed above a vowel to indicate a special pronunciation. Bayer, 1.4. As in the French word chapeau, which has a circumflex accent on the vowel "a" to indicate a special pronunciation. Bayer, 1.4.

circumflexa. A small, diacritic mark that is placed above a letter, usually to indicate a special pronunciation or to signify a diacritic mark. Bayer, 1.4. As in circumflexa dots, which are diacritic marks that are placed above letters to indicate special pronunciations or to signify diacritic marks. Bayer, 1.4.

circumflexoid. A type of diacritic mark that is used in some languages to indicate special pronunciations or to signify diacritic marks. Bayer, 1.4. As in circumflexoid diacritic marks, which are used in some languages to indicate special pronunciations or to signify diacritic marks. Bayer, 1.4.

circumflexoids. Plural of circumflexoid. Bayer, 1.4. A type of diacritic mark that is used in some languages to indicate special pronunciations or to signify diacritic marks. Bayer, 1.4. As in circumflexoids, which are diacritic marks that are used in some languages to indicate special pronunciations or to signify diacritic marks. Bayer, 1.4.

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cladding. A variation of claggy. Fay.

clad metal. A composite metal containing two or three layers that have been bonded together. The bonding may have been accomplished by corolling, welding, casting, heavy chemical deposition, or heavy electroplating. A.M. Glass.

clad steel. Carbon or low alloy steel having metal. A composite metal containing two or three layers that have been bonded together. The bonding may have been accomplished by corolling, welding, casting, heavy chemical deposition, or heavy electroplating. A.M. Glass.

clamping. Local name for the brick and fireclay filling of the kiln of an old-fashioned pottery kiln; sometimes spelled clamen. See also wicket. Dodd.

clamming. Entrance to oven. Noke.

clamp. a. A device to grip and hold in position a piece or part or hold to thick steel. Fay. b. A clamp is called a “winding.” See also mining claim. Fay. b. S. Afr. Land on a mining field to which a miner is entitled to occupy for mining purposes. No. c. In Australia, the manner of making the original location of a claim is tightly joined to the roof, the mine is confirmed by law. The mining laws of the public lands and to have his claim developed a mineral deposit discovered on the public lands and to have his claim validated by cables. Used in mucking operations. Bennett 2d, 1962.


clampery lamp. The veryapy lamp invented by Dr. Clancy and first exhibited in 1813. He improved the lighting power of the lamp by substituting a copper in place of glass, by compressing the glass cylinder to surround the flame, and a shield or bonnet to protect the flame from a direct blow. clamping.

clear water. A device for holding. An area of 1.44 square miles is about 155 feet along the strike of the reef. An area of 1.44 claims equals to a South African morgen. (In Cape feet, the claim is 150 by 400 feet.) Mining maps are often designed in squares of 1,000 by 1,000 feet, which, the sum of which about 16 claims measured horizontally. Beerman. c. In Australia, a claim is defined as the portion of Crown land which is in the possession or number of persons shall lawfully have taken possession of and be entitled to occupy for mining purposes. No. Land comprised in any mining lease can be considered to be a claim. A claim is marked out by fixing in the ground points at each angle of the claim, and it need not be surveyed. A miner is required to hold a miner’s right before he can legally mark out or work a claim. Nelson.

claimant. In the federal mining law, means locator. Ricketts, I.

claim jumping. The location of a mining claim on supposedly exact ground within the staked boundaries of an existing location on the theory that the law governing the manner of making the original location has not been complied with. Ricketts, I.

clims held in common. The phrase held in common means a claim where there are more owners of a claim than one, while the use of the words claims held in common means a claim worked over by one or more claimants. A claim in common must have in it the statutory requirements as to all of them. Ricketts, I.

clamshell system. A system used mainly in the United States, that grew up in the early days of mining in Western United States, following the gold rush of 1849, as an outgrowth of the desire of the prospector to develop a method for getting access to the public lands and to have his claim validated by cables. Used in mucking operations. Bennett 2d, 1962.

clamshell. A twin-jawed bucket without teeth, usually hung from the boom of a crane that can be either a crane or a wheel mounted. The bucket is dropped in the open position on the material to be excavated or handled. It is then closed, encompassing material between the two clamshells. B. S. 3618, 1963, sec. 3, 9. A number of bricks piled up in a particular form for burning. Webster's.
clarifier
device, for separating suspended solid matter from a liquid. *Heu.*

clarifying tank. A tank for clarifying cyano- or other solutions and frequently provided with a filtering layer of sand, cotton waste, matting, etc. *Fay.*

clarite. An important maceral or micro-petrological constituent of clarain. It is a heterogeneous material that is generally translucent in thin section, and in which there may be isolated lenticels of such other ingredients, as xylinite, fusinite, resinite, suberinite, peribolinite, collinite, and ultinite. *A.G.I.* b. Strictly, not a maceral, but may be used for repetitive description. *Tomkeieff,* 1954.

clarite. In 1953 the Nomenclature Sub-committee of the International Committee for Coal Petrology resolved to use this term for the microlithotype consisting principally of vitrinite and exinite. It contains at least 55 percent of vitrinite and exinite. In the proportions of clarite the macerals may vary widely but each must be greater than the proportion of inerinite, and neither must exceed 55 percent. Distinction may be made between sparse clarite, cuticular clarite, and resinous clarite. It is widely distributed and very common, particularly in certain Permian coals and coaly shales in fairly thick bands. *I.I.C.F.,* 1963, part 1.

Clark circle system. See rotary-hearth kiln.


Clark process. A process for softening water by the addition of hydrated lime, which precipitates calcium and magnesium bicarbonates. *Webster,* 2d.

Clark riffler. A sample reducing device which splits a batch sample of ground ore into two equal streams as it falls across an assembly of deflecting chutes. *Pryor,* 3, p. 70.

clarocollain. A type of coal intermediate between clarite (predominant) and vitrinite. *Tomkeieff,* 1954.


clarodeustain. A rock-type coal consisting of the maceral vitrinite (collinite or tenninite) with smaller amounts of other macerals. *Compare* tennoclarain.


clarosite. A thin slurry of clay and water. *Dodd.*

classite. A rock composed of the fragments of other rocks. *See also* clastic.

classification. a. A musky bitting ferrule for connecting pump parts. *Dodd.* b. A type of various forms of releasable catch, for holding together two or more objects or complementary parts of anything. *Ward,* 2d.

class. A division of igneous rocks based on the relative proportions of the salic (silicious and aluminum minerals, quartz, feldspar, mica, amphibole, and fergusonite) and ferro-magnesian minerals. *Erlanger,* 1923. The descriptive terms: peraluminous, ferro-aluminous, ferro-magnesian, and ferro-peraluminous. The former group is dominated by ferro-magnesian minerals, the latter by silicious minerals. The two main groups are (1) alkalic and (2) plagioclase. *Nelson,* 1929.

classical washout. A belt of barren ground at the foot of a coal deposit. These clays and sands are formed from the washing of clays and sand out of the deposits by erosion and other means. *I.C.C.,* 1959, p. 213.

classical deformation. Of 32 possible types of symmetry, only eleven are found in complex minerals. Each of these is referred to its set of axes. *Classification* begins with symmetry classes, and continues by referring all other crystals to a given set of axes into a crystal system. The latter are cubic, tetragonal, hexagonal, orthorhombic, monoclinic, and triclinic. *See also* crystal.

classification of minerals. Chemically, following Dana, eight types are (1) native elements; (2) sulfides, selenides, tellurides, arsenides, antimonides; (3) sulfo-salts; sulfates, sulfonites, siliho-magnesium, (4) halides; (5) oxides; (6) oxygen salts, carbonates, silicates, etc.; (7) salts of organic acids; and (8) hydrocarbon compounds. *Rutley* classifies according to group in accordance with the periodic table as regards dominant economic constituents.

class. a. A division of igneous rocks based on the relative proportions of the salic (silicious and aluminum minerals, quartz, feldspar, mica, amphibole, and fergusonite) and ferro-magnesian minerals. *Erlanger,* 1923. The descriptive terms: peraluminous, ferro-aluminous, ferro-magnesian, and ferro-peraluminous. The former group is dominated by ferro-magnesian minerals, the latter by silicious minerals. The two main groups are (1) alkalic and (2) plagioclase. *Nelson,* 1929.

clay. A machine or device for separating the constituents of a material (as ore, coal) according to particle size, shape, and nature of the particles. For a preliminary classification at the site, it is generally sufficient to recognize the main types, such as gravels, sands, silts, clays, and peat. Later the gravels, sands, and silts are subdivided into coarse, medium, or fine, according to particle size. *See also* soil classification, for dominant grain size, etc. *Nelson.*

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elastic dike. A tabular body of elastic material transsecting the bedding of a sedimentary formation along a crack, either from below or from above. Synonym for sandstone dike. A.G.I.
clastic dike. Any deposit which is composed of fragments of pre-existing rocks, or of solid products formed during the chemical weathering of such older rocks. Examples of sediments belonging to this group are the clear, round leucite crystals in which the leucite crystals are isomorphous replacements within the latite, and/or adsorption on prism surfaces where unsatisfied negative charges occur, possibly as a result of isomorphous replacements within the lattice. A.G.I. c. Soil consisting of inorganic material, the grains of which have diameters smaller than 0.005 millimeter. A.G.I. d. According to international classification, it has a grain size less than 0.002 millimeter. C.T.D. c. A general term applied to the material added to water to prepare a drilling mud. Long.
clay. a. A fine-grained, natural, earthy material composed primarily of hydrous aluminum silicates. It may be a mixture of clay minerals and small amounts of nonclay materials or it may be predominantly one clay mineral. Another older name for this is detrital clay. It is distinguished by the predominant clay mineral present (that is, kaolin, montmorillonite, illite, halloysite, etc.) and by its small grain size. A.G.I.
clay barrel. See triple-tube core barrel. Long.
clay binder. A plastic coating used in the process of blending clay and grog to make grog fire clay mortar. A.G.I.
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clay binder. A plastic coating used in the process of blending clay and grog to make grog fire clay mortar. A.G.I.
clay borer. A piece of stone, that has a joint back of it, which becomes loose and falls when the heading has been driven past it. Fay.
clay book tile. A natural, hydrous, aluminum silicate. It may be a mixture of clay minerals and small amounts of nonclay materials or it may be predominantly one clay mineral. Another older name for this is detrital clay. It is distinguished by the predominant clay mineral present (that is, kaolin, montmorillonite, illite, halloysite, etc.) and by its small grain size. A.G.I.
clay builder. Brick for normal construction purposes; such brick can be made from a variety of brick clays. Relevant British Standards are B.S.-657 (Di-
ting forming a lenticular bleb of clay or shale. Pettijohn. b. Clay gall pellets of clay or mudstone, often ochreous, sometimes hollow, found especially in false-bedded oolidic limestone such as Forest marble. Compare cricks. Arkell.
clay core. One who seals kiln doors before burning and kiln fires after burning and assists other workers in unlocking out doors and in unsealing fireboxes after cooling. Also called dauber; plaster man.
clay cutter. a. Eng. A tool for cleaning blast holes. Also called clay cutter. b. A cutting ring at entry to pipe feeding into suction cutter dredge. Set of cutting blades in dredge bucket. Pryor, J.
clay dauber. Any one who seals kiln doors before burning and kiln fires after burning and assists other workers in unlocking out doors and in unsealing fireboxes after cooling. Also called dauber; plaster man.
claydune. A dune composed of clay particles heaped up by the wind. A.G.I.
clayey. a. A red for forcing clay into joints of strata in wet shotholes. See also clay iron. b. A red for forcing clay into joints of strata in wet shotholes. See also clay iron. c. A red for forcing clay into joints of strata in wet shotholes. See also clay iron.
clayey soil. A soil in which clay is the basic constituent. The clay contributes to strength by cohesion, but detracts from stability by volume change and by plastic flow under load. Nelson.
clay galv. a. Mud curls or cylinders formed by drying and cracking of thin layers of coherent mud; commonly rolled or blown into sand and buried; flattened upon wetting forming a lenticular bleb of clay or shale. Pettijohn. b. Clay gall pellets of clay or mudstone, often ochreous, sometimes hollow, found especially in false-bedded oolidic limestone such as Forest marble. Compare cricks. Arkell.
clay gouge. a. A thin seam of clay separating ore, or other material, from rock. A.G.I. b. A clay-like material found in the brecciated or gouge zone of a fault; also, sometimes found in the walls or within ore veins.
clay gun. Equipment used to fire a ball of fire clay into the taphole of blast furnace, and to fire jetting clay, clay shot, and clay shot rock from an open pit to a tippet or to a crushing machine. D.O.T. 1.
clay handler. A laborer who mixes fire clay
clay handler

with water and heat-resistant materials to form a plastic mixture suitable for making non-conductors. D.O.T. 1.

clay, hi-set. The term applied to clays which impart characteristic, enam. Dict.


clay holster. One who transfers damp clay from storage cellar to clay shop where it is formed into ware. D.O.T. 1.

clay hole. A cavity, in a rock, filled with clay material. See also clay pocket. Fay.

clay lining. Lining a borehole with clay, to keep the powder dry. Fay.

clay bar. A rod or tool for lining a newly made coal shot hole with clay to seal up any breaks in the walls of the hole. The hole is filled with clay to about one-third of its length. The claying bar is driven in by hammer to the limit and rotated by a tommy bar in the eyelet at the outer end of the bar. See also breaker and break detector. Nelson.

clay iron. An iron rod used for ramming clay into a mold or form. Webster 3d.

clay loader. A machine used for loading clay into a truck. See also loader. Fay.

clay maker. One who blends and mixes the various clays, as shipped from the mine, into a thin, semifluid form by operating blunger of mixing machine. Also called blunger machine operator; clay mixer; clay loader; slip maker; slip mixer; wet mixer. D.O.T. 1.

clay mark. A whitish, smooth, chalky clay; a marl in which clay largely predominates. Webster 3d.

clay microlined. A term applied to clay that has been processed through a micronizer. Enam. Dict.

clay mill. A mill for mixing and tempering clay; a mill for mixing clay. Fay.

clay mineral. A colloidal size, crystalline, hydrous silicate with a crystal structure of the two-layer type, kaolinite, or of the three-layer type, montmorillonite, in which silicon and aluminum ions have tetrahedral coordination with respect to oxygen, while aluminum, ferrous and ferrie iron, magnesium, chromate, lithium, manganese, and other ions have octahedral coordination with respect to oxygen or to hydrokly groups. Exchangeable cations may be on the surfaces of the silicate layers, in an amount determined by the excess negative charge within the composite layer. The cations usually are calcium and sodium, but may also be potassium, magnesium, hydrogen, aluminum, etc. The most common clay minerals belong to the kaolinite, montmorillonite, attapulgite, and illite (or hydromica) groups. Mixed-layer clay minerals are randomly- or regularly interstratified intergrowths of two or more clay minerals. A.G.I.

clay model. Finely ground clay used as a plasticizer for masonry mortars. ASCE 1963.

clay. a. Aust. A shallow silted depression in which water collects after it rains. Webster 3d. b. A stratum of stiff, compact, relatively impervious clay which is used as a frost barrier. Fay. c. Applied for the preliminary preparation of plastic clay. The machine consists of a hopper with a flat or conical base; adjustable knives operate from a vertical, central, rotating shaft. The clay leaves from the shredder through slots in the case. Dodd.

clay size. That portion of the soil or of sediments that is finer than 0.002 millimeter or 0.00008 inch. ASCE 1955.

clay shale. A stratum of stiff, compact, relatively impervious clay which is used as a frost barrier. Fay.

clay soil. A fine-textured soil that forms very hard lumps or clods when dry. When dry clay soil is mixed with water and then allowed to stand, it forms a solid mass or a hard lump. Fay.

clay stone. Any of the various clay beneficiated methods. Arkell.

clay rug. Gneiss. Stone found in claypits.

clay rock. A rock composed of fine, argillaceous, detrital material and clay that has been subjected to chemical or physical alteration. Fay. c. Applied for the preliminary preparation of plastic clay. The machine consists of a hopper with a flat or conical base; adjustable knives operate from a vertical, central, rotating shaft. The clay leaves from the shredder through slots in the case. Dodd.

clay sample. A special tool for obtaining laboratory samples of clay. Ham.


clay seam. A seam of clay in rocks; also, may be a fault gouge. Bureau of Mines Staff.

clay shale. Shale composed wholly or chiefly of argillaceous siltstone. Fay.

clay shedder. A unit for the preliminary preparation of plastic clay. The machine consists of a hopper with a flat or conical base; adjustable knives operate from a vertical, central, rotating shaft. The clay leaves from the shredder through slots in the case. Dodd.

clay soil. A fine-textured soil that forms very hard lumps or clods when dry. When dry clay soil is mixed with water and then allowed to stand, it forms a solid mass or a hard lump. Fay.

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clay stone. Any of the various clay beneficiated methods. Arkell.

clay rug. Gneiss. Stone found in claypits.
clay stone

igneous rock should also be given up.

clay stone porphyry. An old and somewhat indefinite name for those porphyries whose natural color is greenish or more or less kaolinitic, so as to be soft and earthy, suggesting hardened clay. Fay.

clay substance. Does not exist in nature and is a term used by ceramists for ceramic calculations, designating theoretically pure clay. Rosenthal.


clay vein. a. Structural features occurring most frequently in areas where the coal is folded to the extent that there are well-developed fractures and face cleats. A clay underlying the seam where there is relatively little radioactive fallout. B.L.G. b. Every clay stone porphyry. An old and somewhat indefinite name for those porphyries whose natural color is greenish or more or less kaolinitic, so as to be soft and earthy, suggesting hardened clay. Fay.


clay wash. a. A deposit of mixed clay shales and clay in England that lies directly on the Chalk in many areas and is often seen in potholes or in pipes. It is usually ascribed to the effect of solution-weathering on the Chalk, but in many instances, there may be an additional admixture of Tertiary materials. The clay is reddish or brown, very tenacious, and often nearly black at the base of the deposit, becoming lighter and coarser towards the top. Unfortunately, the term has been loosely applied to almost all the clay-flint drift deposits that rest on the Chalk. Holme, 1928.


cleaning. a. The removal of grease or other foreign material from a surface. Fay. b. The process of cleaning, dry. The mechanical separation of impurities from coal by methods which avoid the use of a liquid. B.S. 3552, 1962.

cleaning of coal at the face. Means the removal of a visible impurity. Mitchell, p. 27.

cleaning solution. For laboratory glassware, mixed sulfuric acid (concentrated) and saturated sodium dichromate solution in ratio 100:1. Pryor, 3.

cleaning, wet. The mechanical separation of impurities from coal by methods involving the use of a liquid. B.S. 3552, 1962.

cleanout. a. To remove cave or other obstructing material from a borehole. Long. b. A port or opening provided in the body or base of a machine or other mechanism through which accumulated debris may be removed. Long.

cleanout aggler. A nuclear bomb that produces relatively little radioactive fallout. B.L.G.

cleanout Auger. Long.

cleanout driller. In petroleum production, one who cleans out caved or old wells, usually accomplished by submerging the body or base of a machine or other mechanism through which accumulated debris may be removed. Long.

cleanout jaw agger. Long.


cleanout tool dresser. In petroleum production, one who sharpens, tempers, and repairs the tools used in cleaning out oil and gas wells. D.O.T. 1.

cleaner. Eng. An iron tube or shell, with which a borehole is cleaned. Fay.

cleaner. S. Detailing and making fit for traversing old gate roads; carrying out cuttings from the mine; clearing the sumps at bottom of shafts. Fay.

clean toe. A sufficient shattering of the material that constitutes the toe to make its removal possible without excessive secondary blasting. Compare toe, c and d. Fay.

clean up. a. The operation of collecting all the valuable product of a given period of operation in a stamp mill, or in a hydraulic or placer mine. Fay. b. The valuable material resulting from a clean up. Fay. c. To load out all the material that a miner has. Fay. d. An opportunity to clean up. Fay. e. The cleanup of sluices in placer mining is a similar process which occurs more often. The gold, tin, or other concentrate is shoveled out for further treatment. Nelson, t. To police and tidy up drill and groyne around a drill rig. Long.

clean up barrel. One used to batch grind and then amalgamate gold-bearing concentrate.
cleanup barrel 217
cleve

clear mica. Transparent muscovite without stains and with a smooth surface in reflected light. Bureau of Mines Staff.
clear span. The clear unobstructed distance between the two supports of a beam. This dimension is always less than the effective span. Ham.
clear water reservoir. See service reservoir. Ham.
clear. a. Main joint in a coal seam along which it breaks most easily. Runs in two directions along a seam. Pryor, 3, p. 87. b. A small piece of wood nailed to two planks to keep them together, or nailed to any structure to make a support for something else. Fay. c. A wooden wedge four or five inches square placed between the top of a post and the underside of a bar or cap. Fay. d. Eng. A piece (or pieces) of wood fastened to pump string to prevent the purpose of steadying them, and preventing them from wearing where they pass through the collar, or to prevent the edge of the spear blades and bolts from injuring the pumps. Fay. e. An attachment fastened to the conveying medium to act as a shaker, support, check, or support, to help propel material, parts or packages along the normal path of conveyor travel. May be of various sizes and shapes. ASAs-306-1968. f. Systems of joints, cleavage planes or planes of weakness found in rocks. The more pronounced points are called face cleats and are normally parallel to the line or direction of regional folding. It is common for a set of joints, which are approximately parallel cracks or fissures a few inches apart, to develop within an area and to prevent the edges of the spear blades and bolts from injuring the pumps. Fay.
ceavage structure. A structure, within a single grain or crystal, resulting from mineral cleavage. Schiferdecker.
ceavage way. Kiln; first; way; Arkell.
ceave. a. Scot. One or two of more or less flat diamond fragments produced in cleaving a crystalline diamond along the octahedral plane. Long. b. A structure, within a single grain or crystal, resulting from mineral cleavage. Schiferdecker. c. A structure, within a single grain or crystal, resulting from mineral cleavage. Schiferdecker.

cleavage angle. The angle between a plane containing the flank of the tool and a plane passing through the cutting edge in the direction of relative motion between the flank and edge. Shear. ASM Gloss.
cleavage plane. a. The crystallographic plane, which can be likened to the grain in wood, along which a crystalline substance, such as diamond, may be split easily. See also cleavage. b. Long. b. Any uniform joint, crack, or change in quality of formation along which rock will break easily when dug or blasted. Nichol. c. The plane along which the cleavage takes place. Fay.
ceavage fracture. A fracture, usually of a polycrystalline metal, in which most of the grains have failed by cleavage, resulting in bright reflecting facets. It is one type of crystalline fracture. Contrast with shear fracture. ASM Gloss.

cleavage structure. A structure, within a single grain or crystal, resulting from mineral cleavage. Schiferdecker.

cleavage way. Kiln; first; way; Arkell.

clease. a. Scot. One of two or more divisions of a seam, usually ironstone. Fay. b. To split a crystalline substance, such as a diamond, along a cleavage plane. Long.
ceavelandite. A white, lamellar, variety of albite. Dana 17.
ceave. Splitting a crystal along a cleavage plane. Hess.
cleek coal. Scot. Coal as it comes from the mine. See also run-of-mine. Fay.
cleekman; cleekie. Scot. An early term for the person who unhooked the baskets of coal at the shaft mouth. Fay.
cleek. Derb. See cleat, c. Fay.

cleer. a. Eng. A steep hillside; a cliff. Standard,
cliffstone

A variety of uraninite containing a large percentage of UO₂ and also rich in helium. Contains about 10 percent of the yellow stuff, Fay.

Cleveland ironstone. A sandy oblitic siderite concretion in the Cleveland district of Yorkshire, England. The ore is said to have averaged about 30 percent iron. Hein.

clevis.

a. In coal mining, a spring hook or snap hook used to attach the hoisting rope to the bucket. Also called clivvy. Pryor, 3, b. A U-shaped iron used with an iron pin for connecting ropes to the drawbar of cars or, when used with iron links, for coupling cars together. Jones. Also used as a connecting link between chains or lines of a seave in a drill tripod or derrick. Long.

clockstone

A foldpathic rock of the trap family, usually fissile, and is sonorous when struck with a hammer. See also phonolite.

clonaphilbe. A group name for the monoclinic amphiboles. English.

cloanthite. A collective name for the monoclinic pyroxenes. English.

cloitite. The inclined lateral axis in the monoclinic system, designated a. A.G.I.

clochlore.

A mineral member of the chlorite group, composition approximately (Mg,Fe)₃(Al₁₃Si₇O₂₉)(OH)₆; monoclinic. A.G.I.


clorite.

A basic copper arsenate, Cu₃(AsO₄)(OH)₂. See also chlorite. Fay; Hey 2d, 1955.

clorochronite.

A hydrous copper arsenite, Cu₃(AsO₄)(OH)₂ or Cu₃(AsO₄)₂(OH)₂. Color, internally, a dark verdigris green; externally, a blackish blue-green; it crystallizes in the triclinic system. English.

clonos Russellite. A monoclinic variety of pyroxene. Crystal elongated, parallel to c axis. Typically magnesium metasilicate, Mg₂SiO₄, that is, with the composition of enstatite, but grading, by substitution of increasing quantities of iron, into clinoenstatite, MgFe₂(SiO₄)₂, English.

cloostated. English. A compact, nearly to the point of complete vitrification. ACSG.

climatic peat. Peat produced through the action of climate in a definite zone of the earth. Climatic peat deposits are sub-divided into blanket moss and hill (sub-alpine) peat. Tomkettle, 1954.

climb. The tendency of an inclined diamond-drill hole to follow an upward-curving, increasingly flat course; also, the tendency of a diamond or other rotary-type bit to drill a hole curved in the up-dip direction when holes are drilled in alternating hard- and soft-layer rock having bedding planes that cross the borehole at an angle other than 90° to the face of the bit. Long.

climb cutting. Analogous to climb milling. ASM Gloss.

climbing form. A type of formwork used for the construction of reinforced concrete walls for buildings. The formwork is jack-uped from bars anchored in the concrete, which is placed and consolidated continuously until completion of the work. See also moving forms. Ham.


clinch. To describe many types of shale. Nelson.

b. Fay.


clinch bolt. Eng. Crossbolts under tie bolts, or overhanging face of rock, earth, or cliff. Fay. b. A very steep, perpendicular, splitting easily along the planes of deposition. Long.

c. A strong, usually silty mudstone. Schieferdecker.

d. A banded or nonbanded siltstone.

e. A hard chalk found in England and used in paint, as a filler for wood, and in the manufacture of rubber. Bureau of Mines Staff.

clinkstone.

A variety of uraninite containing a large percentage of UO₂, and also rich in helium. Contains about 10 percent of the yellow stuff, Fay.

cliffstone. A special grade of cliff glacier. A glacier which occupies a relative area of the earth. Climatic peat deposits are sub-divided into blanket moss and hill (sub-alpine) peat. Tomkettle, 1954.

clinch millings. Milling in which the cutter moves in the direction of feed at the point of contact. ASM Gloss.


clink chif. B. Clints. Internal cracks formed in steel by the action of heating. The tendency for these to occur increases with the hardness of a metal, and with the rate of heating. Fay.

clinker.

A U-shaped iron used with an iron pin for connecting ropes to the drawbar of cars or, when used with iron links, for coupling cars together. Jones. Also used as a connecting link between chains or lines of a seave in a drill tripod or derrick. Long.

clinker brick. A type of formwork used for the construction of reinforced concrete walls for buildings. The formwork is jack-uped from bars anchored in the concrete, which is placed and consolidated continuously until completion of the work. See also moving forms. Ham.

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clinked dolomite. See double-burned dolomite. A.G.I.

clinometer. An instrument for making a borehole survey, that is, to determine if, and in what direction, a borehole has deviated from the true vertical plane. See also coneometer.

clinographic. English. A form of graph used for representing the energy of heating. C.T.D.

clinogenic. English. A form of graph used for representing the energy of heating. C.T.D.

clinogene. English. A form of graph used for representing the energy of heating. C.T.D.

cliner. A rigid, usually of basic composition and typically fused byproduct of the combustion of coal, but also including lava and portland cement clinker and partly vitrified slag and brick. ACSG, 1963. c. Rough, jagged, scorciacous, spigges fragments of lava, usually of basaltic composition and typically found on the surface of a lava flow. A.G.I. f. Vitriﬁed or burnt matter thrown up by a volcano. Fay. g. The agglomerated semivitrified and mainly inorganic residue of the combustion of solid f. b. S. 3233, 1960. b. A scale of black oxide of iron formed when iron is heated to redness in open air. Fay. i. A hard, burnt paving brick used in Holland. Arkell.

cliner bar. A bar fixed at the top of an ashpit for supporting the rods used for clearing. "The fire bars. Fay.

cliner brick. A very hard-fired brick, fired nearly to the point of complete vitrification and whose shape is somewhat distorted or bloated. ACSG.

cliner cutting zone. That part of a cement kiln which is in the temperature range (1350° to 1600° C) in which the constituents react to form clinker. Fay. Proposed for boulder clay baked in the burning of lignite beds. Hess.

clinker. Internal cracks formed in steel by differential expansion, growth, deformation, soil formation and removal, coal formation, and some ore deposition and cementation. Bureau of Mines Staff. d. Of pulp undergoing froth flotation, the pre-cipitating of chemicals, energy transfer, reached by the reacting electrical, physical, and chemical forces. Pryor. 4. Climatic peat deposits are sub-divided into blanket moss and hill (sub-alpine) peat. Tomkettle, 1954.

climbing form. A type of formwork used for the construction of reinforced concrete walls for buildings. The formwork is jack-uped from bars anchored in the concrete, which is placed and consolidated continuously until completion of the work. See also moving forms. Ham.

clinoimeter

tached to the lower end of a line of drill rods and suspended at a point in a borehole approximately 1 hour, the acid etches the surface of the glass tube forming what appears to be a line where the upper surface of the acid is in contact with the tube. The inclination of that line is measured and with necessary connections for capillarity indicates the dip of the borehole at the point where the clinometer was suspended. In addition to the above end or plain type, there is the line clinometer and a special type used with the drill-Rowe wedging device. Long.

clinometer rule. A simple angle-measuring instrument for borehole surveying, designed particularly for use with the freezing and cementation methods of shaft sinking, capable of giving the slope of a borehole to within one minute of arc. Hem.

clinophyllite. A hydrous silicate of aluminum, calcium, potassium, and magnesium, Mg(OH)2.6Al2Si2O10.10H2O. Ro.

clinostraps. A line of strap, the two arms of which are attached to either side of the beam of a graduated angle device consisting of a folding rule, the two arms of which is equipped with a small spirit level. Also called angle rule; degree rule. Long.

clinometer shell. Synonym for clinometer case, Long.

clinograph. An exceptionally accurate instrument for borehole surveying, designed specifically for use with the freezing and cementation methods of shaft sinking, capable of measuring the slope of a borehole to within one minute of arc. Hem.


clinogame. A mineral, monoclinic, pseudohexagonal. Very distinctly distinguishable from ungemachite, but material insufficient for chemical analysis. From Chupovskoy, Chit, English.


clinozoisite. An epidote having the composition of Ca,Al2(SiO4)(Si2O7); monoclinic; crystals striated. Dana 17.

clinit. a. A bare, level surface developed on horizontal beds of limestone. A.G.I. b. A hardpan (hardpan) on a rocky clip; a projecting rock or ledge. Webster 3d.

clinoton. Lower Middle Silurian. A.G.I.

clinotile. Synonym for seymchanite; also used as a group name for the brittle micas. C.T.D.

Clinton limestone; Clinton shales. The Middle Niagara series, well-exposed in the Niagara Peninsula. It includes red and black shales, and clay-clastic rocks containing a bedded iron ore at the base, which supplies the ironworks at Birmingham, Ala. C.T.D.


clip. a. A device similar to a clamp but smaller and for the same purpose. Zeman. b. A hook for attaching a bucket to a cable. Keit. c. Connector between underground tub, car, truck, tram, and endless rope haulage; operated by clipper. A clip pulley has a broad rim into which studs are set, to grip links of haulage chain. Pryor, 3. d. Synonym for cable clamp; clamp. Long. See also haulage clip; automatic clip; coupling; clam. The portion of a bucket set to length. A.C.S.G., 1963.

clip and shive. In forging, a dual operation in which one cutting surface in the clipping die remains convex and then another surface and shives the piece. ASM Gloss.

clip method. The clip method of making wire rope attachments is widely used. Drop forged clips of either the U-bolt or the double-saddle type are recommended. When clips of this type are properly applied, the method develops about 80 percent of the rope strength. ASA M41-1966, 24.

clipper. a. Eng. A hook for attaching the bucket to the cable. Used in shaft sinking. Fay. b. In anbractite and bituminous coal mining, a laborer who engages and disengages the clips, grips, or links by which mine cars are attached to a hoisting cable or endless rope and hauled along inclines or flat grades. Also called chainman, grabman; gripman; gripper. D.O.T.1.


clipper man. In iron and steel industry, one who cuts ends of skelp sheets (sheet steel for making pipe) to a tapered point and bends into a cup shape by machine. D.O.T.1.

clipper-off. Aust. A workman who unfastens the clip connecting a skip to a haulage rope. Fay.


clipping edge. That portion of a forging where the flash is trimmed off. ASM Gloss.


clip screws. See augerizing screws. Pryor, 3.

clip tile. Tile designed as a base for steel I-beams. Also called clap tile. Anglo. Fay.

clinoglaze. A method of surface decoration in which differently-colored enamels or glazes are separated by fillets applied to the design outline. For porcelain enamel, the fillets are wire secured to the metal body, while for pottery and tile the fillets are made of ceramic paste, squeezed through a small diameter orifice. A.C.S.G., 1963.

clinoenamel. Porcelain enamel inlaid between partitions of bent copper or gold wire fillets attached to the base. Subsequent polishing of surface brings out the design of the enamel artist. In effect, the caken are separated by delicate filigrees of gold or copper. Enam. Dict.

clip. a. Mid. A short piece of timber about 3 by 6 by 24 inches fixed between the roof and a prop. Fay. b. A flat wedge over a post. See also lid, n. Nelson. c. To obstruct, hinder, or choke up; for example, the stoppage of flow through a pipe by an accumulation of foreign matter, or the filling up of the grooves in a file when operating on a soft metal. Clapin. d. Eng. Rock filling a fault. Arkl.

clip pack. York. See chock, a; nog, a. Fay. close annealing. See box annealing.

close burning coal. Coal which kindles quickly and melts and runs together like bitumen. Tomkeieff, 1954.

close batched. Applied to dregges in which the buckets are each connected to the one in front without any intermediate links. Fay.

close couple. An expression used to indicate a very close integration between all phases which may have an effect on one another; this provides for maximum efficiency. Austin.

closed basin. A district draining into some depression or lake (lake Michigan), from which water escapes only by evaporation. Webster 2d.

closed circuit. a. A water circuit designed so that the only water added is that necessary to replace the loss in the washery products. B.S. 3552, 1962. b. In mineral dressing, a system in which ore passes from comminution to a sorting device.
closed circuit

which returns oversize for further treatment and releases undersize from the closed circuit. Fay, 4.

closed-circuit grinding. A size reduction process in which the ground material is removed either by screening or by classifier, the oversize being returned to the grinding unit. Typical examples are, a dry pan with screens, dry-milling in an air sweep ball mill, and wet milling in a ball mill with a classifier. Dodd. See also circulating load.

closed-circuit operation. Retention and re-treatment of ore in part of flow-line until it satisfies criteria for release. Used in comminution to reduce over-grinding by passing intermediate particles repeatedly through grinding systems, classifying the product and returning the oversize. A sand concentration (for example, rougher-scavenger-cleaner flotation) to retain a selected fraction of ore in circuit for re-treatment (a dinding), until it is either upgraded to rank as concentrate or sufficiently denuded of value to be rejected as tailing. Pryor, 3.

closed-circuit television. System in which elevation cameras relay pictures of conditioned points in the plant, thereby aiding shiftmen to watch inaccessible places and exercise extended control. Pryor, 3.

closed contour. A contour line that is continuous on a map and does not intersect the edge of the arbitrary map area on which it is drawn. Stokes and Varne, 1955.

closed cycle. Cycle of operation of a heat engine in which the same power fluid is used repeatedly, as a steam engine that operates in which the same power fluid is used repeatedly, as a steam engine that operates.

closed traverse. A traverse whose accuracy can be checked by the fact that, when it is closed, the angles should add up to 360°, and which ends at its starting point. Dodd.

closed-water circuit. The separation of solids from a washery derruy so that the water can be returned to the plant and used continuously. Nelson.

close goods. Pure stones, of desirable shapes; highest class of South African diamonds, as asorted at Kimberly. Bureau of Mines Staff.

close-grained. Having fine and closely arranged fibers, crystals, or particles. Webster 3d.

close in. a. To wall-in and roof-over the drill platform for protection of workers from rain and cold. Long. b. To shut off the flow, as from an oil, gas, or arsinic well. Long.

close-joint. Applied to rocks in which the joints are very close together. Fay.

close-joint cleavage. Synonym for striatin cleavage. A.G.I.

close mold. A two-part flask filled by pouring in liquid glass or metal. Standard, 1946.

close nipple. A nipple, the length of which is about twice the length of a standard pipe thread and is without any shoulder. Strock, 3.

close-packed hexagonal structure. An arrangement of atoms in crystals which may be imitated by packing spheres; characteristic of a number of metals. The disposition of the atomic centers in space can be related to a system of hexagonal cells. 0.6178.

close place. Scot. A narrow drift without a separate air return. Fay.

close plate. A term in the placing of poles or plank close together. See also poling, a. Fay.

close prospecting. Prospecting undertaken after the existence of payable ground is disclosed and localized by preliminary prospecting. It is undertaken for valuation purposes to determine (1) the cubic measurements of both overburden and gravel, (2) the estimation of the gold or other mineral contents, (3) the average value of the area in pence, cents, carats, or other unit, per cubic yard, and (4) all possible information regarding the nature of the overburden and gravel, that is, whether it is clayeey, fresh wash, etc., as well as of the bedrock. Griffith, S. F., pp. 2-3.

close return bend. A short, cast or malleable iron, U-shaped fitting for uniting two parallel pipes. It differs from the return bend in having the arms joined. Porter.

close sand. A sand so closely packed that it has low porosity and makes a poor oil reservoir. Hay.

close sheathing. Consists of planks placed side by side along a continuous frame. Its use is to prevent local crumbling of less consolidated soils. Since crevices can exist between planks, it should not be used with fine silts or liquid soils, which can seep through these cracks. Compare skeleton sheathing; tight sheathing. Carston, p. 244.

closing. a. In screening, choice of a series of sieve sizes which closing restricts the size range of each fraction of the material separated between its limiting and retaining mesh. Pryor, 3. b. Sizing with screens fairly close in size of aperture (mesh). Pryor, 4.

close work. Driving a tunnel or drifting between two coal seams. Fay. b. Scot. See narrow work, e. Fay.

closet suite. A suite of ceramic sanitary ware including the closet and the flushing cistern. Dodd.

close timbering. The setting of timber sets and lagging back to bark or very close together when shaft sinking or tunneling through very loose ground or crushed coal in thick seams. See also cribbing; forepoling. Nelson.

closing apparatus. Eng. Sliding doors or other mechanical arrangement at the top of an upcast shaft for allowing the cages to pass up and down without disturbing the ventilation of the mine. Fay.

closing error. When calculating or plotting the distances, angles or coordinates of a closed traverse or one connecting two accurately located points, the discrepancy between starting and finishing points. This error is multiplied in proportion to the magnitude of angles and distances involved, if it is below a tolerable limit. Pryor, 3.

closing line; drawing line. The cable which closes the jaws of a clamshell or mangle-peel bucket. Nichols, 2.
closing rope

Closing rope. Operating rope for opening and closing a grab. Ham.

closing stock. Quantity on hand at end of an accounting period. Opening stock should be the closing stock of the previous period, adjusted in mine storekeeping for returns and concentrations on hand. Pryor, 2.

closing the horizon. Measuring, at a triangulation station, the horizontal angles between horizontal stations and the horizon so as to return to the starting point (the sum of the angles should equal 360°); measuring the last angle of the series, closing on the starting point. Selye, 2.

closure. Dense, laminated, brownish-red algal coal found in Irkutsk, U.S.S.R. It consists of an accumulation of spherical and ovoid bodies of different sizes, among which are disseminated great numbers of desmid algae, belonging to the living genus, Oscillatoria. C.T.D.

closure meter. An instrument for indicating the amount of closure that has taken place. Spalding. Wall closure in mines may be measured by this instrument. Also called sag meter. Spalding, p. 76.

closure. a. In a dome or anticline, the vertical distance between the lowest point on the fold through which a closing contour would pass and the highest point on the fold. U.S.G.S. Bull. 686, 1922, p. 331. b. Used in structural geology, especially in connection with potential oil structures, to designate the vertical distance between the highest point of a fold and the lowest contour that closes around the structure. It is a horizontal distance of 90° of a structural trap for oil and/or gas. Stokes and Varnes, 1935. c. A closed anticlinal structure. G.I. Supp. 4. d. Vertical distance between the top of an anticlinal structure and the lowest level at which a continuous encircling contour can be drawn. A.I.S.I. Supp. I. A portion of brick to close a wound. Tompsett, 1954.

cloud. A group of ferromagnesian minerals in an igneous rock, from a few inches to a foot or more in size, commonly drawn out longitudinally, that may be an altered foreign inclusion or a segregation. Comparison autochthon; xenolith. A.I.G. Supp. b. A cutoff section of a column of clay from an auger machine to be used in a repress. A.I.S.I. No. 24. c. Same as clod. Fay.


cloth oil. A name given to one of the distillates of crude petroleum (specific gravity, 0.875) that is used for oiling wood. Fay.

clot mold. The mold, in some types of stiff plastic brickmaking machines, into which a clot of clay is extruded and from which it is then ejected prior to the final repressing. Dodd.

clothing. The sinitering or semifusion of ores during roasting. Fay.

closed. See log. Pryor, 3.

cloud agate. Applied especially to light gray, transparent to semitransparent chalcedony with more or less rounded spots of darker gray which resemble dark clouds. Shipley.


cloud chamber. A device that displays the tracks of charged atomic particles. It is a glass-walled chamber filled with a supersaturated vapor. When charged particles pass through the chamber, they leave a cloudlike track much like the condensation trail of a plane. This track permits scientists to see the paths of these particles and study their motion and interaction. See also bubble chamber; spark chamber. Long.

closed agate. Chalcedony with irregular or indistinct patches of color. Hess.

closed ware. Pottery colored with, for example, manganese oxide, etc., put on with a sponge. C.T.D.

cloudy agate. A term loosely used for white or gray chalcedony containing any cloudy masses. Shipley.


cloudy stains. In mica, cloudlike effects in various colors. Stem.

clothing. A slice gate in a culvert. Ham.


clothespin. Scot. A mineral related to asbolite, occurring in patches in blue limestone at Inness, Orkney. It isuble in benzol and at a red heat gives off a large amount of illuminating gas. Fay.


clothing. The breaking of a rock by curved fractures that pass beyond the limit of the rock. Fay.


cloch. Heavy fall of roof in mine. Pryor, 3.

cloch. a. Clay or mudstone, with potters, forming the floor of a kiln. Synonym with fine clay; spawin. Also called stone clunch. Nelson. b. A fine-grained, often clayey rock which breaks readily into irregular lumps. B.S. 3618, 1964, sec. 5. c. A bluish hard clay. B.S. 3618, 1964, sec. 5. d. In coal mining, seat coal, earth, for example, that, unlike the seam of coal. Indurated chalk marl or fine shale; tough fire clay. Pryor, 3.

cloch clay. A provincial term for indurated chalk marl. A.I.G. b. A provincial term for a sort of indurated clay which is found dividing the coal seams. A.I.G. c. A fine shale sometimes overlying a coalbed. It is soft and subject to deformation by squeezing during mining, and therefore, does not make a good roof. A.I.G.

cloch, gear. Two or more gears of different sizes inside in one solid piece. A.I.S.I. No. 24.


cloch, clusterite. A round or semiorbicular, smooth nodular growth of calcite usually occurring in clusters. Synonym for botryoidal; grape formation. A.I.G.

cloch, cluster wall. A rolling mill where each of the two working rolls of small diameter is supported by two or more backup rolls. ASM Gloss.

cloch, cluster of veins. An aggregation of a number of irregularly striking veins. Schifferdecker.

cloch, clutch. A device by which a haulage drum can either be connected to the driving axle or allowed to run freely and independently of it. Nelson. b. A device for releasing the brake and disconnects two shafts which revolve in line with each other. Nieloli.

cloch, clutch brake. A device to slow the jackshaft when a clutch is released, to permit more rapid gearshifting. Nicholls, 2.


cloch, clutch room. Aust. A chamber, generally underground, in which the friction clutches that control the different haulage ropes on the various districts. Fay.

cloch, clutch, clutch, shift transmission. A constant-mesh transmission in which the shift is directed through gear trains by engagement of friction clutches. Nicholls.


cloch, abbreviation for Coal Measures as developed in Great Britain. Nelson.

cloch, carbon-methylenechloride. Dodd.

CMI centrifuge. A fine-coal dewatering machine consisting of two rotating elements, an outer one in the form of an inside solid cone, which carries spiral hinderance flights. By a slight difference in the number of teeth in the gears the screen element moves slightly faster, in the same direction, than the solid cone. Material enters the machine from the top and falls on the solid cone where the centrifugal force throws it against the screen. The screen passes down the screen until it meets the upper end of the hinderance flights, and, in doing so, the water begins to pass through the screen. The flights spiral
downward, and as the screen moves slowly around them in the direction of the downward pitch, the solids gradually find their way to the screen bottom and the zone of maximum centrifugal force, tending to remove all of the water. 

Kern 6, 1972.

Conde stone. A vitreous ware, used for architectural ornament, made in London by Mrs. Coade from 1771 until her death in 1796. Manufacture finally discontinued in about 1840. The body consisted of a kaholistic clay, finely ground quartz and felspar, and a flux (possibly ground glass). 

Dodd.

coulation. a. The binding of individual particles to form flocs or agglomerates and thus increase their rate of sedimentation in water or other liquid. See also flocculation. 

Nelson. b. The state of solution in a granular or of a colloidal state, resulting from clotting or curdling; the act of changing to a curdlike condition. Fay. c. The coalescence of fine solid particles to form larger particles. 

ASTM STP No. 146-D.

couglator. A soluble substance, such as lime, which when added to a suspension of very fine solid particles in water causes these particles to adhere in clusters which will settle easily. Used to assist in reclaiming water used in flotation. Hess.

coal. Same as coke; coal. 


col. a. A solid, brittle, more or less distinctly stratified, combustible carbonaceous rock, formed by partial to complete decomposition of vegetation; varies in color from dark brown to black; not fusible without decomposition and very insoluble. The boundary line between peat and coal is hazy (see brown coal) as is the boundary line between coal and graphite and the boundary line between carbonaceous rock and coal. In the formation of coal, the vegetable matter seems to have been largely moss and other forms of plants, but in places, coal contains much wood; the vegetal matter seems to have been first taken from the form of peat, then lignite, and then bituminous coal. The latter by the loss of its bituminous in some places has been converted into anthracite (hard coal) and finally into graphite. Coke deposits are usually termed beds and range from a fraction of an inch to several hundred feet in thickness. Colloquially, they are called coals and veins. Their differences in coals are due to age, pressure (folding and/or depth of burial), and heat, which may have been supplied by transacting dikes or by movement in the rocks. It has been suggested that coal when dried at 100° C should contain at least 50 percent combustible material. Many schemes have been offered for the classification of coals, but all have difficulties as there are numerous imperfections in the coals themselves including fixed carbon, volatile carbon compounds, water, oxygen, sulfur, ash, and coking properties. The class depends on the type of material from which the coal was made, on the sediment carried into the coal when being formed, the dissolved material brought in at that time or later. Campbell divides coals into the following ranks or classes, in which the fuel ratio quoted is the maximum amount of coal that can contain and still retain its name depends on commercial considerations which vary from one country to another. The different hands recognized by the unaided eye in humic coals are called lithotypes. The physicochemical properties of the maceral vitrinite are commonly used to characterize and classify the various coals of high and medium ranks.

The variations in rank are of greatest importance in the classification of coals. Increasing metamorphism results in important changes in all the properties of coal. Under the microscope, almost all coal appears heterogeneous. The variations in rank, called metamorphic trends, are marked by characteristic associations, microthylocytes, which may include in more or less intimate mixture 0.20 percent by volume of mineral matter. The amount of mineral matter which coal can contain and still retain its name depends on commercial considerations which vary from one country to another. The different hands recognized by the unaided eye in humic coals are called lithotypes. The physicochemical properties of the maceral vitrinite are commonly used to characterize and classify the various coals of high and medium ranks.

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coal bank

more; occasional specimens weight more than 100 kg. In an area of 10 km², the entire seam in a restricted area consists largely of coal balls. Coal balls consist mainly of calcareous, dolomitic, micritic pyrites, or silicous material surrounding or impregnating plant and animal remains. They occur in brown coals (mainly sidetic balls) as well as in coals of higher rank generally lying within the coal seam but occasionally in the roof. Calcareous, dolomitic and pyritic coal balls are commonly found in seams having marine strata in the roof. The distribution in seams is variable. They may occur in a broad zone running through the coalbed or be distributed irregularly in nests. Synonym for tor solfat. ICHP, 1963, part 1.

coal barge. A flatboat used to carry coal. Craigie, v.1, p. 537.

coal barrier. A protective pillar of coal. See also barrier pillar. Nelson.

coal breaker. The owner of a rich coal mine or mines. Craigie, v.1, p. 537.

coal basin. Depressions in older rock formations in which isolated strata have been deposited. Fay. See also concealed coalfield; exposed coalfield.


coal box. The earliest custom of employing women to carry coal out of the mine. Fay.

coal bed or stratum of coal. Coal seam is more commonly used in the United States and Canada. Fay.

coalbin. A boxlike receptacle or space for coal. Craigie, v.1, p. 537.


coal blacking. Iron founders' blacking made from powdered coal. Webster 3d.

coal blasting. There are two methods of breaking coal with explosives, namely, blasting out coal, which is the method most commonly used, and blasting off the solid, or grincing. M. Adam II, p. 55.


coal breccia. Coal broken into angular fragments by natural processes occurring within the coal bed. Polished and slickened surfaces may be common. Stuiver and Not, 1940, p. 248.

coal briquettes. Coal made more suitable for burning, by a process which forms it into regular square or oval-shaped pieces. Bennett 24, 1962.

coal briquetting. See briquette. Nelson.

coal bump. Sudden outbursts of coal and rock that occur when stresses in a coal pillar, left after support in underground workings, are greater than the pillar to rupture with- out warning, sending coal and rock flying with explosive force. Bureau of Mines Staff. coal cleaning equipment. Coal cleaning equipment used to remove impurities from the coal is now standard, and pneumatic (air) cleaning. Coal refining (n) is incorrect; refining refers to purifying metals. Bureau of Mines Staff.

coal cleaning plant. A plant where raw or run-of-mine coal is washed, graded, treated to remove impurities, and reduce ash content. Pryor, 3.

coal clearing. The loading of broken coal at the face into conveyors or mine cars. The clearing shift is the coal-loading shift or stemming. Nelson. Usually the miner has a measured task or stint ( manipulate). Pryor, 3.


coal constituent classification; Spackman System. In the United States it is generally agreed that the nomenclature Stopes-Heerlen System, fails to comprehend the effect of the stage of coalification on the nature of the constituents. W. Spackman's interpretation of the maceral concept incorporates the ideas of variable coalification in suggesting a skeletal framework upon which a systematic classification can be built. The maceral concept, as interpreted by Spackman, implements the classification of the products of coalification. In this scheme, macerals possessing similar chemical and physical properties are assembled into maceral groups which can, in turn, be characterized by a comparatively restricted set of properties. Maceral groups possessing similar characteristics can be classified into maceral suites. ICHP, 1963, cut 1.


coal cutter. a. The longwall coal cutter is a powered machine which draws itself by rope haulage along the face, usually cutting out a beam (1 to 2 meters) from the bottom of the seam a thin strip of coal, in preparation for shot firing and loading or a cutter loader. The bar and disk machines are obsolescent and the chain coal cutter is now almost universal. Nelson. b. See mac- chine cutters. D.O.T. 1.

coal-cutter design. Most longwall chain coal cutters consist of three self-contained units: (1) haulage, (2) the chain cutter, and (3) the jib-end section. This three-unit design makes: assembly and handling relatively easy as the units are physically separated, which is an advantage where shafts are small and roadways restricted. In a major breakdown, it is easier to replace one unit rather than the entire machine to run-off-of-mine coal and picks out slate, rock, and other impurities. Also called flat trimmer, slate picker. D.O.T. 1.

coal cleaning; coal preparation; coal refining. These terms, used in the order given, refer to the sorting, picking, screening, washing, pneumatic separation, and mixing of coal to the best advantage for (and requirements of) the market. Coal cleaning is commonly used because it defines the operation of the plant to the concept of the market. In coal cleaning, only those impurities that are mechanically mixed with the coal are removed by washing; or pneumatic (air) cleaning. Coal refining is incorrect; refining refers to purifying metals. Bureau of Mines Staff.

coal cleaning equipment. Coal cleaning equipment used to remove impurities from the coal is now standard, and pneumatic (air) cleaning. Coal refining (n) is incorrect; refining refers to purifying metals. Bureau of Mines Staff.
coal-cutter picks

The surface for repairs. Nelson.

cal-cutter picks. The cutting points attached to a cutter chain for making a groove in a coal seam. The picks are made from quenched steel or a hard alloy steel and tipped with fused tungsten carbide or sintered tungsten carbide or other hard-wearing material. Advantages of the coal-cutter pick tipped with tungsten carbide on a heat-treated alloy steel shank has resulted in marked improvements in drilling and in a reduction in cutting delays. See also coal cutter; double-ended pick; duckbill pick; tungsten-carbide bits. Nelson.

cal-cutter team. The men in charge of a coal cutter. A cutting team varies from two five with two to three about average. The leading man is normally stationed in front of the machine and is in charge of the controls and his assistant follows behind. See also back-end man. Nelson.

cal-cutting machine. A machine powered by compressed air or electricity which drives a cutting chain or other device so as to undercut the seam, or to move a layer of shale. Precise cutters are used to bore holes or to make vertical cuts (picking, boring); disk, bar, and chain cutters carry small picks which undercut the seam as the machine travels. Nelson.


cal-cutter. A coal miner; miner. B. Fay.


cal distributor. A person or thing that distributes coal. As agent of the coal company that distributes coal to consumers. Bureau of Mines Staff.

cal drawing. The extraction, haulage, and hoisting of coal from the face to the pithead. Nelson.

cal drill. Usually an electric rotary drill of a light, compact design. Aluminum and steel framework, its alloys usually are used to reduce the weight. Where dust is a hazard, wet drilling is employed. With a 1 horsepower electric drill, speeds up to 6 feet per minute are possible. Light percussion drills, operated by compressed air, and hand-operated drills are also employed. Nelson.

cal drill, electric. See electric coal drill.

cal driller. In coal mining, a worker who uses a hand or power drill to drill holes into the working face of the coal into which explosives are charged and set off to blast down the coal. D.O.T. 1.

cal drop. A broad, shallow inclined trough down which coal is discharged from a wharf into the hold of a vessel. A coal chute. Fay.

cal dryer. A plant or vessel in which water or moisture is removed from fine coal. The artificial drying of fine coal is not often employed. Coal is removed from washwater by dewatering classifiers, or by vacuum filtration. See also dryer; thermal dryer. Nelson.


cal dome (Forest of Dean). Coal measure.

Fay.

coal dust. a. A finely divided coal. There is a diversity of opinion as to what the term coal dust means; that is, how finely must coal be divided to be termed dust. Some writers base the distinction on the point whether it can be carried to considerable distances in a current of air. Coal dust that will pass through 100-mesh screens (100 wires to the linear inch) is frequently accepted as representing mine dust. For fires at the Pitts-

burg station coal passed through 100 mesh is taken as standard. In the foreign galleries the practice varies between this size and coal that passes through 200 mesh. Fay, b. The general name for coal particles of small size and coal that passes through 100-mesh screens. Nelson.

cal explosibility. A property of a coal that determines its explosibility. A coal may be considered to be of high explosibility if it is capable of producing an explosion in a reducing atmosphere at high temperatures with pressure. A.S.M. Golin.

cal exhaust. A market for the sale of coal; especially, a place for transactions in coal on a large scale. Fay.

cal face. a. The mining face from which coal is extracted by longwall, room, or narrow-stall system. Nelson, b. A working place in a colliery where coal is hewn, won, got, from the exposed face of a seam by face workers. James, p. 93.

cal factor. See factor. Fay.


cal field. An area of country, the underlying rocks of which contain workable coal seams. The distribution of coalfields was largely determined by folding movements and the subsequent denudation. The original coal areas were clearly larger than the present coalfields. Nelson.


cal flotation. See flotation process; froth flotation. Nelson.


cal fuel rate. The content of fixed carbon divided by the content of volatile matter is called the fuel ratio. According to their fuel ratios coals have been classed: anthra-

cite, not less than 10; semianthracite, 6 to 10; semibituminous, 3 to 6; and bitumi-

nous, 3 or less. Bureau of Mines Staff.

cal gas. Flammable gas derived from coal either naturally in place, or by induced methods of industrial plants and underground gasification. Bureau of Mines Staff.

cal gasification, underground. See underground gasification. Fay.


cal gravel. A secondary deposit of coal consisting of coal fragments of varying size that have been removed from the place of mining and redeposited. A.G.I.

cal hogger. N. of Eng. One who is employed in cutting or hewing coal in a mine. Fay.

cal handler. a. One who loads or unloads coal. Craigie, v. 1, p. 338. b. One who supplies coal to the gas-producing ovens in which coal gas is generated for use as a fuel in furnaces in which ore is smelted. D.O.T. 1.

cal-handling foreman. One who supervises workers engaged in unloading coal from barge or freight cars. Fay, b. A coal hopper. He reads a scale indicating the weight of the coal as it enters the bunker on a conveyor from coal storage hoppers, and moves a point whether it can be carried to considerable distances in a current of air. Coal dust that will pass through 100-mesh screens (100 wires to the linear inch) is frequently accepted as representing mine dust. For fires at the Pitts-

burg station coal passed through 100 mesh is taken as standard. In the foreign galleries the practice varies between this size and coal that passes through 200 mesh. Fay, b. The general name for coal particles of small size and coal that passes through 100-mesh screens. Nelson.
coal hewer. One employed in the moving or shoveling of coal, in loading or discharging coalships, in shoveling coal from ships' bunkers to the furnaces; a coal laborer. Eng. 


collier. One who carries coal, usually in a basket or bucket, from the delivery truck to the customer's storage place. The chute door of a coal truck. Fay.


colliery. See coal lification.

colliery engineer. In coal mining, one who operates a hoist for raising coal to the surface where separate shafts or compartments are used for handling coal and men.

colliery manager. A colliery manager's (or undermanager's) certificate. A candidate for a certificate may submit himself for the old-style six-paper examination, or the new-style three-stage examination of the Mining Qualifications Board or the joint examination of the Board and the Institution of Mining Engineers. Holders of approved degrees or diplomas, or certain other qualifications, who apply for a first-class certificate, are required to qualify only in the subject of mining law. See also colliery manager.

colliery master. Eng. The owner or lessee of a coal mine.

colliery secretary. A person who is responsible for the maintenance of the colliery records and correspondence.

colliery superintendent. A person who is responsible for the management of a colliery.

colling. A voluntary joining of persons or parties, for the purpose of combining or uniting their resources, as in the support of some plan or policy relating to mining operations; a combination. Fay.

colling coal. See Baum washer; jig washer; plunger jig washer. Nelson.


colling land. Land of the public domain which contains coalbeds. Fay.


colling leads. The thin veins of coal in a fault zone. The evidence provided by the coal leads may indicate the direction of the displaced seam. Fay.

colling liquefaction. See coal liquefaction.

colling metallurgy. The study of micro-organisms whose activities are associated with the formation and degradation of coal. J.C. 8075, 1962, p. 2.

colling mine. Any and all parts of the property of a mining plant; on the surface or underground, which contributes, directly or indirectly under one management, to the mining of coal. Fay. In addition to the underground workings, staple shafts, and workings, a coal mine includes all the buildings, buildings, structures and works, preparation plants, etc. Nelson. A colliery. See also mine. Fay.


colling pipe. Eng. a. The carbonized annular coating or bark of a fossil plant. Fay. b. A very thin seam of coal. Fay. A coal tree stump reaching for a coalbed up in

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coal pipe

April 1966, Chapter 5.1, p. 45.

colling pipe inspector. In mining, one who examines the safety conditions of a mine in regard to pit slope or underground roof, timbering, haulage, ventilation, electricity, and machines, and makes tests with a safety lamp to detect gas and dust hazards. Also called examiner; gas inspector; mine inspector; safety inspector. D.O.T. 1.

colling rates. One who digs coal. Fay.


colling mines. The industry that supplies coal and its various byproducts. Nelson.

colling mining examinations. The examinations held in Great Britain which must be passed by every person who wishes to hold a colliery manager's (or undermanager's) certificate. A candidate for a certificate may submit himself for the old-style six-paper examination, or the new-style three-stage examination of the Mining Qualifications Board or the joint examination of the Board and the Institution of Mining Engineers. Holders of approved degrees or diplomas, or certain other qualifications, who apply for a first-class certificate, are required to qualify only in the subject of mining law. See also colliery manager.

colling mining explosives. The statutory requirements regarding the use of explosives in coal mines are very stringent. In gaseous mines only permitted explosives are allowed. See also explosive, b: blasting, a. Nelson.

colling mining methods. The methods of working coal seams have been gradually evolved and progressively improved or modified as knowledge and experience were gained and power machines became available. Over the years, a very large number of methods of mining coal have been developed to suit the seam and local conditions, and they may be divided, broadly, into (1) long-wall, and (2) pillar methods of working. See also method of working. Nelson.

colling oil. a. The crude oil obtained by the destructive distillation of bituminous coal. Fay. That distillate obtained from such a crude oil which is used for illuminating purposes—kerosene. Fay. c. Crude petroleum. Fay.

colling passes. A laborer who transports coal or coke from storage bins or piles to place of use. D.O.T. 1.

colling production. Highly polished, spherical or elliptical mass of bituminous or anthracite coal, which may consist of concentric shells, easily separated from the ash and other inclusions, to which the laminations of which may continue through the pebble. Some pebbles are striated and dichroite, the only place of occurrence, only found where coalbeds have been intruded by dikes. Hiss.


colling pipe. Eng. a. The carbonized annular coating or bark of a fossil plant. Fay. b. A very thin seam of coal. Fay. A coal tree stump reaching for a coalbed up in

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to the overlying rock strata indicating rapid subsidence and burial of the standing stratum by the coal-bearing stratum. The coal beds usually consist of material differing from the surrounding rock. *Stuter and Nye, p. 484."

coaltip

A place where charcoal is made. *Fay, v. 1, p. 119.*

coalgas

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coal saw

be cleared of dirt and powder from top to bottom of the seam being sampled. Down the center of each 3-foot square, one zone 1 foot wide is cut to a depth of at least 1 inch in order to get perfectly clean coal. The zone is then subdivided, one zone 1 inch to a depth of 2 inches and a width of 6 inches; or, if the coal is soft, to a depth of 3 inches and a width of 4 inches. Approximately 25 to 30 pounds of coal will be obtained for each foot of thickness of the seam. This should include all coal included in the mining open pit and exclude all slate or partings which are thrown out during the operation. The sample obtained should be collected on a waterproof cloth 6 by 7 feet and then screened, the lumps being broken in a mortar and all passed through a 6 mesh screen. Any impurities, such as slate or pyrite, are crushed to one-fourth inch or finer and thoroughly mixed with the coal. The coarser materials should be evenly distributed, the sample being then quartered, mixed, and re-quartered. In the cleaning, each sample is weighed. The cost of a detailed investigation is well repaid in higher recoveries, in flexibility of product, and in the saving of mining and handling costs. *Mathews, v. 1, p. 347.*

coal deflation

Simple or multiple flotation for the fines. The average capacity of coal-preparation plants ranges in Great Britain from 500 to 600 tons per hour. In the United States, plant capacities vary from 500,000 to 1,000,000 tons per hour. See also gravity concentration; *screen,* *washery,* *Nelson.*

coal preparation process

The process adopted for cleaning and sizing coal for the market. The selection of the best process for any particular run-of-mine coal is a specialist study. Many coal preparation factors must be considered in this process. The cost of a detailed investigation is well repaid in higher recoveries, in flexibility of product, and in the saving of mining and handling costs. *Nelson.*

coal preparation shift

On mechanized longwall faces, the shift during which coal-cutting, boring, and shot-firing operations are performed. *Mason, v. 1, p. 119.*

coalprint

N. of En. Thin film, or patches, of coalite matter interbedded with shale. *Fay.*

coal prospector


coal pulverizer operator

One who operates by means of electrical switches, mechanical levers and valves, a coal pulverizing plant consisting of mechanical and interrelated machines. The plant crushes, dries, and pulverizes coal, and delivers the pulverized coal either into the storage bin or to a slower that supplies the fuel to a boiler or furnace. *D.O.T.*

coal puncher

A coal cutter of the reciprocating type, used for undercutting and nicking coal. Also called pick machine. *Fay,* see pneumatic pick. *Nelson.*

coal rake

A seam or bed of coal. *Fay.*

coal rank

Classification according to degree of metamorphism or progressive alteration, in the natures of minerals from lignite to anthracite; higher rank is classified according to fixed carbon on dry basis; lower rank according to British thermal units on moist basis. *Bennett 2d, 1962 Add.*

coal rater


coal rake

A seam or bed of coal. *Fay,* see pneumatic pick. *Nelson.*

coal region

An area in which coal is mined extensively. *Cragin, v. 1, p. 539.*

coal rifle coal reel coal hauler Scot. A sale place for coal other than at a colliery. *Fay,* see coal road.

coal road

A. An underground roadway or drift leading into coal. *Zern.* B. A railroad whose principal business is the haulage of coal, as from mine to industrial centers. *Fay.*

coal room

A. A Scot. A working face in stope and-room workings. *Fay,* see coal road.

coalroyalties

 Fees paid for coal leased to the proprietors of the mine by the owners of the minerals below the surface. *Fay.*

coal sample

In the light, heat, and power industry, a laborer who collects coal samples from cars in the yard or from pulp- verized coal bunkers for testing by a fuels analyst to determine the properties at heat value, moisture, sulfur, or ash content. *D.O.T.*

coal sampling

The standard method used by the U.S. Bureau of Mines samplers is as follows: A space of 5 feet in width should be cleared of dirt and powder from top to bottom of the seam being sampled. Down the center of each 3-foot square, one zone 1 foot wide is cut to a depth of at least 1 inch in order to get perfectly clean coal. The zone is then subdivided, one zone 1 inch to a depth of 2 inches and a width of 6 inches; or, if the coal is soft, to a depth of 3 inches and a width of 4 inches. Approximately 25 to 30 pounds of coal will be obtained for each foot of thickness of the seam. This should include all coal included in the mining open pit and exclude all slate or partings which are thrown out during the operation. The sample obtained should be collected on a waterproof cloth 6 by 7 feet and then screened, the lumps being broken in a mortar and all passed through a 6 mesh screen. Any impurities, such as slate or pyrite, are crushed to one-fourth inch or finer and thoroughly mixed with the coal. The coarser materials should be evenly distributed, the sample being then quartered, mixed, and re-quartered. In the cleaning, each sample is weighed. The cost of a detailed investigation is well repaid in higher recoveries, in flexibility of product, and in the saving of mining and handling costs. *Mathews, v. 1, p. 347.*

coal sampling laboratory methods

There are two methods, the choice depending on whether the coal appears wet or dry: (1) the sample is weighed. The cost of a detailed investigation is well repaid in higher recoveries, in flexibility of product, and in the saving of mining and handling costs. *Mathews, v. 1, p. 347.* (2) the coal appears dry or damp. The procedure is to reduce the coal in the jaw crus her to a 4-mesh sieve and reduce the sample to 10 pounds using a larger riffle sampler. The 10-pound 4-mesh sample is ground in a rollcrusher or coffee mill to 20 mesh. From various parts of this sample, take with a spoon, without sieving, a composite 50-gallon total moist sample. This sample is then ground directly in a rubber-stoppered bottle. Thoroughly mix the main portion of the sample, reduce on the small riffle samples, to about 200 grams, and pulverize to 60 mesh by suitable grinder, disregarding loss of moisture. After passing 60 mesh, the sample is mixed and reduced to 50 grams on the small riffle sampler. This final sample is transferred to a 4-ounce rubber-stoppered bottle. Moisture is then added on both the 60-mesh and the 20-mesh samples. The following computation is made: (1) the analysis of the 60-mesh coal which has become partly air-dried during sampling is computed to the dry-coal basis by dividing each result by 1, minus its contents of moisture. The analysis of the coal "as received" is computed from the dry-coal analysis by multiplying by 1, minus the total moisture found in the 20-mesh sample; and (2) when coal appears wet, the sample is spread on tarred pans, weighed, and air-dried at room temperature or in a special drying oven at 10° to 15° C above room temperature. After it is dry, the sample is ground and the moisture is calculated on a dry basis. *Mathews, v. 1, p. 347.*

coal sampling

A coal cutter employing a very thin chain and bit, or saw, which cuts a kerf 2 inches wide, in comparison with
coal scares

normal chain and bit kerfs which are 5 to 7 inches wide. The coal saw is for use where hydraulic devices could be employed to break down the coal and thus eliminate most or all of the stopping or driling.

cool scares. Thin laminae of pyrite in coal.

Bureau of Mines Staff.

cool screen. In the iron and steel industry, a laborer who operates sifter to grade coal. D.O.T. I.

cool scuttle. A strong metal pail or bucket, or scoopoline container, in which coal for domestic use is carried. Craigie, v. 1, p. 539. See also coal cart.

cool seam. A bed or stratum of coal. Craigie, v. 1, p. 539. See also coal bed.

cool-seam correlation. The identification of a coal seam; the linking up or matching of a seam exposed in different parts of a mine or coalfield. A coal seam may be correlated by lithology, by fossils, by chemical composition, or by its own content. Cool-seam correlation is very important in exploration and in penetrating faults. See also correlation, p. 539.


cool-moistening probe or cool-moistening instrument which can measure the thickness of coal left on the floor of a seam when a cutter loader operates on a long-wall face. The principle used is the measurement of the density of the strata underlying the machine by a gamma-ray backscattering unit. Gamma rays from the radioactive source are scattered in all directions by the atomic particles in the coal and rock. The amount of scattered radiation eventually reaching the Geiger counter is, approximately, inversely proportional to the density of the scattering medium, that is, more will come back from coal than from rock. Thus, as the amount of coal between the source and the underlying rock changes, so the amount reaching the Geiger counter and the counting unit (the ratemeter) will change and consequently the output of the meter can be calibrated in terms of the thickness of the floor coal. Nelson.

cool separator. A machine which separates the coal from dirt in the run-of-mine material. See also coal-preparation plant, jigger.

coalsherd. Eng. A coalbed of only a few inches in thickness and therefore unworkable. Fay.


cool sill. Cumb. A soft clay from coal measures used for slate pencils. Arkell.

cool sizes. The sizes by which anthracite coal is marketed are as follows, diameter of opening through which or over which coal will pass. C.O.S. Testing.

<table>
<thead>
<tr>
<th>Diameter (in.)</th>
<th>Size</th>
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<tr>
<td>4</td>
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<td>3</td>
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<td>No 3</td>
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<td>1</td>
<td>No 4</td>
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cooling tower. A tower where the cooling of water is accomplished by natural convection. A.C.I. 34.4-52.

cool sludge. A slurry that has been partly dried and partially frozen, a dilution that will permit further dehydration by filtration. Mitchell, p. 610.

cool slurry. Finely crushed coal mixed with sufficient water to form a fluid. To use cool slurry pumped through a pipeline as fuel, expensive drying and water treatment has been necessary. Recent tests indicate that coal can be fired in a cyclone furnace as it is received from a pipeline, that is, a coal and water mixture. See also slurry. Nelson.

cool smut. York. Worthless, carthy coal. See also coal smut. Fay.

cool smoke. A suspension of very fine particles in air. A coal which breaks down easily when heated gives off its volatile matter very easily and perhaps more quickly than a shale, and this volatile draught can supply the air for combustion with the result that dark smoke containing much unburnt or partly burned material is given off—loss of fuel energy. See also smoke. Nelson.


cool split. See split seam. Nelson.

coal spragger. In bituminous coal mining, one who sets short wooden props between the spokes of a mine car wheel to stop the car. Bureau of Mines Staff.


cool stripper. In bituminous coal mining, a general name for a worker who is engaged in mining coal in a strip mine, one in which the coal is close enough to the earth's surface to permit the use of power shovels instead of stripping back the ground and loading the coal into large cars or trucks. Usually designated according to particular jobs, as fireman, steam shovel; groundman; power-shovel operator. D.O.T. I.


cool tar. Tar obtained by destructive distillation of bituminous coal, usually in coke ovens or in retorts and consisting of numerous constituents (as benzene, xylene, naphthalene, pyridine, quinoline, phenol, cresols, light oil, and creosote) that may be obtained by distillation. Webster 3d.

cool tar. Color. Color composed of containing any substance derived from coal tar, or any substance related in its chemical structure to a constituent of coal tar as to be capable of derivation from such constituent. Bennett 2d, 1962.

cool tar. Corrosive by contact; volatile; liquid pitch oil. Dark, yellow to greenish oil obtained from coal-tar distillation; specific gravity 1.030 to 1.080; boiling point 200 to 300° C.; used as; used as a solvent; plasticizer. Bennett 2d, 1962.

cool tar oils. Oils obtained by the distillation of coal tar; classified into light and heavy oils. A light oil is one having a specific gravity less than 1.080; a heavy oil contains the coal-tar naphthas. The heavy oils sink in water and contain such components as naphthalene, antracene, anthracene, cinnabar oil, etc. Porter.

cool tar pitch. A dark brown to black residue from the distillation of coal tar, ranging from a sticky mass to a brittle solid, depending on the degree of distillation. Most coal-tar pitch made melts between 60° and 70° C. Used for waterproofing; roofing; paving compounds and fillers; insulation; fuel briquetting; core compounds; electrodes; pitch-coke; and fuel. Hess.

cool tar, viscous. Amorphous, resinosous pheno- leptonic gum from the many distillates from coal; specific gravity, 1.0 to 1.25; and soluble in ethyl alcohol. Used in roofing compositions and in roadmaking. Bennett 2d, 1962.

cool testing. Evaluating coals by methods other than chemical, such as determining the relative values of different coals as fuels by burning them under controlled conditions in furnaces, or to determine their gas and coke producing properties by testing in a retort. Coal testing is frequently erroneously used, especially in coal marketing, for coal analysis. Bureau of Mines Staff.


cool tower operator. In the light, heat, and power industry, one who unloads coal from barges into coal tower hoppers, using an electric hoist to actuate the scoop bucket traveling on a beam suspended from the coal tower over the barge. D.O.T. I.


cool trimmer. In ore dressing, smelting, and refining, one who operates a small, electric-powered tram (car) to transport coal from storage bins to roasting furnaces where it is used as a fuel in roasting ore to eliminate undesirable elements. D.O.T. I.

cool trimer. One who is employed to stow and trim or shift coal on board vessels, either as cargo or supply for furnaces. Fay.

cool type. a. A variety of coal, such as common banded coal, cannel coal, algal coal, and splint coal. The distinguishing characteristics of each type of coal arise from the differences in the kind of plant material that produced it. A.G.I. b. A coal, particularly a bituminous coal, contains bands of vitrain, fusain, and amorphous matter that are believed to have been formed mainly from selected portions of the plant material forming the seam. These bands, which have been given the terms vitrain, clarain, durain, and fusain, are the different types of coal in that seam. Nelson.

coal vend. Eng. The general sale of coal. Fay. b. The limited quantity of coal to which each coalfield is restricted by a former combination of coal operators on the Tyne river. Fay.

cool wash. Scot. The coal face. Fay.

cool warrant. In Wales, a kind of fire clay used to form the floor of a coalbed. Fay.
coal-washer tender

coke products industry, one who washes coal, using equipment, such as launderers, screens and diatomaceous earth to separate coal from slate, rock, and other impurities, usually by gravity separation. May be called coal-washer tender. 

c widening. See washing apparatus. Fay.


c coal washing apparatus. Fay.

c coal wheeler. In the iron and steel industry, a laborer who shovels coal into a wheelbarrow and pushes it to the furnaces. D.O.T. Supp. b. 

c coal-whipper. Gr. Brit. One (as a laborer or a machine) that raises coal out of the hold of a ship. Webster 3d.

c coal wood. Wood to be burned for charcoal. Craige, v. 1, p. 539.


c coal washer. One who washes coal. See D.O.T. 1.


coast. A strip of land of indefinite width extending along the seashore. Seashore.

coast. A coast with tidal tilts. A coast in front of which a shallow sea with numerous tidal flats is situated, usually protected against the open sea by an offshore bar. Schieferdecker.

coastline. a. Technically, the line that forms the boundary between the coast and the shore. A.G.I. b. Commonly, the line that forms the boundary between the land and the water. A.G.I.

coast of transverse deformation; composite coast. A coast consisting of alternating layers of submergence and emergence, connected with zones of downwarping and upwarping which are transverse to the coast. Schieferdecker.

coast plain. A plain of denudation or a base level. It makes a sea level, to which the land has been reduced by subaerial forces. The coast plain, not to be confused with the coast line, it represents a portion of the land that has been ceded to the sea by the evanescent margin of an ice sheet. Schieferdecker.

coal. A tough, lustrous, nickel-white or silvery-gray, metallic element in group VIII of the periodic system. Similar in properties to iron, but harder. It is magnetic below 1,075°C and can take a high polish. C.T.D.; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-107.

coal; cobbles; cobble; cobblestone; cobble-stone. A small solid pillar of coal left as to sort out the valuable portion. Fay.

coal cote. A place where coal is stored. Craige, v. 1, p. 39;


coal. A vein or the material that comes from it when it is not rich, the mineral being thinly disseminated through it. Inferior; faulty. Fay.

coal aggregate. Aggregate predominantly retained on the No. 4 (4.76 millimeters) sieve of an aggregate of an aggregate retained on the No. 4 (4.76 millimeters) sieve. ASTM C128-66.

coal gold. Gold in large grains as distinguished from gold dust. Also called coarse quartz gold. Mathews, v. 1, p. 348.

coal-grained. Applied to rocks composed of large pieces of material, used mainly in a coarse sense, but an average size greater than 5 millimeters in diameter has been suggested. Socker and Barnes, 1953.

coal-grained soil. A soil in which gravel and sand predominate. Coarse-grained soils are those least affected by moisture-content changes and most surface rain, etc., becomes gravitational water. Nelson.

coal jig. The jig used to handle the larger sizes and heavier grades of ore or metal. Weed, 1922.

coal load. A load not rich. See also coarse. Fay.


coan-grained soli. A soil in which gravel pieces, containing carbonaceous matter, are so as to sort out the valuable portion. Fay.

coarse gold. Gold in large grains as distinguished from gold dust. Also called coarse quartz gold. Mathews, v. 1, p. 348.

coarse sand. Sand with a diameter between 0.5 millimeter and 1 millimeter. A.G.I.; coastal. A strip of land of indefinite width extending along the seashore. Schieferdecker.

coastal plane. A low, level plain composed of horizontally or of nearly sloping strata of clastic material. One of its margins is the coast. It represents a portion of the seabed that is covered by water, and borders the pre-existing land which was uplifted with it. Bureau of Mines Staff.

coastal terrace. See marine terrace. Schieferdecker.

Coast and Geodetic Survey. A Bureau of the U.S. Government charged with the topographic and hydrographic survey of the coast and the execution of belts of primary triangulation and lines of precise leveling in the interior. Prout, 3.

coaster. Corn. One who picks ore from the dump or abandoned mines. Fay.

c coast plain. A plain of denudation or a base level. It makes a sea level, to which the land has been reduced by subaerial forces. The coast plain, not to be confused with the coast line, it represents a portion of the land that has been ceded to the sea by the evanescent margin of an ice sheet. Schieferdecker.

coated abrasive. An abrasive product, sandpaper for example, in which a layer of abrasive particles is firmly attached to a paper, cloth, or fiber backing by means of glue or synthetic-resin adhesive. A.S.M. Gloss. See ceramic coating and slip coating. ACSG, 1963.

coated chippings. Chippings of stone which have been thinly coated with bituminous or asphaltic material. They are used for surfacing roads. Fay.


cobalt. A tough, lustrous, nickel-white or silvery-gray, metallic element in group VIII of the periodic system. Similar in properties to iron, but harder. It is magnetic below 1,075°C and can take a high polish. C.T.D.; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-107.

cobalt aluminate; cobaltous aluminate; Thernads blue. Co(AlO3); molecular weight, 176.89; blue; isometric; and insoluble in water. Bennett 2d, 1962.


cobalt bloom. Hydrated arsenate, Co(AsO4)2•H2O. Pryor, 3. See also erythrite.

cobalt-bonded. Particles of a refractory material, as powdered tungsten carbide, cemented together with cobalt to form a metallike mixture. Long.


cobalt-chromium steel. A steel said to resist pitting and high-temperature deformation; it has been used for valves of internal combustion engines; contains 80 percent iron, 13.3 percent chromium, 3.7 percent cobalt, and 1.5 percent carbon for the road. Fay. 0.7 percent molybdenum, 0.4 percent silicon, and 0.4 percent manganese. C.T.D.

cobalt fluoride; cobaltous allicofluoride. Pale red; hexagonal trigonal; CoF2•6H2O; specific gravity, 2.113 (at 19°C); and soluble in water. Used in industry. C.C. 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-169.

cobalt gecase. See cobaltite. Fay.

cobaltic paste (glass) colored with cobalt. Shipley.

cobaltite. Of, pertaining to, or containing cobalt. Cobaltite. G. S., specific gravity, 5.72; at

cobaltic boride; cobalt monoboride. Crystalline prism, CoB; specific gravity, 2.75 (at

cobaltite. Of, pertaining to, or containing cobalt. Cobaltite. G. S., specific gravity, 5.72; at

cobaltous. Of, pertaining to, or containing cobalt and ealcitim. Rhombohedral.

cobaltic oxide; cobalt oxide; cobalt molybdate. A grayish powder; green-brown isometric crystals; CoO; soluble in acids; insoluble in water; specific gravity, 6.45, ranging from 5.7 to 6.7; and melting point, 1,935° C. Used as a pigment in ceramics; as a catalyst; for the preparation of cobalt salts; in porcelain enamels; and in coloring glass. CCD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-169.

cobaltous carbonate; cobalt carbonate. A red powder; hexagonal; CoCO3; soluble in water and specific gravity, 3.7 to 4.9 (at 25° C). Used in pigments; and glasses; and in plating baths for cobalt. CCD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-170. Also used as a coloring medium in glass, glazes, and enamel; as a decolorizer in glass and enamel; in combination with either manganese or selenium usually for the latter, for the purpose of masking excess yellow color; and in ground coat enamel to give it a tight grip on the metal base.

cobaltous sulfate; cobalt sulfate. A red salt. See also cobaltous carbonate, basic. CCD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-169. Also used in whiteware bodies to impart a blue or blue-white color, and sometimes used in decorative work where a soluble compound is needed to make solutions for spray work, as on art pottery.


cobalt-potassium nitrite; potassium cobaltinitrite. Fischer's salt; cobalt yellow. Yellow; isometric; K2Co(NO2)3; molecular weight, 281.10; specific gravity, 1.948 (at 25° C, referred to water at 25° C); melting point, 96.8° C; loses H2O at 420° C; and soluble in water, in ethyl alcohol, and in methyl alcohol. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-170. Used in ceramics; pigments; and glasses; and in plating baths for cobalt. CCD 6d, 1961. Also used in whiteware bodies to impart a blue or blue-white color, and sometimes used in decorative work where a soluble compound is needed to make solutions for spray work, as on art pottery.

Lee.


cobalt salt. See also cobaltous carbonate, basic. CCD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-169. Also used in whiteware bodies to impart a blue or blue-white color, and sometimes used in decorative work where a soluble compound is needed to make solutions for spray work, as on art pottery.

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Lee.

cobalt praseoohloride; cis-chlorooxotetramine cobalt (III) chloride. CoCl2; molecular weight, 251.42; violet; orthorhombic; specific gravity, 1.847; soluble in water and in acids; and insoluble in alcohol. Bennett 2d, 1963 Add.; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-170.

cobalt 60. Radioactive cobalt of mass number 60. One of the most common radioisotopes. Half-life, 5.3 years; radiation, beta and gamma. Cobalt 60 emits gamma radiation, and is used in medical, industrial, and research applications.
cobalt skutterudite

rays which have about the same penetrating power as those from radium. Used for radiographic testing of welds and castings; and also in medical equipment in studying the permeability of porous media to the flow of oil, and the oil consumption in internal combustion engines. D.O.T. 1.

co ballistic. The pure end member, CoAs₃, of the skutterudite series. Hey, MM, 1961.

co ball steel. Alloy characterized by great hardness and brittleness. Used in high-speed steel to improve cutting power. Pryor, 3.

cobalt vitriol. See red vitriol; rose vitriol. Fay.


cobbled ore. a. Eng. Ore broken from vein-stone by means of a small hammer. Fay. b. Ore from which much barren rock as practicable has been broken off with hand hammers. Bureau of Mines Staff.

cobble. a. In the asbestos products industry, a large lump of asbestos fiberous rock, broken by hand hammers and thus lying in lumps from 3 to 12 inches long. Eng. A black, thready mineral, seeming to pass into magnetite. Fay.


cockerol. A weathered, rounded stone, especially of the size suitable for hardcore, and that is commonly used as a factor in rock mechanics, in concrete, in road construction, in asphalt, in some types of linoleum, and in many other ways. Fay. c. A number that serves as a measure of some property (as of a substance or body) or characteristic (as of a device or process) and that is commonly used as a factor in computations. Webster 3d. c. A system of rules and characters used to represent letters or words, or a method of formally applied for conduct in particular cases; as in the mining code. Standard, 1964. c. A system of rules and regulations generally approved and formally applied for conduct in particular cases; as in the mining code. Standard, 1964.

cobaltous ore. A highly siliceous hematite containing only a trace of phosphorus, but high in potash. Odbur.

coder. a. Eng. A wooden fishplate used for connecting the segments of a curb in shafts. Fay.

code placer. See placer. Dodd.


cock. a. A device for regulating or stopping the flow of oil, and the oil consumption in internal-combustion engines. See tapping and cocks. Fay. b. A pack to support the roof. Webster 3d. a. A pack to support the roof. Webster 3d. c. A number that serves as a measure of some property (as of a substance or body) or characteristic (as of a device or process) and that is commonly used as a factor in computations. Webster 3d. d. A prefixed number formally applied for conduct in particular cases; as in the mining code. Standard, 1964. e. A prefixed number formally applied for conduct in particular cases; as in the mining code. Standard, 1964. f. A system of rules and regulations generally approved and formally applied for conduct in particular cases; as in the mining code. Standard, 1964.

coefficient of compressibility. a. A measure of the deviation of a gas from Boyle's law. c. Density of oxygen in the basic oxides Holmes, 1928.

coefficient of active earth pressure. See co。（

coefficient of comprehensibility. a. A measure of the deviation of a gas from Boyle's law. c. Density of oxygen in the basic oxides Holmes, 1928.
coefficient of consolidation

See also Boyle's law, C.T.D. b. Change in void ratio per unit of pressure change. Prayr. 3

coefficient of consolidation. In the consolidation of soils, we obtain a value for the coefficient expressed in square centimeters per year, as the permeability is in centimeters per minute. See also consolidation press. Ham.

coefficient of contraction. This is related to the vena contracta, and is the ratio between the minimum cross-sectional area of a jet of water flowing through an orifice under pressure, and the cross-sectional area of the orifice itself. Hous.

coefficient of discharge. Ratio of observed to theoretical discharge. For a siphon this coefficient should be based on the area of the outlet. See.

coefficient of earth pressure. The principal stress ratio at a point in a soil mass. See also active coefficient of earth pressure; passive coefficient of earth pressure; at rest (coefficient of earth pressure). ASCE P1826.

coefficient of elasticity. Same as modulus of elasticity. ASM Glos.

coefficient of equivalence. See equivalence, C.T.D.

coefficient of expansion. The factor which expresses the change per unit length of any material for each degree of temperature. Crispin.

coefficient of friction. a. The frictional resistance of each square foot of rubbing surface when the velocity of the air current is 1,000 feet per minute. Nelson b. A numerical expression of the relationship between the resistance force and the resistance force of friction. This relationship is subject to many variables such as whether it is applied to a pushing friction, sliding friction, rolling friction, or internal friction of a bulk material; whether the surfaces in contact are smooth or rough, the kind of material composing those surfaces, if they are wet or dry, lubricated or nonlubricated. The coefficient of friction is used in determining the power necessary to drive a machine, to determine the slope angles which are safe for transport, of bins, chutes, and bunkers; or to determine the maximum angle of inclination for a conveyor. ASA M14.1 p. 65.

coefficient of heat transmission. The quantity of heat (in the United States, usually Btu) transmitted from fluid to fluid per unit of time (usually 1 hour) per unit of surface (usually 1 square foot) through a material or arrangement of materials under a unit temperature differential (usually 1°F) between fluids. Commonly used for building materials. Stetch 10.

coefficient of internal friction. The tangent of the angle of internal friction. ASCE P1826.

coefficient of linear expansion. The expansion per ° C or ° F per unit of length. Bureau of Mines Staff.

coefficient of permeability. Permeability. The rate of flow of water under laminar flow conditions through a unit cross-sectional area of a unit of material in the presence of a uniform hydraulic gradient and a standard temperature, usually 20° C. ASCE P1826.

coefficient of roughness. A factor in the Kutler, Manning, and other formulas expressing the character of a channel as affecting the friction slope of water or air flow. ASCE P1826.

coefficient of scatter. The rate of increase of reflectance with thickness at infinitesimal thickness of porcelain enamel over an ideally black backing. ASTM C286-65.

coefficient of saturation, modulus of subgrade reaction. The ratio of load per unit area of horizontal surface of a mass of soil to continuously settling settlement of the surface. It is determined as the slope of the recant, drawn between the point corresponding to zero settlement and the point of 0.05-inch settlement, of a load-settlement curve obtained from a plate load test on a soil using a 30-inch, or larger, diameter, loading plate. It is used in the design of concrete pavements by the Westergaard Method. ASCE P1826.

coefficient of thermal diffusion; thermal diffusivity. A thermal property of matter, with the dimensions of area per unit time. ASCE P1826.

coefficient of thermal expansion (linear). The fractional change in length of a body per degree of temperature change. ASCE 1963.

coefficient of traction. Represents the percentage of the total engine power that can be converted into forward motion by means of the friction between tire or track and the ground. See also traction, C.T.D. 65.

coefficient of transmissibility. See transmissibility coefficient.

coefficient of uniformity. The ratio of the particle size for 60 percent finer by weight to the effective diameter, the latter being the particle size for 10 percent finer by weight, Ham.


coefficient of variation. A statistical term which measures the relative variation of a series of values from the mean or average value:

\[ C = \frac{S}{\bar{X}} \]

where \( C \) equals coefficient of variation, \( S \) equals standard deviation, and \( \bar{X} \) equals average, also called relative standard deviation. Bureau of Mines Staff.

coefficient of velocity. The rate of transformation of a unit mass during chemical reaction. Prayr. 3.

coefficient of viscosity. a. The shearing force per unit area required to maintain a unit difference in velocity between two parallel layers of fluid a unit distance apart. Also called coefficient of absolute viscosity. ASCE P1826. b. The value of the tangential force per unit area required to maintain unit relative velocity between two parallel planes unit distance apart. Values of viscosity in centimeter gram second units are: air, 0.0018; water, 0.01; and glycerin, 11. See also viscosity. Nelson.

Coelestuates. The group of animals which includes the jellyfishes, corals, and Hydroids. Hy.

coeleometer. An instrument for measuring the magnetic intensity of a natural or artificial magnet. Bureau of Mines Staff.

coevasive force coevasive field. The opposing magnetic intensity which must be applied to a magnetized substance to reduce the magnetic induction in the material to 0. ASCE P1826.

coevritivity. The property of a material determined by the value of the coevasive force when the material has been magnetized to saturation. Webster 36d.

coeuricolante. A milky-white to light blue hydrous phosphate of aluminum; occurs in fibrous crusts. A member of the tour-

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cog

coffeepot lamp. Aust. An ordinary coal miner's open oil lamp, similar in shape to a coffeepot. Fay.

coffee shale. Drillers' term in the Appalachian basin for well cuttings of dilining, a Nat.


cofferdam. A temporary watertight closure (as of piles, sheeting, or of metal plates) from which the water is pumped to expose the bottom of a body of water and permit construction (as of foundations or piers). Webster 36d. b. A method of shaft sinking through saturated sand or mud near the surface of water. A shaft or shelter, an enclosure, open to the air, which keeps water out of the shaft area to allow excavation to proceed. The enclosure wall is constructed by driving down strips of steel with interlocking edgels or concrete piles. Reinforced with steel. In general, cofferdams are only used for short lengths and where piles can be driven into an impervious deposit, so that normal pumping will keep the shaft sufficiently dry for working; see also drop shaft; drum; j; iron and steel sheet piling; piling, a. Nelson.

coffering. The operation involved in the construction of dams for impounding water. C.T.D. b. A method of shaft sinking through loose material. In general, cofferdams are only used for short lengths and where piles can be driven into an impervious deposit, so that normal pumping will keep the shaft sufficiently dry for working; see also drop shaft; drum; j; iron and steel sheet piling; piling, a. Nelson.

coffinite. A naturally occurring uranium mineral, U(SiO4)4(OH)4, or (OH), as 75 tons. L&L.

cohn. a. Corn. An old, open-mine working, in which the ore is cast up from platform to platform. Standard, 1964. b. A heavily shielded shipping cask for spent fuel elements. Some coffins weigh as much as 75 tons. L&L.

colla. A naturally occurring uranium mineral, U(SiO4)4(OH)4, or (OH), as 75 tons. L&L.

collie. The operation involved in the construction of dams for impounding water. C.T.D. b. A method of shaft sinking through loose material. In general, cofferdams are only used for short lengths and where piles can be driven into an impervious deposit, so that normal pumping will keep the shaft sufficiently dry for working; see also drop shaft; drum; j; iron and steel sheet piling; piling, a. Nelson.

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264-972 0-68-16-16
cog-and-rung gin

where single straight posts will not suffice to control the top, and yet cribs are not needed. Cogs may be advantageous. May also be called a battery. Kentucky, p. 142. A crib made of notched timbers built up like a log house. A check or crib. If the timbers are squared instead of notched, the structure is called a nog. It is ordinarily filled with waste, and posts are put between the timbers. Hess. c. A rock intrusion. Fay. d. To consolidate ingots or shape them by hammering or rolling. Hess. e. In intergranular cohesion;

as a cowheel. Gears are often improperly referred to as cowheels. Cripsin.

cog and rung gin. One of the earliest appliances for hoisting the coal and water from the mine. It was a windlass fitted with a cogwheel and a rung arrangement and worked by a horse in much the same way as horse gin are worked. Fay.

cogein. Eng. One who builds cogs. See also cog. Fay.

cogging. a. The operation of rolling or forging an angle or rounded surface to a bloom or billet. C.T.D. b. The pronging of the roof in longwall stalls. See also cog; nog. Also spelled pegging.

cogging mill. a. A blooming mill. ASM Gloss. b. Usually a two-high reversing mill consisting of two rolls, 2 to 4 in diameter, between which the ingot is reduced to blooms or slabs. Osborne, p. 357.

cogged. A rounded, wornout stone, especially cobbled or cobble. Also called cogglestone. Same as cobblestone. Arkell.

cogging. a. A fixture of a system of fixtures that originated at the same time from the same causes as other fissures in the same region. Stanford, p. 131.

cogging. a. A soil which, when unconfined, has considerable strength when air-dried, and which has significant cohesion when submerged. ASCE P1826. b. A sticky clay or clayey silt as opposed to sand. Nelson.

cohesive strength. a. The hypothetical stress in an unnotched bar causing tensile fracture without plastic deformation. ASM Gloss. b. The stress corresponding to the forces between atoms. ASM Gloss. c. Same as technical cohesive strength; destructive strength. ASM Gloss.

coil. The process of making clay objects by building with ropes or coils of clay. ACSC, 1963.

coil breaks. Creases or ridges across a metal sheet transferred by the direction of coiling, occasionally occurring when the metal has been coked hot and uncoked cold. ASM Gloss.

coil building. A primitive method of shaping clay vessels by rolling clay into a rope which is then coiled to form the wall of the vessel; the inner and outer surfaces of the roughly shaped ware are finally smoothed. D.O.T. Supp.

coil drag. A tool to pick up pebbles, bits of iron, etc., from the bottom of a drill hole. Fay.

collar. In metallurgy, one who winds nonferrous strips and sheets into coils as they emerge from a rolling mill or slitting machine. Also called coil operator. D.O.T. Supp.

coll. The process of making a sintered compact to obtain a cylindrical form with the correct size for drawing from the color and length of flame in the oven, D.O.T. 1.

collared coke. A. N. of 90 percent. May also be called a battery. Kenne.

c coke crusher operator. In the coke products industry, one who tends a mill (crusher) to reduce coke to the desired size. D.O.T. 1.


coke dust. Coal dust which has been coked by the heat of an explosion and has assumed different forms under different conditions usually found near the origin of the explosion, and also where the velocity of the explosion is low, as in a room or on, where always provided there is at point that an excess of coke dust over that needed for combination with oxygen. The volatile matter of coal dust seems to burn first and, if the coal is a coking coal, coke is formed of one kind or another, depending on the position, temperature, size of dust, and velocity of explosion. Rice, George S.

coke iron. Iron made in a furnace using cokes as fuel. Webster 3d.


coke oven. A chamber of brick or other heat-
coke-oven mason. In the coke products in-
coke, petroleum. The solid residue remaining
coke scrubber. An apparatus filled with coke
coke pitch. A black amorphous solid obtained
coke pig iron. Most common type of pig iron
coke wharf. Aust. A platform onto which
coke), hetder. In Joplin, Mo., a foreman of
product ovens, which were built in rec-


cutting the stone or brick to size and shape
bar brackets, and charging hole frames,
Walls, arched roof, door frames, leveling
are pumped out. Hess.

volatilization, to practical gastightness and all by-
cold drawing. The process of reducing the
cross-sectional diameter of tubes or wire
by drawing through successively smaller
dies without previously heating the mate-
rial, thereby increasing its tensile strength.
Steel wire for prestressing is made by this
process. Ham.
cold-drawn steel. Steel rods finished by draw-
ing them through a die to reduce their size and to give them better quality. Mers-
eren, 4th, p. 426.
cold-drawn wire. Wire that has been drawn
through a die at normal temperature.
cold-extractable metal. See readily extract-
able metal. Hawkes, 2, p. 151.
cold extrusion. See extrusion. ASM Gloss.
cold furnace. N. of Eng. A drift driven into
an upcast shaft to convey the return air into
instead of passing or carrying away the over-
flame. This is done to prevent the igni-
tion of the gas in the return air. Fay.
cold galvanizing. Application of powdered
zinc, in suspension in an organic solvent,
to iron articles. On evaporation of the
solvent an adherent coating of zinc re-
maints. Pryor, 3.
cold head. York. Quarryman’s term for the
coral bed in the Hamilton Oolite. Arkell.
cold nose. A mining expert who underrates
the value of mineral properties. Standard,
1964.
cold nozer. See wildcatter. Long.
cold-rolling. a. Running an unheated drill in
cold weather. Long. b. Synonym for wild-
cutting. Long.
cold press. The act or process of subjecting
bit-matrix-powder metal mixtures in a mold
to high pressure before sintering. Long.
cold pressing. The process of compressing
metal or other powders in a die at room
temperature to form a compact. Cold pressing
is usually followed by sintering at ele-
vated temperatures. NRC-ASA N11-1957.
cold-press cement. Another name for slag
cement. See also slag cement. Dodd.
cold-roll. To roll (metal) without applying
heat. Webster 3d.
cold-rolled. Said of metal that has been rolled
at a temperature close to atmospheric. The
cold rolling of metal sheets results in a
smooth surface finish. C.T.D.
cold-rolled steel. A low-carbon, cold-reduced
cold saw. A saw for cutting cold metal.
Mersereau, 4th, p. 426.
cold-short. A condition of brittleness existing in
some metals at temperatures below the
recrystallization temperature. ASM Gloss.
cold-working. A reduction of the surface of an
ingot or casting showing premature solidi-
fication caused by a splash of metal during
pouring. ASM Gloss.
cold shut. a. A discontinuity that appears on
the surface of cast metal as a result of two
streams of liquid meeting and failing to

cold-cracking. Cracks in cold, or newly cold,
cooled, due to excessive internal stress
caused by contraction. Such cracks may be
caused by the mold being too hard or the
design of a casting being unsuitable. Ham.
cold crushing strength. See crushing strength.
Dodd.
cold-draw. To draw (as metal) while cold
or without the application of heat. Web-
ster 3d.
cold-drawing. The process of reducing the
cross-sectional diameter of tubes or wire
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cold-working. A reduction of the surface of an
ingot or casting showing premature solidi-
fication caused by a splash of metal during
pouring. ASM Gloss.
cold soldering

unit. ASM Gloss. b. A portion of the surface of a forging that is separated, in part, from the main body of metal by oxidized carbon. ASM Gloss.

cold soldering. Soldering in which two pieces are joined without heat (as by means of a copper amalgam). Webster 3d.

cold staking. In glassmaking, the operation of lowering the temperature of the even until the glass attains the proper consistency for blowing. This operation follows that of clearing. Fay.

cold treatment. Cooling to a low temperature, often near -100° F, for the purpose of obtaining desired conditions or properties, such as dimensional or structural stability. ASM Gloss.

cold-twisted bars. Rolled mild steel bars which have been twisted when cold to increase their strength. Taylor.

cold type. A bituminous pavement which may be mixed hot and laid cold. Pit and Quarry, 53rd, Sec. E, p. 70.

cold welding. Solid-phase welding in which pressure, sometimes added heat, is used to cause interface movements which bring the atoms of the faying surfaces close enough together to form covalent bonds. ASM Gloss.

cold work. Permanent strain produced by an external force in a metal below its recrystallization temperature. Taylor.

cold-worked steel reinforcement. Steel bars which have been twisted when cold to increase their strength. Taylor.

cold working. Shaping of metals at ordinary temperatures; cold drawing, rolling, stamping, etc., which retains the proper consistency for further working. Fay.

cold soldering. Soldering in which two pieces are joined without heat (as by means of a copper amalgam). Webster 3d.

cold-soldered joints. The failure of a tripod or derrick caused by overloading or improper structural design resulting in tripod breaking or falling. Long. b. Complete cave-in of the roof of country rock above an intrusive. Bureau of Mines Staff.

cold-collared bit. A fishtail-, spudding-, or other-type bit used exclusively for beginning a borehole. Long.

cold zone. The preheating zone of a rotary cement kiln. Bureau of Mines Staff.

colit. A natural hydrated calcium borate, CaB(OH)2.H2O; white or colorless; melting point 75° C; Mohs' hardness, 4 to 4.5; specific gravity, 2.26 to 2.48; found in California. One of the raw materials used in making plaster used in the United States for boiler acid, sodium borate, etc. CCD 6d, 1961.

colemanite. A natural hydrated calcium borate, CaB(OH)2.H2O; white or colorless; melting point 75° C; Mohs' hardness, 4 to 4.5; specific gravity, 2.26 to 2.48; found in California. One of the raw materials used in making plaster used in the United States for boiler acid, sodium borate, etc. CCD 6d, 1961.

colgrout. Special cement-sand grout used in Colcrete. It is poured or pumped through 3-inch-diameter pipes to consolidate aggregates. Bureau of Mines Staff.

collar. a. In a mine shaft, the first wood frame of the shaft; sometimes used in reference to the mouth or portal of the tunnel. B.C.I. b. Supporting framework at top of shaft from which limbs may be hung. Pryor. c. The section used to the timbering or concrete around the mouth or top of a shaft. Lewis, p. 21. d. The bar, or crosspiece, in a framed timber set. Stauffer. e. The section of pipe used in mine shaft and the surface. Nelson. f. The beginning point of a shaft or drill hole, the surface. Ballard. g. The shaft itself. Fay. h. A flat ring surrounding anything closely. Fay. i. Spot. A frame to guide pump rods; the fastest way to get down a shaft. Fay. j. See cap, Fay. k. The mouth or opening of a borehole or the process of starting to drill a borehole, that is, the sections of larger diameter separating the grooves in rolls used for the production of rectangular sections. C.T.D.

collar bit. A steel, or concrete, to support and secure the mouth of a shaft. Nelson. b. That at the top of the shaft from which limbs (shaft sets) are hung by means of hanging bolts. Pryor, 3, p. 94.

collar coffer. A fishing tool designed to slip over and grip a casing or pipe coupling. Long.

collar structure. A heavy wooden frame erected at the mouth of a rectangular shaft to provide a solid support for the timbers and roof. A permanent structure consists of a concrete wall extending from two to eight sets in depth. On this concrete mass is built the bearers and timbers which support the top heavy set or collar set. The terms also applies to the heavy concrete ring at the mouth of a circular concrete-lined shaft. Nelson.

collar stud. A stud threaded at one end and having a short shaft or spindle at the other, the two separated by a collar which is an integral part of the stud, used for carrying gears, levers, etc. Orpina.

collateral series. A radioactive decay series initiated by transmutation, which eventually joins into one of the four radioactive decay series, for example, americium 242 and its immediate decay products in relation to the uranium disintegration series. NRC-ASA N1.1-1969.

collapsible box. A rectangular box with a cover consisting of two sheets which can be folded so as to bring together all of the material in the box. Gaudin, 2, p. 5.

collage. A formed by the collapse of the roof of a cave. Bateman. b. By the collapse of the roof of country rock above an intrusive. Bureau of Mines Staff.
collective subsidence 225

collision waves

ing all conductors. This type has now been discarded in British coal mines and all trailing cables used will be of the individual type. Nelson.

collective subsidence. That condition in sedimentation in which the particles and loam are supposed to be arranged in a way to resist the coarse fast-settling particles while the slow-settling ones are entrapped and carried down with the mass. Mitchell, p. 611.

collector. A heteropolar compound containing a hydrogen-carbon group and an oxidized group, chosen for ability to adsorb selectively in froth flotation process and render adsorbing surface relatively hydrophobic. A promoter. Pryor, A.

coll. a. The small horizontal plane, or face at the bottom of the brilliant-cut gem stone. Hess. b. A split sleeve used to hold work or speculum to a lathe, turning machine, or grinding. ASM Gloss. c. Same as cuil. Shiple.

collar. a. Eng. Strictly speaking, a man who mines coal with a pick though commonly applied to a miner who works in or about a colliery. Fay. b. Eng. A steam or sailing vessel carrying a cargo of coal. Fay. c. Eng. A coal merchant or dealer in coal. Fay. d. A miner responsible for working the coal from his stall, or stint, on a longwall face and for setting supports adequate for safety. A person must have had some years experience at the coal face as an assistant before he is entitled to become a collier. Colliers are usually paid in accordance with a pricelist in force at the mine. Also called hewer; stallman. Nelson.


collar coal; house coal. A certain weight of coal or a load of 1 ton, which is supplied at agreed periods and either free or at a cheap rate, to colliery workers who are householders. Nelson.

collar's lung. See anthracosis. Fay.

collaring. A light of often several hundredweight in addition to the standard ton of 2,240 pounds. In former times as much as 28 hundredweight was reckoned as 1 ton. Fay.


collary agent. Gr. Brit. A colliery chief official with a status between the manager and owner. Under private enterprise, the collary agent may or may not be a qualified mining engineer. See also agent, c. Nelson.

collary bailiff. Derb. The superintendent of the collyery. Fay.


collary implement. A full-time carpenter employed at a colliery who prepares the timber for ventilation doors and ventilation roads, or for any uncoven port to erect them. He does all work involving timber frames, formwork, etc. Nelson.

collary clerk. In coal mining, one who keeps all the records pertinent to the operation of a coal mine. D.O.T. 1.

collary consumption. That part of the coal output used to close down with anthracite mining which is used for steam generation and other purposes connected with the working of the colliery itself. Nelson.

colliery. A weight of often several collector. A heteropolar compound containing a hydrogen-carbon group and an oxidized group, chosen for ability to adsorb selectively in froth flotation process and render adsorbing surface relatively hydrophobic. A promoter. Pryor, A.

collie agent. Gr. Brit. The maps of the mine workings, and sections of the shafts and seams being worked, which the colliery manager must keep at the pithead office in accordance with the Surveyors and Plans Regulations, 1956, of the Act. Nelson.

collie, a. A type of remote-controlled continuous miner for thin seam extraction. The coal seam is extracted in a series of parallel stalls 6 to 7 feet wide and 100 yards long. Full extraction of the seams is the objective. The extraction is controlled entirely from the roadway at the entrance of each stall, and the cutting unit carries with it an automatically extending belt conveyor, ventilation ducting and cables for power and control. The equipment is largely contained in a train of nine, rail-mounted bogies, situated in the central roadway from which the stalls are to be driven. One bogey is the launching platform on which the cutting unit is carried from one stall to the next. The cutting unit, which enters the +1 stalls, consists essentially of three: trimmer heads feeding a short conveyor passing through the center of the machine and discharging onto the belt extending to the angle station outby. The miner is controlled by one man in the control cabin and there are special instruments, such as methanometers, coal-sensing device, etc. The machine was conceived by H. E. Collins of the National Coal Board of Great Britain, and its production is the result of teamwork which was coordinated by the Central Engineering Establishment. It is now undergoing trials. It is anticipated that the machine will produce in the region of 1,000 tons per day working three shifts, and the manufacturer should be in a position to reduce this figure to 1,500.

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burned gases, and originating at the point where two explosion waves meet. Fay.
collite. Another name for cuvite. See also Tomkeieff, 1954.
collodierite. Proposed by Lacroix (in 1917) for a metamorphic rock composed of gra-
phite. It is the same material as graphite, and is composed mainly of carbon, with small
quantities of other elements. Morin.
collotrachite. A type of coal consisting of the
chlorocollain, in which the quantity of other macerals, some feldspar. A.G.I.
collotrochocline. A layer of water that lies
between the surface layer and the deep layer of the ocean. The upper layer is known as
the surface layer, and the lower layer is known as the deep layer. The thickness of the
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Coloradoan  

colored slates. The so-called colored slates are composed of colored silica and iron oxides, giving a mottled effect. Red slates associated with bright green varieties of Ordovician age occur near Granville, Washington County, N.Y. The red color is due to abundant finely divided hematite. AIME, pp. 793-794.
colored. One who applies glazes of various colors to spaces marked on tile, using bulb pen. D.O.T. 1.
colored grade or classification into which a gem is placed by examination of its color in comparison to the color of other specimens of the same variety. Shipley.
colored iron. An instrument or device for the chemical analysis of liquids by comparison of the color of the liquid with standard colors. Webster, 3d. Two major types are used in the U.S. oil industry: The ASTM colorimeter for analyzing lubricating oils, and the Saybolt colorimeter for analyzing light oils. Shell Oil Co. b. An instrument for measuring absorption characteristics of substances, gases, liquids, or solids at selected electromagnetic spectral frequencies, generally in the ultraviolet, visible, and infra-red region. Bureau of Mines Staff.
colorimeter method. A method of chemical analysis in which filtered solutions are compared for color with known concentrations of a standard solution that color to the solution or with specially tinted transparent filters which have been suitably calibrated. A colorimeter is also a colorimeter that may be used in colorimetric test to analyze samples of a mineral. In petrology, the sum of the colorimetric value. An indication of the contrast in color between the white, nearly white color, because it depends on the amount of organic compounds present in the mineral. Shipley.
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columbium carbide; niobium carbide. Black crystals; lavender-gray powder; isometric; CbC (NbC); molecular weight, 104.92; insoluble in water and in all acids except in nitric acid and hydrofluoric acid; specific gravity, about 7.6 or 7.82; specific gravity, 270.17; soluble in water and in all acids except in hydrochloric acid, and in concentrated hydrofluoric acid; melting point, 1400 °C; boiling point, 241 °C or 254 °C; specific gravity, 2.75; deliquescent; and decomposes in water and in concentrated hydrofluoric acid. Used in the preparation of columbium (niobium) metal, CbC (NbC), and as an intermediate in the production of columbium (niobium) carbide. CbC (NbC), is a black powder, 1 to 2 millimeters in length, found in the region in which they occur, having a common set of chemical, mineralogical, and petrographic features, and hence, regarded as having been derived from a common parent magma. Essentially synonymous with "granophyre" and "granophyric granite.

columnar. a. A mineral with a structure obscuringly resembling prisms, for example, hornblende. b. Composed of columnarlike individuals. Schiferdecker.

columnar charge. a. A continuous charge in a quarry borehole. Compare deck charge. b. 25 l. 1964, see. C. Charge, usually distributed in the principal part of a straight drill hole. The degree of packing is smaller than for the bottom charge.

columnar head. In the mushroom type of reinforced concrete construction, the enlargement of the column where it meets the slab. Ham. 1964, p. 124.

columnar structure. a. Usually due to thermal metamorphism. b. A coarse structure of parallel columns of grains, having the long axis perpendicular to the casting surface. ASM Gloss.

columnar structure, b. A structure of parallel columns of crystals; lavendcr-gray powder; isometric; columnar. a. A mineral with a structure obscuringly resembling prisms, for example, hornblende. b. Composed of columnarlike individuals. Schiferdecker.

columnar section. A geologic illustration that shows in a graphic manner, and by use of conventional symbols for different rock types, the successive rock units that occur in the principal part of a given area or at a specific locality. It may be accompanied by a very brief description of lithology and by appropriate symbols indicating the thickness, age, and classification of the rocks. Stokes and Vanars, 1955.

columnar joining. Joining that breaks the rock into columns. The joints usually form a fairly well defined prism that is hexagonal in cross section. It is most characteristic of diabase and basalt. Generally considered to be shrinkage cracks resulting from the cooling of the igneous mass in which they occur. A.G.I. See also columnar structure, b.

columnar section. A geologic illustration that shows in a graphic manner, and by use of conventional symbols for different rock types, the successive rock units that occur in the principal part of a given area or at a specific locality. It may be accompanied by a very brief description of lithology and by appropriate symbols indicating the thickness, age, and classification of the rocks. Stokes and Vanars, 1955.

columnar joins. A columnar section that is composed of slender crystals of prismatic cross section, as some amphiboles are. When the columbium ore is flattened, the structure is said to be bladed. Heus. b. A structure common in diabase, and, less commonly, in sheeted dikes. It consists of parallel, more or less regular cylindrical columns generally transverse to the foliation, and is generally considered to be shrinkage cracks caused by cooling. Fay. See also columnar joining. c. Columns, 9 to 14 centimeters in diameter and 1 to 1.4 meters in length, found in certain calcareous shales or argillaceous limestones; oval to polygonal in section. Columns are perpendicular to the foliation. Fay and Pettingill.

columnar structure, b. A coarse structure of parallel columns of grains, having the long axis perpendicular to the casting surface. ASM Gloss.


columbium pentachloride; niobium pentachloride. See columbium chloride. CbCl5 (NbCl5); molecular weight, 270.17; soluble in water and in all acids except hydrochloric acid, and in concentrated hydrofluoric acid; melting point, 190 °C; boiling point, 415 °C; specific gravity, 3.8; deliquescent; and decomposes in water and in concentrated hydrofluoric acid. Used in the preparation of columbium (niobium) metal. CbCl5 (NbCl5), is a yellow to yellow-gray powder, 9 to 14 centimeters in diameter, 1 to 1.4 meters in length, found in certain calcareous shales or argillaceous limestones; oval to polygonal in section. Columns are perpendicular to the foliation. Fay and Pettingill.

columbite. A yellow to yellow-gray powder, 9 to 14 centimeters in diameter, 1 to 1.4 meters in length, found in certain calcareous shales or argillaceous limestones; oval to polygonal in section. Columns are perpendicular to the foliation. Fay and Pettingill.

columbite-zinnwaldite. A yellow to yellow-gray powder, 9 to 14 centimeters in diameter, 1 to 1.4 meters in length, found in certain calcareous shales or argillaceous limestones; oval to polygonal in section. Columns are perpendicular to the foliation. Fay and Pettingill.

combed finish tile

surface, Dodd. combed finish tile. Tile whose face surfaces are altered by more or less parallel scoring. A silver in manufacture to give increased bond for mortar, plaster, or stucco. ASTM C43-65.

combed ridge. A ridge formed in making a specimen from a set of crystals meeting in the center. Bureau of Mines Staff.

combed veins. See banded vein; comb. Fay.

combed ware. Decoration effected by means of a toothed tool drawn across slip, over a body of a different color. C.T.D.


combination. A union of two or more elements. Crispin.

combination die. In die casting, a die having two or more cavities for different castings. ASM Gloss.

combination drill. A drill equipped for cable-tool and/or diamond drilling operations, or for a cable-tool and/or rotary drilling operations. Long.

combination driller. A driller versed in cable-tool and diamond- or rotary-drilling techniques. Long.

combination electric locomotive. A mine locomotive which can operate as a trolley locomotive or as a battery locomotive. While operating on the battery, it can be used, under certain conditions, at the coal face. Also it may be used on the main haulage trolley system where, due to higher voltage, higher speeds are possible. Nelson.

combination gas. Natural gas rich in oil vapor. Wet gas. Also called casing-head gas. Fay.

combination longwall. See longwall, b. Fay.

combination mill. An arrangement of continuous mill for roughing, and a guide or looping mill for shaping. ASM Gloss.

combination of embalming. See sublevel stipping, b. Fay.


combination sampler. A universal-type soil-sampling device in which some of the constructional features of two or more special-use samplers are combined. Long.

combination shot. A blast made by dynamite comblatios sampler. A universal-type soil-combloatioa of =Whin and stoping. See combination drill. A drill equipped for cable-tool and/or diamond drilling operations, or for a cable-tool and/or rotary drilling operations. Long.

combination stresses. Any state of stress that cannot be represented by a single component of stress; that is, one that is more complicated than simple tension, compression, or shear. ASM Gloss.

combined stresses. In the theory of elasticity, a state of stress which cannot be represented by a single component of stress. The combined stresses are subject to the principle of superposition, which states that if there are two or more different types of stress acting simultaneously, the total stress at any point is equal to the sum of the stresses due to each type acting separately. The principle of superposition is based on the assumption that the stress-strain behavior of a material is linear, meaning that the strain is proportional to the stress. This is a simplification of the actual behavior of materials, which may exhibit non-linear behavior under large deformations or for materials with complex microstructures.

combined top slicing and shrinkage stipping. In this method the ore body is worked from the top down in successive slices. In the working of each slice the unit the slice is worked as a shrinkage stope. The broken ore serves to give lateral support to the sides of the unit and also serves as a working platform from which the back is reached. After working a unit the cover is caved. Also known as the Kimberley method. Fay.

combined top slicing. A rare type of thinning in which the thin operation can be described as composing a rotation of 180° around the c axis with reflection over the a, b plane. Nelson.

combined water. See chemically combined water. Bureau of Mines Staff.

combined water. See also water of hydration. See combined water. Bureau of Mines Staff.

combinedwise. A process in which the relative weight of an element that has the same combining capacity as a given weight of another element, the standard now usually being 8 for oxygen but it was formerly 1 for hydrocarbons. This is thus altogether filled up with two sets of crystals having on the walls and their apexes directed toward the center. In some cases the fissure is thus altogether filled up with two sets of crystals meeting in the center. Bureau of Mines Staff.

combised moisture. Moisture in coal that is thus altogether filled up with two sets of crystals meeting in the center. Bureau of Mines Staff.

combined cyanide. The cyanide of a metal-combined cyanide. slate of sharp rock needles which constitutes the sill gneiss type of mountain ridge. Such a ridge is frequently designated by the term are (fah-bone), though in the Alps, the term gneiss (edge) has been applied especially to the lower part of such ridges of this type. Comb ridge was proposed for all such pal-

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isades of needles derived by this process. A.G.I.

comb-like texture. A texture in which individual crystals have their long axes perpendicular to the walls of a vein. Schiferdecker.

combustibility. See also combustible. A measure of the speed of combustion of a coal under specified conditions. B.S. 3323, 1960.

combustible. Capable of undergoing combustion, or the continuing oxidation of materials that catch fire and burn when subjected to fire. Compare flammable. Webster 3d.

combustible carbon (in coal). The total carbon in the coal less that which is present as mineral carbonates. B.S. 1016, 1961, Pt. 16.

combustible gas indicator. The most common type of unit uses a heated platinum wire to ignite combustible gases in the sample. Heat of combustion changes the electrical resistance of the wire, which in turn affects the meter. Calibration is usually in terms of percent recoveries of the Lower Explosive Limit of a particular gas, conversion for other gases being made by table. Although flame arrestors are built into the combustion chamber orifices, hazardous locations normally require use of tubes to carry the sample to a safe area for measurement. Beits, p. 581.

combustible shale. Another name for carbonaceous or bituminous shale. Tomkiewicz, 1954.

combustible soil. See coal mine soil. Fay.

combustion. The action or operation of burning. The continued oxidation of a substance with certain elements, such as oxygen or chlorine, for example, accomplished by the generation of light and heat. Standard, 1964. See also ignition temperature.

combustion arch. A flat or curved refractory roof over a furnace to promote combustion by reflection of heat, AISI, No. 24. Nelson.


combustion engineer. An engineer with practical training and knowledge of all kinds of fuels and their combustion characteristics. In general, he has not the technical qualifications of the fuel technologist. Nelson.

combustion furnace. A long, narrow, portable furnace used in the combustion method. Fay.

combustion method. A method for the quantitative determination of certain elements (such as carbon, hydrogen, and nitrogen) in organic compounds by combustion. Webster 3d.

combustion rate. The weight of fuel burned per square foot of grate area per hour. Nelson.


come-along. a. An open, fixed-jaw spanner used to grip, hold, and lift rods, casing, or piping. Compare lowering iron. Long. b. A device consisting of two mated jaws so attached to a ring that a pull on the ring causes the opposing jaws to close and grip a wire, cable, or any cylindrical piece of drill equipment. Long.
come out. To withdraw or comedown; comb dung. Softish stone occurring in the roof of a coal seam and easily falling down when coal is removed. Arktel, comedita. A sodic rhyolite, and/or pyroxene. A.G.I. come out. To withdraw or hoist the drill string or tools from a borehole. Long. come to nature. The charge settling down into a nasty mass after boiling. Monteraeus, 4th, p. 443. come water. The constant or regular flow of water in a mine proceeding from old workings or from water-bearing rocks. Fay. comfort air conditioning. Air conditioning that controls the atmosphere which human beings breathe. Hartman, p. 4. comfort zone. Used to describe the effective temperature in British mines that normally falls in the range of 54° to 68° F on the basic scale. Roberts, 1, p. 136. coming out. The process of withdrawing or hoisting the drill string or tools from a borehole. Long. coming up to grass; coming up to day. Eng. Commercial terms used by miners for the word basin, or outcrop. Fay. Comleyan. Lower Cambrian. A.G.I. Supp. commencing operations. The performance of any act which has a tendency to produce an intended result. Ricketts, II. commercial. A deposit of oil, gas, or other minerals in sufficient quantity for production in paying quantities. Williams. commercial body. Impure gold dust. Bennett, 2d, 1962. commercial flux. A flux sold under a trade name; prepared for use in soldering, brazing, and welding. Crispin. commercial granite. This term includes granites, gneisses, gneissic, granite gneiss, and the rock species known to petrologists as syenite, monzonite, and granodiorite, species intermediate between them, the genetic varieties and gneisses of corresponding mineralogic compositions and the corresponding varieties of porphyritic textures. The term commercial granite shall also include other feldspathic crystalline rocks of similar textures, containing minor amounts of accessory minerals, used for special decorative purposes, and known to petrologists as anorthosite and laurvikite. ASTM C119-50. commercial feldspar bearing. A bearing having either ground or ungraded races and in which the bore and outside diameter tolerances are held to thousandths of an inch and the width tolerance to hundredths of an inch. AISI M81-1961. commercial important. A statistical term referring to salable coal, less colliery consumption and prepared for sale and supplied to employees. B.S. 3323, 1960. commercial marble. A crystalline rock composed predominantly of one or more of the following minerals: calcite, dolomite, or serpentine, and capable of taking a polish. ASTM C119-50. commercial mine. A coal mine operated to supply purchasers in general as contrasted with a captive mine. Zern. commercial mining. Can. Mineralized material currently profitable at prevailing metal prices. Hofman. commercial quality. A quantity of oil, gas, or other minerals sufficient for production in paying quantities. Williams. commercial quarry. a. Term that includes quarries for aggregate. b. Quarries for the production of stone for industrial and agricultural purposes. Streetlerk, p. 16. b. Not owned or controlled by commercial. Contrasted with a captive quarry. Bureau of Mines Staff. commercial sampling. The American Society for Testing and Materials divides coal sampling into commercial sampling and special purpose sampling. Commercial samples are intended to produce an accuracy such that if a large number of samples are taken from a single lot of coal, 95 out of 100 (0.95) test results will be within plus or minus 10 percent of the average of these samples. Compare special purpose sampling. Crispin. commutate. To reduce solids to minute particles by crushing, grinding, or pulverizing. Crispin. commutation. a. The act or action of commutating or the fact of being commutated. Webster 3d. b. The breaking, crushing, or grinding of coal, ore, or rock. Nelson. c. In powder metallurgy, the same as pulverization. ASTM Gloss. commutation broker. A broker who buys and sells on order for customers, who may be scattered throughout the country, and who are reached by a network of branch commission houses in various cities. Hoos. p. 260. commutation ore. Uranium-bearing material of 0.10 percent or higher, for which the Atomic Energy Commission has an established price. Ballard. comman bonded coal. A common variety of bituminous and subbituminous coal. It consists of a sequence of irregularly alternating layers or lenses of (1) homogeneous black material having a brilliant vitreous luster; (2) grayish-black, less brilliant, striated material usually of alloyy nature; and (3) generally thinner bands or lenses of soft, powdery, and fibrous particles of mineral charcoal. The difference in luster of the bands is greater in bituminous than in subbituminous coal. ASTM D493-39. See bonded coal. comman bond American bond. A.R.I. commercial brick. Brick such as is used for rough work or for filling in or backing. Crispin. See also building brick. comman brick clay. A red-to-brown burning clay which usually has a high percentage of fluxing impurities, is plastic enough for shaping, and fires to a very hard and strong solid with little warping or cracking at a relatively low temperature. Bureau of Mines Mitchell, p. 81. common goods; rejections; rubbish. Terms applied to the less desirable diamond material used for abrasive purposes. J.C. 8200, 1964, p. 3. common ion effect. Change in concentration of an ion in a saturated solution through addition of another electrolyte which yields an ion in common with the solid substance present in the ion product remains constant, but with the increase of concentration of one ion that of the other diminishes. Since the solution is already saturated, precipitation occurs, the effect being a reversal of the process of ionization. Pryor, 3.
compacted yards

Webster 3d. compacted yards. Measurement of soil or rock that has been placed and compacted in a fill. Nichols.

compacting factor. The ratio obtained by dividing the observed weight of concrete which fills a container of standard size and shape when allowed to fall into it under standard conditions of test, by the weight of the container which fills the same container. Taylor.

compacting factor test. For freshly prepared compacted yards. Measurement of

compact rock. A rock so closely grained that no component particles or crystals can be recognized by the eye. Nelson.

compact style. Pryor, 3.

compactioa curve; Proctor curve. The curve which fills a container of standard size and so achieves a high density. This results in (1) increased bearing strength; (2) reduced tendency to settle or deformation under load; and (3) reduced liability to moisture changes, that is, increased all-round stability. Compaction is normally specified as a soil density (pound per cubic foot) to be achieved. Density measurement is necessary to assess progress and completion. See also relative compaction. Nelson. c. One way to compact the concrete by which sediments are converted into rocks. Wheeler.

compaction. a. Decrease in volume of sediments, as a result of compressive stress, usually resulting from continued deposition above them, but also from drying and other causes. See also differential compaction, A.G.I. b. In soil mechanics, the densification of a soil by means of a mechanical manipulation. ASCE P1826. Reducing the moisture content of the soil by tamping, tamping, or soaking, Nichols, 2. d. The expulsion of air from a soil mass and so achieve a high density. This results in (1) increased bearing strength; (2) reduced tendency to settle or deformation under load; and (3) reduced liability to moisture changes, that is, increased all-round stability. Compaction is normally specified as a soil density (pound per cubic foot) to be achieved. Density measurement is necessary to assess progress and completion. See also relative compaction. Nelson. e. One way to compact the concrete by which sediments are converted into rocks. Wheeler.

the process of inducing a closer packing or filling of the aggregates in place in concrete by the reduction of voids. Taylor.

compaction curve; Proctor curve. The curve showing the relationship between dry unit weight and the water content of a soil, or for a given compactive effort. ASCE P1826.

compaction test. Machines, such as rollers, to expel air from a soil mass and so achieve a high density. Smooth-wheel rollers are best for gravels, sands, and gravel-sand-clay soils with reasonably high moisture contents. Pneumatic-tired rollers are best for clays with reasonably high moisture contents, as a result of compressive stress, usually resulting from continued deposition above them, but also from drying and other causes. See also differential compaction, A.G.I. b. In soil mechanics, the densification of a soil by means of a mechanical manipulation. ASCE P1826. Reducing the moisture content of the soil by tamping, tamping, or soaking, Nichols, 2. d. The expulsion of air from a soil mass and so achieve a high density. This results in (1) increased bearing strength; (2) reduced tendency to settle or deformation under load; and (3) reduced liability to moisture changes, that is, increased all-round stability. Compaction is normally specified as a soil density (pound per cubic foot) to be achieved. Density measurement is necessary to assess progress and completion. See also relative compaction. Nelson. c. One way to compact the concrete by which sediments are converted into rocks. Wheeler.

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compartment. a. A separate division or section of anything. Webster 2d. Mining shafts usually are divided into two or more compartments or sections, separated by framed timbers and planking. Fay. b. A space or division in a shaft formed by cross bushing. The most important compartments in a winding shaft are two for cages or skips. See also rectangular shaft, a. Nelson. c. One section or unit in a coal- or mineral-treatment plant, Nelson.

compartment. a. An instrument for determining directions, usually by the pointing of a magnetic needle free to turn in a horizontal plane, as, for example, the ordinary surveyor's compass. Another type, the compas, for tracing magnetic iron ore, having a needle hung to move in a vertical plane. Fay. b. An instrument for describing circles, transferring measurements, and similar operations consisting in its simple form of two pointed branches joined at the top by a pivot, one of the branches generally has a pen or pencil point. Webster 3d. c. A mass or other compass device used in borehole-survey work. Long.

compass and wedge. Term sometimes used for a brick that has a taper both on the side and on the face, for example a 9-inch brick tapered 4½/3½ inches and 2½/2 inches. Dodd.

compass deflection. a. The difference, expressed in degrees, between the direction a magnetic compass needle points and true geographical north. This is termed magnetic declination. Long. b. Differences, expressed in degrees, between magnetic-north directions and geographical directions. ASCE. c. Differences, expressed in degrees, between magnetic-north directions and geographical directions. ASCE. This term is sometimes used. Nelson.

compass direction. Direction as indicated by a compass without any allowances for compass error. The error by which a magnetic compass may differ by a considerable amount from the true direction referred to a meridian of the earth. H&G. The amount by which a compass direction differs from the true direction. The error is usually expressed in degrees and is marked (+) or minus (−) according to whether the compass direction as read in degrees of azimuth is less or greater than the true azimuth. The error is to be applied according to sign to the compass reading to obtain the true azimuth direction. The compass error combines the effects of the deviation and variation of the compass. H&G. The error is also expressed as number of degrees east or west of true azimuth north. Bureau of Mines Staff.

compass points. The four principal points of the compass—north, cast, south, and west—called the cardinal points. Midway between the cardinal points are the intermediate points for all points not on a north-south line. The four cardinal points are northeast, southeast, southwest, and northwest. These directions are based on the compass. H&G. The four principal points of the compass—north, cast, south, and west—are called the cardinal points. Midway between the cardinal points are the intermediate points for all points not on a north-south line. The four cardinal points are northeast, southeast, southwest, and northwest. These directions are based on the compass. H&G.
component of coal

complete fusion. Fusion which has occurred over the entire base-metal surfaces exposed for welding. ASM Gloss.

component. a. An ore is complex when it contains more than two or more other metals. ASM Gloss.

complex gravitational crystallization differentiation. A complicated process of magmatic differentiation accomplished by the combined effects of crystal settling, transport by convection currents, and gaseous transfer. Schieferdecker.

complex one. a. An ore containing several metals. Bateman. b. Ores named for two or more valuable metals such as lead-arsenic or gold-silver. ASM Gloss.

Introduction to Metallurgy, 1938, p. 205. c. This term has no precise meaning. It generally signifies an ore that is difficult or costly to treat because of the presence of unusual minerals, for example, a gold ore with arsenic and antimony minerals, or an ore containing two or more metals, or ore composed almost wholly of several sulfide minerals. Ham.

complex steel. An alloy steel containing more than two alloying elements, such as high-speed tool steel. It contains more elements than quaternary steel. Fay.

complexing agent. A substance that is an electron donor and that will combine with a metal ion to form a soluble complex ion. ASM Gloss.

complex loss. An ion that may be formed by the addition reaction of two or more other ions. ASM Gloss.

complex pegmatite. A prismatic body characterized by pneumatolytic-hydrothermal replacement and rare minerals. Schieferdecker.


component. a. A constituent part, for example, a mineral is a component of a rock. Webster 3d. b. An ingredient of a chemical system, the concentration of which in the different phases is capable of independent variation. Webster 3d. c. Any one of the vector terms added to form a given vector sum or resultant. Webster 3d. d. One of the independent variables involved in each phase of a heterogeneous equilibrium. The number of components in a system is the distinction on that is characteristic of chemical constituents which must be specified in order to describe the composition of the system. A.G.I.

component of coal. The term component was introduced in 1920 by R. Thiessen. For example, two ores or two bands of banded bituminous coal, he refers to these layers or bands as components. Webster 3d. a. A distinguishable unit of a mixture, pure substance, or homogenous solution, recognizable visually as bands or layers of coal that have distinctive physical
appearance and characteristic microstructural features from coal to coal. Therefore, the term anthraxylon is described as representing bright, glossy bands of coal that under the microscope always show traces of more or less preserved cells with similar dimensions, regardless of dimensions. Thiesen recognized three components of banded bituminous coal as apposite, silt, and fusain. The term component is somewhat comparable with the term microlithotype of the Stopes-Heerlen Nomenclature. I.H.C.P., 1963, part I.

**composite**. Made up of separate parts or elements; combined or compounded; not simple. Standard, 1964.

**composite compact**. In powder metallurgy, a compact consisting of mixed metals, the particles of which are joined by pressing or sintering, or both, with each metal particle retaining substantially its original composition. A.M.S. Gloss.

**composite joint**. A joint in which welding is made up of different materials, for example, in situ concrete and precast concrete. Taylor.

**composite plate**. A plate formed by two or more intrusions of different ages into the same fissure. The adjective composite is similarly applied to the confines of the particular blank size being worked. A.G.I. Std.

**composite wheel**. A bonded product where two or more specifications are bonded together in one wheel. A.G.I., 1963.

**compound** working. N. of Eng. A system of organization in which all members of a team undertake all face tasks and share in the common paynote. Trist.

**composition**. a. An aggregate, mixture, mass, or body formed by combining two or more elements. Webster 3d. b. The mineralogical or chemical constitution of a rock. A.G.I. c. The elements or ingredients. The mineralogical or chemical constitution of a rock. A.G.I. c. The elements or ingredients.

**compound engine**. An engine in which the steam does useful work in two stages, that is, first in a small high-pressure cylinder and then in a larger low-pressure cylinder. This compound arrangement gives higher efficiencies than a single-cylinder engine. Nelson.

**compound explorer**. A series of closely spaced parallel drill holes. A.G.I.

**compound explosive**. An explosive of two or more kinds of rock intruded at different times but making use of the same channel of injection. Stokes and Barnes, 1935.

**compound fault**. A fault consisting of two or more parts that are in contact where intervening strata have wedged out. A.G.I. Std.

**compound section**. Projection of data from various locations to a single vertical plane, generally in the form of a synthetic cross section. A.G.I.

**compound silt**. A silt composed of two or more intrusions having different chemical and mineralogical compositions. Billings, 1954, p. 295.

**compound stone**. Same as assembled stone.

**compound stones**. A comprehensive term which includes doublets, triplets, etc., in which a stone consists of two or more parts either of the same or of different materials cemented or otherwise joined together. Anderson.

**composite seam**. A coal bed consisting of two or more parts that are in contact where intervening strata have wedged out. A.G.I. Std.

**compound绸de**. An apparatus composed of three tiers of blanket tables, a shaking table, and a quicksilver riffle for catching gold. Fay.

**compound cylinder**. A continuous curve composed of two or more arcs of different radii. Zern., 435.

**compound diaphragm**. Any type so designed that it performs more than one function on a part with one stroke of the press, such as blanking and piercing where all functions are performed simultaneously within the confines of the particular blank size being worked. A.M.S. Gloss.

**compound air pump**. A rolled steel joist strengthened by plates attached to the flanges by riveting or welding. Ham.

**compound dredger**. A rolled steel joint strengthened by plates attached to the flanges by riveting or welding. Ham.

**compound engine**. Expanding the steam in two or more engine cylinders, in order to prevent the lowering of the efficiency of the engine by condensation. Mason, V. 2, pp. 369-369.

**compound lode**. Veins seldom occur alone. They are often a member of parallel deposits, or a series of intersecting veins. Such a system is called a compound lode.
compound motor

Higham, p. 5.

compound motor. See compound dynamo.

compound oils. Mineral oils which are mixed with animal or vegetable oils to increase viscosity or consistence. Pettijohn.

compound oxides. Behave like a compound of two oxides, though they may not actually be so. Thus, trillictetrone (FeO₂₃) behaves like a compound of ferrous and ferric oxides—FeO and Fe₂O₃—and forms ferrous and ferric sulfs with acids. Coote.

compound proportion. A proportion between two ratios, either or both having more than one condition. Which affects the problem. In problems of this type, all of the terms appear in pairs, with the exception of one term, and this is always expressed in the same units as the required term. Jones, 2, p. 65.

compound ripple marks. Two or more sets of ripple marks, one superimposed on the other. Pettijohns.

compound ripple type. Type of ripple marks resulting from simultaneous interference of wave-oscillation with current action. Pettijohns.

compound rolls. Two or more pairs of crushing rolls arranged above one another, the upper pair acting as a primary crusher and the lower pair as a secondary crusher. Compound rolls find use in the size-reduction of brick-clay. Doyle.

compound shaft. A shaft in which the upper stage is often a vertical shaft, while the lower: stage, or stages, may be inclined and driven in the deposit. In this type shaft, the wind is divided into two or more stages, and underground winding engines are installed to deal with the lower stages, with transfer points and ore bins at the junction of two stages. Sinclair, V, p. 2.

compound shoreline. Showing the features of which combine elements of submerged and emerged coasts as a result of submergence followed by emergence. Schieferecker.

compound spherulite. A spherulite which appears to have been formed by the rapid growth of rays of plumeous spherulitic aggregates outwards from a central core and the deposition of a dense layer forming an outer spherical shell. Compound spherulitcs are known with a diameter of less than 10 feet. Schieffeler.

compound transmission. A gear set in which power can be transmitted through two sets of reduction gears in succession. Nichols.

compound vein. In crystallography, individual crystals of one group united according to different laws. Standard, 1906.

compound veins. A vein or body consisting of a number of parallel fissures united by cross fissures, usually diagonally. Fay, b. A vein composed of several minerals. Fay.

compound ventilation. A. An arrangement of a number of major ventilation systems serving various large working areas served by more than two shafts and their associated fans, but integrated to form one ventilation system. Usually adopted in large combined mines. See also radial ventilation. B. S. 3618, 1963, sec. 2. b. Ventilation by means of a number of more or less independent ventilators, which is now normal practice. See also ventilation, c. Nelson.

compressive force. A direct-current motor which has two separate field windings—one connected in parallel and the other in series with the armature circuit. Lowenheim.

compressional mechanism. N. of Eng. Preparation of grinding machines in conjunction with flexible armored (snaking) face conveyors and power-assisted stonework. The advantage of using a floor or the use of walking chocks are triggered by the passage of the cutter loader in recent experiments in the introduction of automation. Comprehensive mechanism is still rare in low seams. Trit.

compressor. Pressed together; compacted; or reduced in volume by pressure. Webster 3d.

compressed air. Air compressed in volume and transmitted through pipes for use as motive power for underground machines. Compressed air is costly to transmit long distances, but has certain advantages, namely, it cools the air at the working face and is relatively safe in gassy mines. Nelson.

compressed-air blasting; air shooting. A method originated in the United States for breaking down a beds of compressed air. Air at a pressure of 10,000 to 12,000 pounds per square inch is conveyed in a steel pipe through a tube or shell inserted in a shothole. The air is admitted by opening a shooting valve and is released in the hole by the rupture of a shear pin or disc. The sudden expansion of the air in the confined hole breaks down the coal. Advantages: (1) a large proportion of large coal; (2) no danger of methane ignition; and (3) no toxic or disagreeable fumes. Nelson.


compressed-air-driven lamps. These lamps are self-contained units and comprise a strong alloy casing within which are a compressed-air turbine and a small air-pump. The casing is self-contained, comprising a stationary and revolving field magnets. The air enters the casing at one side, passes through a filter and then through a reducing valve which maintains a constant pressure of 40 pounds per square inch on the turbine blades. The air escaping from the turbine is used to scavenge the inside of the lamp and remove any fire and lamp, which might have an effect on lamp weight, not in use. It is finally discharged through a series of holes of such a size that the pressure inside the lamp casing is 2 to 3 pounds per square inch above atmospheric. Should this pressure be lost due to the lamp glass being broken, the light is extinguished automatically by a spring-loaded diaphragm, which short-circuits the generator unless held open by the excess pressure. Also called air turbolamp. Mason, v. 1, p. 239.

compressed-air interaction. See nitrogen narcosis. HOG.

compressed-air locomotive. A mine locomotive driven by compressed air. It is very safe and much used in gassy mines in Europe. The air is brought down by pipeline from the surface to a charging station near the pit bottom. See also locomotive haulage. Nelson.

compressed-air measurement. Compressed air may be measured by the following methods: (1) full pressure, a method in which the volume of air delivered by a compressor is measured by measuring the volume of water used or of the compressed air-system or of the main parts of the system, such as the receiver at the compressor, the main pipelines, and a receiver at the other end of the pipeline. The volumes of the receivers and pipeline are determined, and the pressure is regulated to be free from any leakage. Without discharging into the pipeline, the compressor is capable of delivering a constant flow of air. (2) Low pressure, a method in which the Compressed Air Society recommends that the output from a compressor be measured under low pressure as it flows from a smooth nozzle. Lewis, pp. 679-680.

compressed-air turbines. Turbines used for driving coal cutters, belt conveyors, and air pumphouses. They are not so efficient in their use of the air as piston engines, but possess the merits of extreme simplicity and robustness. They are self-contained units and comprise a driving coal cutters, belt conveyors, and power-assisted systems. Schieffeler.

compressed pellets. Blasting powders manufactured in cartridge form for use in small diameter shotholes. These pellets are particularly useful for horizontal shotholes. MacDance, 1, p. 15.

compressibility. a. Property of a soil pertaining to its susceptibility to decrease in volume when subjected to load. ASTM P1820. b. The compressibility of a substance is usually defined as the relative change of volume per unit change of pressure referred to an arbitrary initial pressure. Lewis, pp. 580. c. In powder metallurgy, a specific term ratio of the pressure required to bring the pressure in the system is reduced to cubic feet of free air and these volumes are totaled to give the total free air in the system; and (3) low pressure, a method in which the Compressed Air Society recommends that the output from a compressor be measured under low pressure as it flows from a smooth nozzle. Lewis, pp. 679-680.

compressed-air turbulent. Turbines used for driving coal cutters, belt conveyors, and air pumphouses. They are not so efficient in their use of the air as piston engines, but possess the merits of extreme simplicity and robustness. They are self-contained units and comprise a driving coal cutters, belt conveyors, and power-assisted systems. Schieffeler.

compressed-air waves. a. A traveling disturbance in an elastic medium characterized by volume changes propagating through it. In problems of this type, all of the terms appear in pairs, with the exception of one term, and this is always expressed in the same units as the required term. Jones, 2, p. 65.

compressional wave. Longitudinal wave. a. A traveling disturbance in an elastic medium characterized by volume changes propagating through it. In problems of this type, all of the terms appear in pairs, with the exception of one term, and this is always expressed in the same units as the required term. Jones, 2, p. 65.
compression curve

(adjacent to density changes) and by particle motion in line with the direction of traction. A.C.G. is a longitudinal wave (as a sound wave) propagated by the elastic compression of the medium.

compression curve. See pressure-void curve.

compression efficiency. The ratio of the theoretical power required to compress air to the actual power required in the cylinder. The theoretical power may be computed as either in thermal or adiabatic modes, and the compression efficiency is expressed on the corresponding basis. Lewis, p. 695.

compression fault. A fault resulting from compressive forces in the earth's crust.

Schleiendercker.

compression flange. That part of a beam which is compressed; it is the upper part at midspan of a simply supported beam, and the lower part at the support of a continuous beam. Ham.

compression gasoline. Natural or casing-head gasoline made by compressing natural gas. Has.

compression ignition engine. An internal-combustion engine in which ignition of the liquid fuel injected into the cylinder is performed by the heat of compression of the air charge. C.T.D.

compression index. The slope of the linear portion of the pressure-void ratio curve on a semilog plot. ASCE P1826.

compression isothermal. See isothermal compression; isothermal expansion; adiabatic compression; adiabatic expansion; compound compression.


compression strength. The absorption of a photon in the Compton effect. NCB.

Compton effect. When short homogeneous X-rays are scattered by light elements their wavelength is slightly increased, the scattered radiation containing usually both the original and the modified wavelengths. For an angle of scattering of 90°, the increase in wavelength is always 0.024 angstrom unit, whatever the scattering element. The effect is due to the collision of a photon with an electron and the consequent decrease in the energy of the photon. C.T.D.

computability. The capability of a computer or any type of machine to perform operations. Any type of machine which may reveal earth formations, from the readings of a magnetometer taken at different locations by a magnetic prospecting party, to disclose indications of subsurface strata favorable to further petroleum exploration activities. D.O.T. 1.

computer. A digital computer is defined as a machine which performs routine calculations or performs problems; and a digital computer computes information to solve complex mathematical problems. The two principal classes of computers are: (1) analog computers which use physical magnitudes to solve the problems, and (2) digital computers which perform the calculations using numbers that represent the various quantities and are composed of digits represented according to a predetermined code. Gysar. An analog computer acts on internally stored information to solve complex mathematical problems; and a digital computer computes information in digital form. It is more accurate than the analog computer. Crip, b. In seismic prospecting, one who computes and interprets variations in gravity pull of different earth formations, from the readings of a gravity meter, torsion balance, or other gravity measuring instruments recorded by a gravity prospecting party, to disclose indications of subsurface strata favorable to petroleum or ore reserves, using an integrator, a planimeter, mathematical formulas, charts, or other computational devices. D.O.T. 1.

computer, magnetic prospecting. In petroleum production, one who computes depths of subsurface rock strata from seismograph recordings, obtained by one or more seismic prospecting parties, to provide data for delineating contours of subsurface stratigraphy which may reveal petroleum deposits. Also called seismic computer. D.O.T. 1.

computer, magnetic. A mineral, (Mg,Co,Zn)SO₄·H₂O, containing 3.60 percent ZnO, 9.40 percent MgO, 9.00 percent CuO, 39.07 percent H₂O; from the Comstock Lode, Nev. Synonym for sine-magnesia chalcanthite. Spencer 19, M.M., 1952.

computer, magnetic. A new design of tungsten carbide drill bit for percussion boring. The cutting edge is concave, while in the conventional type the edge is convex. The new bit remains sharper for a longer period before regrinding becomes necessary and gives a higher penetration speed. Also called saddleback tip. Nelson. b. See plug bit, b. B.S. 3618, 1965, sec. 3.

computer, magnetic. A mineral, (Mg,Co,Zn)SO₄·H₂O, containing 3.60 percent ZnO, 9.40 percent MgO, 9.00 percent CuO, 39.07 percent H₂O; from the Comstock Lode, Nev. Synonym for sine-magnesia chalcanthite. Spencer 19, M.M., 1952.

computer, magnetic. A general term for machines which can be used to solve mathematical problems. The two principal classes of computers are: (1) analog computers which use physical magnitudes to solve the problems, and (2) digital computers which perform the calculations using numbers that represent the various quantities and are composed of digits represented according to a predetermined code. Gysar. An analog computer acts on internally stored information to solve complex mathematical problems; and a digital computer computes information in digital form. It is more accurate than the analog computer. Crip, b. In seismic prospecting, one who computes and interprets variations in gravity pull of different earth formations, from the readings of a gravity meter, torsion balance, or other gravity measuring instruments recorded by a gravity prospecting party, to disclose indications of subsurface strata favorable to petroleum or ore reserves, using an integrator, a planimeter, mathematical formulas, charts, or other computational devices. D.O.T. 1.

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concave inclined bedding


Concave. A concave condition applicable to the width or other planar surface. Light Metal Age, Vol. 16, No. 9, October 1958, pp. 11-24.

Concealed coalfield. A coalfield which is generally buried beneath newer deposits, usually Permian and Trias strata, which rest unconformably on the Coal Measures in the basin. A good example of a concealed coalfield is that of Kent, in southeast England. See also exposed coalfield

Concentrate. a. In mining, the product of concentration. Used in plural form as "the concentrates" for the concen-
trates were complete." Concentrates are called ore at Joplin, Mo.; mineral at Michigan copper mines; and tailings in Black Hawk, Colo. Fay. b. In mining, to separate ore or metal from its containing rock or earth by any of several methods that always proceeds by steps or stages. Thus the ore must be crushed before the mineral can be separated, and certain preliminary steps, such as liberation, must precede the final operations, which produce the finished concentrates. Ricketts, I. b. Nelson. c. Enriched ore after reduction of waste in beneficiation mill. Hoffmann. d. The clean product recovered in froth flotation. B.S. 3552, 1962. e. To intensify an advantage or be superior to others by some concentration criterion. The ratio between the height of the charge is small compared with the burden which can be given quantitatively. Langefors, p. 61.

Concentrate filter operator. One who separates mineral concentrates from water by chemical solutions prior to the smelting of the concentrate to recover the mineral. D.O.T. 1.

Concentrate load. A load that is confined to a very small area, a knife-edge load being a particular type of concentrate load. Ham.

Concentrating plant. See concentrator. Fay.

Concentrating table. A device consisting of a riffed deck, usually inclined in two directions to the horizontal, to which a differential reciprocating motion in a substantially horizontal direction is imparted; the material to be separated is fed in a stream of water, the heavy particles collect between the riffles and are then conveyed in the direction of the reciprocating motion while the lighter particles are borne by the current of water over the riffles to be discharged laterally from the table. B.S. 3552, 1962.

Concentration. a. Separation and accumulation of economic minerals from gangue. See also small area, a knife-edge load being a particular type of concentrate load. B.S. 3552, 1962.

B. Increasing the strength of aqueous solutions by evaporating part of their water. Fay. c. The area covered by the dispersion of the workings, the greater the dispersion of the workings, the greater the productivity of the miner employed and the greater the costs of production. See also placer concentration; geopetal concentration; overall concentration. Nelson.

Concentration plant. Equipment for the recovery of valuable minerals from ores by physical means, that is, by washing or flotation. C.T.D.

Concentration ratio. a. Weight or tonnage. Ratio (K) of the weight of feed (F) to the weight of concentrate (C) produced:

\[ K = \frac{C}{F} \]

for a two-product treatment. C

Pryor, J. b. Grade, ratio (K) of grade of valuable constituent in feed to grade of valuable constituent in concentrate. Bureau of Mines Staff.

Concentration. In ore treatment series, reduction of size, with removal of a finished product at each such reduction stage

Concentrate table. A table on which a mixture of finely-crushed ore and water flows downward, and the heavier metallic fingerprints behind and flow off in a separate stream of finely-crushed ore and water. Langefors, p. 61.

Concentration units, solutions. Two types of expression are used, which involve the quantity of solute, solvent, and/or solution:

1. Group A, solute per solution in grams per liter. Solubility of a material in a particular solvent which involves the composition of the mixture and the temperature at which it is measured. See also supersaturation.

2. Group B, percent solute per solvent. Grams per 100 or gram percent. Weight of solute in solution gram per liter. Solubility of a material in a particular solvent which involves the composition of the mixture and the temperature at which it is measured. See also supersaturation.

Concentric. Concentrate. A plant where ore is separated into values (concentrates) and rejects (tails). An appliance in such a plant which is to separate (concentrates) and exclude (tails). An apparatus in which there is a difference in chemical composition of the ore, as compared with the total area of the ore, or a difference in the composition of the ore and of the gangue. See also flotation cell.

Concentric. Adherence to a common center, as in the inner and outer walls of a tube or hollow shape. Longecore. 1. b. Nelson. c. Enriched. c. Concentrated frictions. A system of frictions more or less concentrically disposed about a central axis. A.G.I.

Concentricity. Adherence to a common center, as in the inner and outer walls of a tube or hollow shape. Longecore. 1. 1. Nelson. c. Enriched. c. Concentrated frictions. A system of frictions more or less concentrically disposed about a central axis. A.G.I.

Concentric weathering. See spheroidal weathering. Longecore.

Concentric wheel. A bonded product containing two or more compositions of different (abrasive) specifications. A.G.S., 1963.

Concentration structure. A sheet formed by the repeated folding of a lenticular coal on itself, after the manner of the bellows of a concertina when shut up. The sheet is formed entirely of the one bed and thus the structure differs from ordinary isoclinal folding, where distinct beds are involved. Chal tinus. c. Nelson.

Concentrations. See concentration system.

Concession system. Under this system the state or the private owner has the right to grant concessions or leases to mining operators at discretion and subject to certain general restrictions. It has its origin in the ancient regalian doctrine that all mineral wealth was the prerogative of the crown or the feudal lord and applied in almost every mining country in the world except the United States. Compare claim system.
condenser operator

condenser. A. An apparatus for removing heat from a gas (steam) so as to cause the gas to revert to the liquid state (water). ASTM STP No. 148-D. B. An apparatus used for condensing vapors obtained during distillation; it consists of a condenser tube, either freely exposed to air or contained in a jacket in which water circulates. C.T.D. c. An accumulator of energy, particularly in the form of latent heat of vaporization. D.O.T. 1. A. A skilled worker who assembles or assembles and sets in place the condenser systems of a ship, as necessary. B. One who assembles or assembles and sets in place the condenser systems of a ship, as necessary. C. A skilled worker who assembles or assembles and sets in place the condenser systems of a ship, as necessary. D. O.T. 1. c. A skilled worker who assembles or assembles and sets in place the condenser systems of a ship, as necessary.
condenser setter

condensed water. See waste, d.
condensation period. Drilling. Time spent in cementing the hole. To circulate a higher-temperature fluid while waiting for the proper (measure of acidity or alkalinity of the pulp) to protect such salts as NaCN, which would decompose in an acid circuit, etc. NaClO, CaO, and CaO are the most common conditioners, since most flotation pulps should be alkali-resistant.
condensation. Stage of froth-flotation process in which the surfaces of the mineral species present in a pulp are treated with appropriate chemicals to influence their reaction when the pulp is aerated. Pryor, 4.
condensation time. Drilling. The period during which the pulp is agitated with a given chemical solution of chemicals in the series of conditioning operations which precede separation of various minerals in the flotation cell. Pryor, 2.
condensation zone. a. The part of a tank furnace for flat glass where the temperature of the glass is adjusted before it flows into the forehearth or drawing chamber. Dodd, b. That part of the feeder, away from the wall of a glass-tank furnace, in which the temperature of the molten glass is adjusted to that required for working. Dodd.
condensit. The fine number of combinations of wet- and dry-bulb temperatures which will satisfy the requirements of an air supply for a given room condition from what is known as the condition line on the psychometric chart. Strock, 10.
condensation the hole. To circulate a higher-than-normal volume of drill fluid while slowly rotating and lowering the drill string from a point a few feet above the bottom of the borehole to the bottom of the borehole to wash away obstructing materials before resuming coring operations. Long.
condensation. a. The quantity of heat (usually Btu) transmitted per unit time (usually minute) from a unit of surface of material under a unit temperature differential (usually 1°F) between the surfaces. Strock, 10. b. Conductance is the reciprocal of resistance, and is measured by the ratio of the current flowing through a conductor to the difference of potential. Lowenstein, 1963, sec. 3.
condensation. a. The transfer of heat through matter by the communication of kinetic energy from particle to particle rather than by a flow of heated material. Compare convection. Webster 3d. b. The maintenance of an electric current through metals by a general movement of conductive electrons; through electrolytes by a movement of both positive and negative ions; or through gases by the passage of cathode rays, ionized molecules, or anode rays. Webster 3d. c. The flow of heat through a body by the transfer of kinetic energy from molecule to molecule without gross mixing. Nelson, v. 2, p. 393.
Conductive Silver Preparation. Special compounded materials containing silver powder in a vehicle, with or without ceramic flux; can be coated on base materials such as titinate bodies, mica, glass, porcelain, stellite, plastics, wood, cloth and paper by stencil screenprinting (squeegee), spraying, dipping, brushing, roller coating, bonding wheel, or other suitable methods. Fixed by air-drying, baking at low temperatures, or firing at elevated temperatures. Used to produce capacitive effects, conductive metal solder seals, electrical shields, surfaces of high conductivity on nonconductive materials; as a base for ceramic and nonceramic surfaces. C.C. 5d. 1961.
Conductive. a. The quality or power of conducting heat or electricity. The reciprocal of resistivity. Webster 3d. b. The relative ability of materials to carry an electrical current. C.Ripin.
conductor. a. Guides of rope or of rigid construction to guide the cables or skips in the shaft. Mason. b. A wooden cylinder, 12 to 13 feet long, used in the United States when sinking a new oil well. The conductor, which has a slightly greater diameter than that of the first string of casing, is inserted in the drill hole, and extends from the bottom of the first casing to the floor of the derrick. The object of the conductor is to guide the casing, great care being taken to secure its absolute verticality in the first place. Fay. c. A relatively short length of pipe driven through the unconsolidated sone of top soil as the first step in collaring a borehole. Also called conductor pipe; standpipe. Long. In petroleum drilling, the piping carried through overburden to bedrock or the first string of casing placed in a borehole. A derrickman. C.T.D. f. 1. A substance or a body capable of readily transmitting electricity, heat, or sound. Webster 3d. g. A material which offers a low resistance to the passage of an electric current. C.T.D. h. That part of an electric transmission, distribution, or wiring system which actually carries the current. C.T.D. i. One of the wires forming the shoulders of the electric machine. C.T.D. j. The metallic conductor in a cable; it is invariably of copper surrounded by an insulation. C.T.D.
condenser-cable locomotive. An electric locomotive having a cable on a reel and connected both with the locomotive motor and the trolley wire in the entrance, so that the locomotive may be driven into an unattended room. Zern.

cone angle. See cone, c. B.S. 3618, 1963, sec. 3.
conductor pipe. Synonym for conductor, c. Long.
conductor string. See conductor, d. Long.
conduit. a. An airway. Zern. b. A natural or artificial channel through which water or other fluid passes or is conveyed; an aqueduct, a pipe. Webster 3d. c. A pipe, tube, or tile for receiving and protecting electric wires or cables (as for telephones or powerlines). Webster 3d. d. Pipe or casing placed in a borehole. See also casing, e. drivepipe, a. Long. e. A pipe or tile carrying water, wire, or pipe. Nicholls.
cone for electric cable. See cable cover. Dodd.
conduit hole. A flat or nearly horizontal hole drilled for laying up a thin piece in the bottom of a level. Zern.
conduit pipe. Wrought-iron pipe used as an armor for electric wires. A tubular conduit. Fay.
cone. a. A device used on top of blast furnaces to enable charge to be put in without permitting gas to escape. Also called bell. C.T.D. b. The conical part of a kiln or furnace with ceramic ware to indicate the temperature of the kiln and the fired condition of the ware. See also pyrometric cone. Bureau of Mines Staff.
cone. e. A solid with a circle for a base and rather more than half a sphere for a top. Jones 2, p. 119. f. Geometric pattern formed by the recessed cone angle of the cone and the fixed condition of the cone. See also pyrometric cone. Bureau of Mines Staff.
cone. e. A solid with a circle for a base and with a convex surface that tapers uniformly to a vertex. Jones 2, p. 119. f. Geometric pattern formed by the recessed cone angle of the cone and the fixed condition of the cone. See also pyrometric cone. Bureau of Mines Staff.
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cone cut. A cut in which the number of central holes are drilled towards a focal point and, when fired, break out a conical section of strata. B.S. 3618, 1964, sec. 6.

conoid penetrator. A cone penetrator, information may be obtained to allow an engineer to calculate the load-bearing characteristics of silty or fine to medium-coarse sand and clayey materials. Long.

conoid penetrator. A 30° to 60° cone having a basal diameter approximately the same size as a 0.5 inch-diameter drill rod used to determine the strength of the rock, or other impurities by action of rising current of water, regulating flow of coal wash water and flow of water into the bottom so that pressure will prevent coal from sinking and the larger sized particles. The peripheral with the top overflow is thin and carries the finer fraction of the solids. Pryor, 3.

conoid separator. A hydraulic or free-settling gravity separation device, known as cone-in-cone which consists of a set of reentrant cones closely packed together. Pryor, 3.

conoid structure; corrugated Section of strata. B.S. 3618, 1964, sec. 6.

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conon of depression. a. The depression, which is approximately conical in shape, that is produced along the sides of the surface mapped is preserved unchanged. Sometimes termed orthomorphic map projections, orthomorphic meaning right-shape. This is misleading because, if the area mapped is large, its shape will not be preserved, but only the shape of each small section of it. The exact condition for a conformal map projection is that the scale at any point be the same in all directions. The scale may change from point to point, but at each point it will be independent of the azimuth. Among the more important conformal map projections are the Mercator, the stereographic, the azimuthal equidistant, and the Lambert conformal map projections; the last two are used in the State coordinate systems. A.G.I. Supp.


conostatic temperature. a. The freezing point. Bureau of Mines Staff. b. The temperature at which an oil becomes a solid or is reduced to a standard pasty state. Tests on some oils, when allowance has been made for known chance variance in collection of such data, are confidence limits. Space between is confidence interval, within which lies the true value, shown with sufficient precision for the required purpose of the work in hand. Pryor, 3.

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conostatic temperature. a. The freezing point. Bureau of Mines Staff. b. The temperature at which an oil becomes a solid or is reduced to a standard pasty state. Tests on some oils, when allowance has been made for known chance variance in collection of such data, are confidence limits. Space between is confidence interval, within which lies the true value, shown with sufficient precision for the required purpose of the work in hand. Pryor, 3.

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conglomerate. a. A cemented clastic rock containing rounded fragments of gravel or pebble size. Monogenic and polygenetic derived, according to the uniformity or the variability of the composition and the source of the pebbles. Holmes, 1928. b. Also referred to as pudding stone; millstone grit. Hudson.

conglomerate ore. Usually refers to uranium ore mine from the Shinarump conglomerate formation. Ballard.

conglomerate. The heaping together of diverse materials into one mass. Chalmers.

conglomerate. A conglomerate that has reached the same state of induration as a quartzy agglomerate.

congo bort. Congos used industrially as bort. See also bort, congolite. Long.

congo diamond. See congolite. Long.


congo gun. Congo copal. Yellowish; amorphous solid; specific gravity, 1.0 to 1.1. Used as a substitute for amber. One of the hardest fossil resins. Bennett 2d, 1962.

congo round. Spherical- or nearly-spherical-shaped congo type. See also albertite. Long.

congo. a. Originally and commonly used as a name for a variety of diamonds found in the Congo Diamond District in Africa and more recently as a descriptive term applied to all diamonds having an appearance and characteristics of those produced in the Republic of the Congo. Congos are white to grey and yellow, drusy-faced, opaque to somewhat translucent diamonds, having shapes corresponding to the many forms of the crystal system. At one time, congoes were considered fit only for use in fragmented form, but a considerable number are now used as tool stone and drill diamonds. See also diamond. Long. b. Sometimes designates drill diamonds ranging from 1 to 8 stones per carat in size. Long.


conglomerite. In crystallography, two forms which may each be derived from the other by rotation about an axis of symmetry.

conglomerate melting. A geologic or metallurgical process in which a binary compound melts at a certain concentration to a liquid phase of its own composition. Bureau of Mines Staff.

conglomerate transformation. An isothermal or isobaric phase change in which both of the phases concerned have the same composition throughout the process. ASM Gloss.


contact. Cone-shaped. In mineralogy, usually an elongated cone as are most lodestones. Shively.

conical drum. A winding drum coneshaped at each end, a balanced load placed upon the drum while the winding operation is going on. The drum is carried on a frame above the load. The drum is wound, or unwound, by means of a rope. See also drum winding.


conical gyratory crusher. This crusher is of the gyratory type for secondary reduction and is identified by the characteristic shape of its breaking head. The included angle of the breaking head surfaces is large and generally greater than 180°, which greatly increases the ratio of discharge to feed area. The large ratio permits crushed materials to be conveyed through the machine, which is equipped with an automatic feed control to prevent power-consuming clogging and packing. Also, its higher gyrating speed and the large discharge area make it especially suitable for the task of fine crushing at a high capacity. Pit and Quarry, 53rd, sec. B, p. 29.

conical mill. Harding and Still. Pryor, J.

conical refraction. The refraction of a ray of light at certain points of double-refracting crystals, so that on emerging from the crystal it widens from an apex into a hollow cone (external conical refraction), or on entering diverges into a cone and issues as a hollow cylinder (internal conical refraction). Standard, 1964.

conical roll. A crisher in which clay material passes between a moving set of rolls, conical in shape. ACSG, 1963.

concordite. A pistachio-green to emerald-green basic anatase of calcium and copper, CaCu(Au)(OH), occurring reniform and massive forms, and consisting mainly of mica and carbonate minerals. E.D., 2, pp. 806-807.

cone map projection. A map projection produced by projecting the geographic meridians and parallels of the earth to a cone which is tangent to, or intersects, the surface of the sphere, and then developing the cone into a plane. See also projection.

conoid. a. Important method of obtaining a true sample from a pile of ore. Material is shoveled from around the heap, so that it forms a cone. The shovelers works around and drops each load as vertically as possible. See also projection.

connecting rod. A rigid rod that transmits motion from one part of a machine to another in a rectilinear or rectilinear, and often mineralized to form vein systems. Joint patterns, such as these, are believed to be the result of compressive stresses which were relieved by joint formation rather than the formation of a single fissure. Lezzi, pp. 411, 597.

connecting section. In solvent extraction, the two immiscible solutions in equilibrium with each other. NRC-ASA N-1.1957.

Conklin process. A dense-media coal cleaning process in which the separating medium consists of magnetic magnetite (5.2 specific gravity) in water in the proportion of 4.4 parts of water to 1 part of magnetite, permitting a specific gravity of about 1.9. An advantage claimed for this process is that the medium requires little agitation to keep it in suspension, and that the medium is easily removed from the clean coal and refuse. Mitchell, pp. 494-495.

connecting, a. Born, produced, or originated together. Webster 3d. b. Applied to waters (and extended to include CO, in lime- stone and other volatile materials) buried with fragmental and volcanic rocks and remaining stagnant except as they are introduced in new minerals found in the rock. Holmes, 1928.

conome. Water. That was deposited simultaneously with the sediment and which has not, since its deposition, existed as surface water or as atmospheric moisture. Fay.

connecting. The operation of joining adjacent electric blasting cap wires to each other, to connecting and leading wires, in such a way that an electric current will flow through with the least possible resistance. Fay.

connecting curve. A curve introduced to connect a turnout with a side track. Zern, p. 476.

connecting frame. A device similar to a guide frame for shaker conveyors but with provision for insertion of the puller rod. A connecting frame can be inserted between any two standard trough sections to serve as a substitute for a connecting trough on single-arm electric or air devices. Jones.

connecting link. For a roller chain, a pin link made with one link plate easily detachable to facilitate connecting or disconnecting the two ends of a chain. JBM.

connecting rod. A rigid rod that transmits power from one rotating part of a machine to another in reciprocating motion (as from a crankpin to a piston). Webster 3d.

connecting section. That part of a mining belt conveyor which consists of a framing and the belt identifiers (or rectilinear, and often mineralized to form vein systems. Joint patterns, such as these, are believed to be the result of compressive stresses which were relieved by joint formation rather than the formation of a single fissure. Lezzi, pp. 411, 597.

connecting section. In solvent extraction, the two immiscible solutions in equilibrium with each other. NRC-ASA N-1.1957.

conglomerate. Originally and commonly used as cow rounds. Spherical- or near-spherical-conglomerate. The heaping conglomerate. a. A cemented elastic
consolidated drained test. A soil test in which essentially, complete consolidation under the confining pressure is followed by additional (or shearing) stress applied in such a manner that even a fully saturated soil of low permeability can adapt itself completely (fully consolidate) to the changes in stress due to the additional axial (or shearing) stress. ASCP PB 826.

consolidated immediate shear test. This is a method of measuring the variation in a load placed normal to the plane of failure. It is applied to a soil which has been first consolidated under the normal load. See also drained shear test: quick test. Ham.

consolidated undrained test. A soil test in which the consolidation is followed by a shear at constant water content. Also called consolidated quick test. ASCP PB 826.

consolidation. a. In geology, any or all of the processes whereby loose, soft, or liquid earth materials become firm and coherent. Stikes and Vannes, 1955. b. In soil mechanics, the process of the adjustment of a saturated soil in response to increased load and involves the squeezing of water from the pores under the confining pressure (in a triaxial test) is followed by a shear at constant water content. Also called consolidated quick test. ASCP PB 826.

consolidation curve. See consolidation time curve. ASCP PB 826.

consolidation hole. Borehole into which chemical solutions or grout are injected to cement or consolidate fragmental rock material. Compare grout hole. Long.

consolidation press. Laboratory equipment for obtaining data on the voids ratio of a clay sample, from which the coefficient of consolidation can be determined. Ham.

consolidation ratio. The ratio of the amount of consolidation at a given distance from a drainage surface and at a given time to the total amount of consolidation obtainable at that point under a given stress increment. ASCP PB 826.


consolidation test. a. A test in which the specimen is laterally confined in a ring and is compressed between porous plates. ASCP PB 826. b. The test may be made in an oedometer. An undisturbed sample of clay measuring 6 centimeters in diameter and 2 centimeters thick is confined laterally in a metal ring and compressed between two porous plates which are kept saturated with water. A load is applied and the rate of consolidation is measured, the excess pore water escaping through the porous stones. After each increment of load is applied, the sample remains on the sample until equilibrium is established, and a consolidation curve showing the deformation with time is obtained for each increment. Nelson.

consolidation time curve. A curve that shows the relation between the degree of consolidation and the elapsed time after the application of the consolidation load. Also called time curve, consolidation curve, and theoretical time curve. ASCP PB 826.

consolidation trickling. During closing of bed or particles in the suction half of jetting cycle, interstitial drawdown of lastest moving small particles before the mass of particles becomes too compact for movement. Can.

consolidate. Mutually soluble or miscible in all proportions. Webster 3d.

consolodating place. Open to view; catching the eye; easy to be seen; manifest; obvious to the sight; seen at a distance; exposed to view; clearly visible; evident; prominent; openly and conveniently to the public. Richetti, I.

constant. Any property of a substance, numerically determined that remains always the same under the same conditions, as the specific gravity; the melting point; the freezing point; the electrical conductivity. Standard, 1964.

constant. A group of copper-nickel alloys 45 to 60 percent copper, with amounts of iron and manganese, and characterized by relatively constant electrical resistivity and temperature of use in resistors and thermocouples. ASM Gloss.

constant composition law. See definite proportion law.

constant error. See biased error. Pryor, 3, p. 159.

constant-weight feeder. a. An automatic device which maintains a constant rate of feed of ore from the bin or stockpile to the grinding circuit. It is controlled by the weight of ore on a balanced length of the belt conveyor; by electrically vibrated chute; by pulser gate; by timed delivery from automatically loaded hoppers. Pryor, 3. b. A feeder intended to deliver a certain weight per unit of time. ASCP, 1966.

construction account. An account in mining which is charged with all construction expenses and the other for construction. ASCP, 1966.

construction. a. A structural arrangement of parts. b. This term refers to the type of construction prevalent, and which are recognizable in thin sections of the petrographic entities of the attritus in the U.S. Bureau of Mines terminology, is equally applicable to the macroscopic entities seen in thin sections although its use has not been so definitely restricted. THCP, 1963, Part I.

construction formula. One which shows how the atoms in a molecule are arranged. Pryor, 3.

construction joint. The vertical or horizontal faces of the joint or break in the casting where the creting has been stopped and continued later. The concrete on each side of the vertical (or sloping) faces forming the metal or alloy and the proportions of each are of importance. C.T.D.

constructional ash. constructional coal. Ash resulting from complete combustion of clean coal. Tared ash, originating in the pyrolysis from which the coal was formed, as distinct from free ash, the entrained shale trapped into the coal mass at time of deposition. Pryor, 3. See also inherent ash. S.

constructional change. Transformation of a constituent in an alloy (for example, austenitic into ferritic). Pryor, 3.

constructional formula. One which shows how the atoms in a molecule are arranged. Pryor, 3.

constructional water. Water definitely bound into a hydrated crystal (for example, Cu(OH)2). Pryor, 3.

construction diagram. A graphical representation of the temperature and composition limits of two or more phases in an alloy system as they actually exist under the specific conditions of heating or cooling (synonymous with phase diagram). A construction diagram may be an equilibrium diagram, or an representation of metastable conditions. Compare equilibrium diagram. ASM Gloss.

construction. Any restriction that occurs to the transport of a substance associated with a longitudinal tension, and that hence causes a secondary tension in the transport system. ASM Gloss.

construction pressure. See also Abb number. Dodd.

construction. The number of strands in a rope and the number of wires in the strand. These numbers should be separated by a multiplication sign, thus 6 x 19 signifies a stranded rope having 19 wires per strand. The division (or over) sign should be used to denote the separate layers of wires in the strand (thus, a 6 x 19 (12/6)1 rope indicates that its strands have 12 wires laid over 6 wires laid over 1). Ham.

construction. In geology, owing its form, position, direction, or general character to building processes, such as accumulation by deposition or by volcanic extrusion. Fay.

construction land form. A land form created by the accumulation of material; examples are volcanic cones, deltas, and floodplains. The term also applies to forms created by astrophysical processes, such as fault blocks or folds. Stikes and Vannes, 1955.

construction plain. Constructional plains owe their origin and present surface features principally to the distribution and deposition of earth material in alluvial sheets along the streamways or at the margin of the ocean, or to the distribution of ash flows and other volcanic ejecta over the surface. A.G.I.

construction joint. The vertical or horizontal faces of the joint or break in the casting where the creting has been stopped and continued later. The concrete on each side of the vertical (or sloping) faces forming the
connecting trough

NEMA MBI-1961.

connecting trough. A shaker conveyor trough of which the bottom is horizontal. A support on which smaller lengths of cable can be made. ASA C 42.85: 1956.

connecting support. The means of supporting connecting troughs where they pass over the drive unit. The support is attached to the drive unit frame and is designed to allow the connecting trough freedom of movement in the direction of the balline. Supports may be of the ball frame, wheel, rolled, or rocker arm types.

connecting wire, blasting. a. A wire generally of smaller gage than the shot-firing cord and used for connecting the electric blasting cap wires from one drill hole to those of an adjoining one in mines, quarries, and tunnels. ASA C 42.85: 1956. b. A connecting rod to transmit motion and force from the revolving crank or eccentric to the slide of a press.

connection. a. Adding a length of drill pipe to the drilling shaft as drilling progresses. b. A connecting rod to transmit motion and force from the revolving crank or eccentric to the slide of a press. ASA C 42.85: 1956.

connection box, electrical. A boxlike enclosure with removable face or plate with which smaller lengths of cable between sections of cable can be made. ASA C 42.85: 1956.

connection man. See parting and connection man. D.O.T. I.

connector, electrical. Any device for holding in electrical contact the ends of conducting wires in such a manner that they may be readily released when it is desired to disconnect them. Cu pip.

connector, rubber. A blue hydrated copper chloride, possibly Cu(SO₄)₂·H₂O, hexagonal; from Cornwall, Eng land. An end member of the connellite butternbachite series. Synonym for caeruloeobrite; celuleobrite. Dana 9, 2, pp. 572-573.

connection mark. Dark green to grayish green quartz serpentine. Shipley.


conoid, Isobathic construction line between two equilibrated phases. VV.

conocline. A eritical, conical plain that has been partly built and partly cut and that slopes outward in all directions. This form is considered to be the normal one in a mountainous and region, differences of topographic age being marked by differences in slope. A.G.I.

conoscopic. A blue hydrated copper chloride, possibly Cu(SO₄)₂·H₂O, hexagonal; from Cornwall, England. An end member of the connellite butternbachite series. Synonym for caeruloeobrite; celuleobrite. Dana 9, 2, pp. 572-573.

conosum. A system, the notable feature of which is the projection of a reversed mud flush circulation which permits uninterrupted core recovery in the rotary system of drilling. Sinclair, H. A. S., 1956.

Conus stocks. Mechanized pit digger used for connecting the electric blasting cap wires from one borehole to those of an adjoining one. Fay.

connection. a. A constructional lake de- creased in size by filling at the inlet and cutting away at the outlet; while thus dwindling away, it is a consequent lake. A.G.I. b. Those lakes which occupy or be- come a part of the geologic structure or the form and slope of the surface. A.G.I.

consequent drainage. A river system directly related to the geologic structure of the area in which it occurs. C.F.D.

consequent lake. A constructional lake de- creases in size by filling at the inlet and cutting away at the outlet; while thus dwindling away, it is a consequent lake. A.G.I. b. Those lakes which occupy or become a part of the geologic structure or the form and slope of the surface. A.G.I.

consent stage. a. If considered on a basis of relationship to the rocks in which they originated, the streams described by Powell as superimposed would be called consequent. Synonym for superimposed (or superposed) stream; inherited stream; epi- genetic stream. A.G.I. b. A stream which follows a course that is a direct con- sequence of the original slope of the surface on which it developed. A.G.I.

conservation. a. The degree of solidity or fluidity of bituminous materials. Fay. b. The relative ease with which a soil can be deformed. ASCE P 1826. c. A property of a material determined by the complete flow-force relation. ASTM C 11-60. d. The properties of a slip that control its draining, flowing, and spraying behavior. ASTM C 296-65. e. Percentage of solids in pulp. Pryor, 3. i. Fluidity. Pryor, 3. g. In concrete testing, the behavior with the slump test or the weight with the compacting test. Pryor, 3. h. The condition (as of a material) of standing together or re- maining fixed in union; firmness. Webster 3d. i. A degree of density, viscosity, or re- sistance to movement or to separation of constituent particles. Webster 3d.

consolidation. The partial filling of an abnormal place or condition. Webster 3d.

consistency index. See plastic consistency. ASCE P 1826.

consistency limits. The liquid limit, plastic limit, and shrinkage limit. These all apply to the water content of a clay, each in a certain state as defined by British Stand- ard 1171. Nelsen.

constatine. Trade name: a device for at- tachment to the barrel of a hog for con- trol of ventilation. Webster 3d. a. An instrument for the measurement of relative consistency of mineral suspensions and other materials. It is cali- brated in terms of viscosity with water-sugar solutions. R.I. 3465, September,
construc-tion way. 253

joint is generally united by continuous reinforcement running the joint. When stopping on a horizontal plane adhesion is usually attained by well-toughening the concrete surface before pouring new. 

construction way. The temporary works employed for transport of men and materials are designed and built to the conditions of the finished permanent way, C.T.D.

construction possession. That possession which the law to use is to the exigency of ownership of property, when there is a right to the immediate actual possession of such property but no actual possession. Rich-ett.

construction waves. Waves that build a shoreline feature, such as a beach, a bar, or a spit. Opposite of destructive waves. 

Schiereder.

consulting engineers. A specialist employed in an advisory capacity. Normally, does not manage or direct any operation, and is at the service of the board rather than of the company's administrative and executive staff. Pryor.

consulting engineer. A highly qualified mining engineer with a wide background of experience in his particular field. He may be asked by a client or company to supply a property and prepare a report of valuation, or to give advice or expert evidence in cases of alleged subsidence. 

consumable electrode arc melting. A method of arc melting in which the electrode itself serves to supply the metal; this method is commonly employed for melting tantalum and iridium. Newton.

contact. a. The coming together (touching) of a solid surface with the ground or a metal; as in the chemical and mechanical loss of mercury in amalgamation. Fay.

contact change. That portion of a utility charge based on energy actually consumed, as distinguished from the demand charge. 

contact. a. The place or surface where two different kinds of rocks meet. Applies to sedimentary rocks, as the contact between a limestone and a sandstone, for example, and to metamorphic rocks; and it is especially applicable between igneous intrusives and invaded country rock. Fay. c. A line of delimitation between a metamorphic and its walls. Fay. b. S. Afr. A contact lode or contact vein. Fay.

contact erosion valley. A valley that has been eroded along the contact between two different kinds of rock, as between two different sedimentary formations, between igneous and sedimentary rocks, along a fault, or along an upturned unconformity. 

contact geoelectrical. A protractor for measuring the angles between adjacent crystal faces. Fay.

contact line. The line of intersection of a contact surface with the surface of an exposure or with the surface of bedrock contact. a contact line may be exposed or concealed. Stokes and Varnes, 1955.

contact logging. a. A method of recording the position of a borehole wall. b. A contact deposit. c. A contact deposit, b: contact deposit: contact vein. Fay.

contact logging. In this type log, provision is made for automatically breaking or making an electrical contact against the borehole wall. By doing this, current flowing from the electrodes to the wall of the borehole need longer to traverse the mud filtrate. The contact of the electrodes through the mud filter cake which shrivels permeable beds is also reduced to a minimum. The spacing of contact logging devices is very small by comparison with the spacings used in conventional logging devices. Consequently, contact logging devices are very much more detailed in the beds they pass through. 


contact logging device. A contact logging device consists of a spring bow very analogous to a section gage. On one arm of the bow is a rubber pad shaped to fit the curvature of the hole. In this pad, slightly recessed, are three electrodes about one-half inch in diameter and located at 1-inch intervals. These three electrodes are used to record two resistivity curves. One curve is a three-electrode type with a spacing of 1½ inches and the second is a two-electrode type with a spacing of 2 inches. 


contact metamorphism. Applied to rocks and/or minerals that have originated through the process of metamorphism. A.G.J.

contact metamorphic deposit. An ore body that formed along the contact of a mass of igneous, country, or invaded rock, the ore having been derived wholly, or in part, from the intrusive mass. If the term contact-metamorphic deposit is used for this type, it would not include the term contact deposit applied to any ore body occurring along the boundary between two kinds of rock. Stokes and Varnes, 1955.

contact metamorphism. a. Metamorphism generally related to a magma (or intrusion) of magmas and taking place in rocks at or near their contact with a body of igneous rock. See also thermal metamorphism. A.G.J. b. The changes that take place along the contact of an igneous rock and the enclosing rocks into which it has been intruded, or the underlying rocks over which it has been extruded. Some of the contact-metamorphic changes are the recrystallization of limestone and the formation of the typical lime-silicate minerals of the contact zone. Metamorphism produced by the heat of an igneous intrusion. Also called thermal metamorphism; thermometaustomorphism; local metamorphism. Fay. See also metamorphic aureole.

contact metamorphic deposit. A deposit formed by high-temperature magmatic emissions along an igneous contact. Beiterman.

contact metamorphism. a. A mass change in the composition of the rock other than the elimination of gases involved in simple metamorphism. USGS Prof. Paper 57, 1907, 117 b. Reporting of contact rocks adjacent to an intrusive resulting from high-temperature emissions from a deep-seated magma. Much material is added. Beiterman.

contact mineral. A mineral formed by contact metamorphism. Fay.

contact. A device for making and breaking an electric power circuit repeatedly. 

contact. Deposition of a metal, without the use of an outside source of current, by immersion of the work in a solution containing the metal ions. 

contact pressure. The unit of pressure that acts at the surface of contact between a material and the underlying soil mass. 

contact rocks. Rocks produced by the heat of a magma; metamorphosed portions of the intruded rocks, such as products from shales, slates, or lime-

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contact scanning

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continental plateau

stones; sandstones are less influenced by intrusions. Lewis, p. 603. Also called harm; tachite.

contact scanning. In ultrasonics, a planned systematic movement of the beam relative to the object being inspected, the search unit being operated with and coupled to the object by a thin film of coupling material. ASM Gloss.

contact shoe. A device in contact with the conducting wire or rail and the electric vehicle being powered. Foy, p. 3.

contact twin. The simplest type of twin, in which two portions of a crystal appear to have been unitized along a common plane after one portion has been rotated 180° relative to the other portion. The plane of contact (plane of union or the composition face) may or may not be the twinning plane. See also juxtraposition twin. Foy.

contact vein. A variety of fissure vein, between different kinds of rock occupying a typical fracture from faulting, or it may be a replacement vein formed by mineralized solutions percolating along the contact where the rock is usually more permeable and being replaced one or both of the walls by a metasomatic process. Also called contact deposit. Foy.

contact zone. See aureole. A.G.I.

container. Containment. The provision of a gastight shell or an enclosed space. Webster 2d; Holmes, 1926.

contemporary deformatiom. Deformation, especially folding and faulting, that takes place while the rocks are being deposited. In contrast to the folding and faulting that take place long after the sedimentation. A.G.I.

contemporary erosion. Erosion of local character which is taking place generally elsewhere. Stokes and Vaniers, 1955.

contemporary filling. Methods of mining where the stopes are filled as in filled stopes. Nelson.


contiguous. a. Touching without fusion; applicable whether the parts are like or unlike. A.G.I. b. Touching along boundaries, often for considerable distances. Next to or adjoining with nothing similarly intervening. Synonym for adjacent. Not distant. Touching or connected throughout. Synonym for continuous; unbroken; uninterrupted. Webster 3d. c. Immediate preceded. Webster 3d.

contiguous claims. Mining claims which have a side or end line in common. Lewis, p. 31.

contiguous limestones. Limestones in the same general area and adjoining a cavity or a group of cavities formerly occupied by iron-bearing sulfide. A.G.I.

continent. a. A large landmass rising more or less abruptly above the deep ocean floor. It includes marginal areas that are shallowly submerged. At present continents constitute about one-third of the earth's surface. A.G.I. Supp. b. A continuous extent or mass of land. One of the great divisions of land on the globe. Geologically, a large body of land differing from an island or a peninsula in its size and in its structure, which is divided into basins bordered by mountain chains. Webster 3d.

continental alluvium. Alluvium produced by the erosion of a highland area and deposited by a network of rivers to form a continental plain. A.G.I.

continental basin. A region in the interior of a continent that may comprise one or several closed sub-basins. Such basins are characterized by their depth, water area, and volume of deposits. A.G.I. Supp. c. A terraced area or a submerged plateau adjacent to a continental shelf. A.G.I. Supp. d. Synonym for borderland. A.G.I.

continental deposit. A sedimentary deposit laid down within a general land area in lakes or streams by the wind, as contrasted with marine deposits, laid down in the sea. Foy.

continental drift theory. The hypothesis that the continents can drift on the surface of the earth because of the presumed viscosity of the substratum, much as ice shifts through water. For example, the supposed movement of North America and South America away from Europe and Africa to which this is contrasted with the hypothesis. A.G.I.; Hsu.

continental margin. The zone separating the emergent continents from the deep sea bottom. It generally consists of the continental shelf, the continental slope, and the continental rise. A.G.I. Supp.

continental shelf. That part of the deep ocean overlaying a layer of sial, as contrasted with true ocean floored by sial. A.G.I. Supp.


continental plateaux. A broad proclivity of the surface of the earth, coinciding approximately with a continent but including also the continental shelf. Synonym
for continental platform. Contrast with ocean basin. Webster 3d; Fay.

continental platform. The flat, horizontal surface that forms the base of the continental slope. It is characterized by poorly sorted, mixed sediments and a range of depths from 1,000 to 5,000 feet.

continental process. A method of processing minerals, such as copper, where the ore is smelted to remove impurities and concentrates the metal.

continental slope. The steep, oceanic edge extending from the continental shelf to the floor of the ocean. It is typically characterized by a gradient of less than 1 to 25.

continental shelf. A submerged platform extending from the coast to the continental rise. It is typically shallow and has a gradient of less than 1 to 20.

continental rock. A rock unit deposited on the edge of a continent, extending from the low-water line to the depth of approximately 100 fathoms (600 feet).

continuous azimuth method. A method of traversing by which the azimuth of the survey lines is obtained from the instrument. BS 3518, 1963, sec. 1.

continuous bucket elevator. A conveyor system that consists of a series of buckets attached to a chain or belt that the back of each bucket rides on. It is used to transport materials vertically.

continuous bucket excavator. An excavator consisting of a series of buckets attached to a continuous chain, guided by two or more ladders. The buckets are drawn against the bank face, taking a cut of constant depth, while simultaneously the machine moves slowly along the ground on a bench above or below the bank; often used in opencast mining in soft deposits.

continuous casting. A casting technique in which the shape is continuously solidified while which an ingot. This type of casting is used to produce continuous rolls of steel.

continuous drier. A drier in which the ware is dried in the space at the top required for stemming. It is designed to remove coal from the face and load it onto conveyors or into shuttle cars in a continuous operation.

continuous elevator bucket. A bucket having sides projecting beyond the front and rear, which when spaced continuously with other buckets forms a chute for the material discharged by the following bucket. They pass over the elevator head wheel. Thus, the drilling and blasting do not need more than a part of the shift. Langefors, p. 206.

continuous flow pattern. A type of flow pattern in which the material flows continuously without the use of cutting machines, drills, or explosives. Jones. See also Colmol miner; Crawford-Wilcox continuous miner; Colman miner; Joy miner; Mantetta miner.

continuous mining. A mining method in which the mining machine cuts or strips coal from the face and loads it onto conveyors or into shuttle cars in a continuous operation. Thus, the drilling and shooting by rupture. G.S.A. Memoir 6, 1938, p. 32.
opulations are eliminated, along with the necessity for working several headings in ordinary mining, a heading in which the loading can be in progress at all times. *Woodruff, v. 3, p. 35, b.* Methods of coal mining and the new methods that have become known, broadly, as continuous mining. The longwall machine and conveyor are in that same track which is situated between the last row of props and the face. The conveyor is moved forward progressively as the coal is cut and loaded on the machine. There are no separate or cyclic operations as in conventional machine mining and the aim is to make each shift a continuation of the previous shift.

Where the conditions are favorable, faces up to 250 yards in length may be worked. See also cyclic mining. *Nelson.*

**continuous mixer.** A concrete mixer into which the water, cement, and aggregate are fed without stopping, and from which the mixed concrete pours in a continuous stream. *Ham.*

**continuous burn-off zone.** A regional zone predominantly underlain by permafrost. There is no permafrost at widely scattered spots.

**continuous phase.** In an alloy or portion of an alloy containing more than one phase, the phase that forms the background or matrix in which the other phase or phases are present as isolated units. *ASM Gloss.*

**continuous precipitation.** Precipitation from a supersaturated solution accomplished by a gradual change of lattice parameters of the matrix with aging time. It is characteristic of the alloys which produce uniform precipitation throughout the grains. See also discontinuous precipitation. *ASM Gloss.*

**continuous process of distillation.** A petroleum distillation process in which the crude oil flows into by gravity through a series of stills or retorts each placed slightly lower than the preceding one. Each still has a carefully maintained temperature and yields, therefore, continuously a product of given volatility.

**continuous profiling.** A seismic method of shooting in which seismometer stations are placed along the length of a line and shot from holes spaced along the line so that each hole records seismic waves generated by shots from those immediately adjacent holes, so that events may be carried continuously by equal-time comparisons. *A.G.I.*

**continuous rating.** An electrical machine, or other piece of apparatus, is said to be continuously rated when it gives its rated output continuously without exceeding a certain specified temperature rise or suffering any ill effects. Compare intermittent rating. *C.T.D.*

**continuous reaction series.** That branch of reaction series. That branch of chemical reactions. *Webster 3d.*

**continuous sampler.** A type of sampler for taking a sample from a volumetrically flowing stream at a fixed rate by manual or mechanical means. *Webster 3d.*

**continuous sintering.** Presintering, or sintering, in such manner that the objects are advanced through the sinter at a fixed rate by manual or mechanical means. *Webster 3d.*

**continuous smelter.** Any smelter which feeds melted and continuously and which discharges it at a fixed rate by manual or mechanical means. *Webster 3d.*

**continuous welding.** Any welding which is said to be continuous if it can be carried on without stopping and from which the weld metal is continuously fed into the weld.

**continuous weld.** A weld extending continuously from one end of a joint to the other; where the joint is essentially circular, completely around the joint. Contrast with intermittent weld. *ASM Gloss.*

**continuous wool.** Contiguous wool. *C.T.D.*

**contour diagram.** A type of petrofabric diagram prepared by the contouring of a point diagram. Its purpose is to obtain easier visualization of the results of the petrofabric study. *A.G.I.*

**contour mapping.** See stretch forming; tangent bending; wiper forming. *ASM Gloss.*

**contour gradient.** A line marked on the ground surface at a given constant slope. *Ham.*

**contouring.** There are two general methods in use: (1) the direct method, when the actual points of equal elevation, or level, are located on the ground and surveyed; and (2) the indirect method, when the levels of the contour lines are interpolated and the contour lines are interpolated. The control being the same as in the direct method.

**contour line.** A line connecting points of equal elevation, or level, on the ground. *Ham.*

**contour plan.** A plan drawn to a suitable scale showing surface contours or calculated contours of coal seams to be developed. *Webster 3d.*

**contour trace.** A watercourse following the contour of the ground. *Ham.*

**contour map.** A map showing the configuration of a surface by means of contour lines drawn at regular intervals of elevation, as one for every 20 feet. A crowding of the contour lines indicates steepness. *Webster 3d.*

**contour mapping.** Milling of irregular surfaces. *ASM Gloss.*

**contour line.** A line connecting points of equal elevation, or level, on the ground. *Ham.*

**contour plan.** A plan drawn to a suitable scale showing surface contours or calculated contours of coal seams to be developed. *Webster 3d.*

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In coal mining, a term meaning contractioins. A. The action or process of contracting. Drilling work done for a contract in area. The difference between the original cross-sectional area of a ten-contraction hypothesis. The theory that compression causing folding and thrusting is a part of job to the contractor. Pryor, 3. A modification of ingot proper. When, however, the supply of molten metal falls at con- this contracted magma may produce in- contraction miner. a. An experienced man employed by the contractor responsible for carrying out a building or civil engineering contract. Hem. A system for the blowing in of air at the exit end of a tunnel. An act to counteract the normal convection currents. Dodd. a. Something that affords a standard of comparison or a means of verification. As a verb, to check, to test, or to verify by counter examples. As accurate starting points may be regulated. Long. h. Points on the ground, accurately fixed in position horizonally or vertically (or both), which are used as accurate starting and closing points for traverses, plane-tables, or aerial photographic surveys, etc. A system of control points with which local secondary surveys may be tied in to insure their essential accuracy. Control points being tied in to the use of wedges or by manipulation of the drill string. Entwicklung, 5. A mechanism by which the speed or rate of an operation may be regulated. Long. h. Points on the ground, accurately fixed in position hori- zontally or vertically (or both), which are used as accurate starting and closing points for traverses, plane-tables, or aerial photographic surveys, etc. A system of control points which are usually established by triangulation or traverses, and by leveling. Seelye, 2. i. That part of a conduit where the water level gives a good indication of the rate of water. See also Variations of Geologic Formations. 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controlled chart

the amplitude of responses before their
recording, including the rapid recovery of
response levels after an onset of energy and
its sensitivity, with the decay of amplitudes received with time. A.G.I.

controlled chart. Graph showing, horizontally,
the operating norm and also the upper and
lower limits within which deviations must
be held. Should these exceed the permitted
variance, special steps must be taken to
locate and correct the upsetting factor or
factors. Pryor, 2.

controlled factor. The ratio between the mini-

um compressive strength and the average
compressive strength. Taylor.

controlled flow. A large gate valve designed to
provide a clear opening for the passage of
drilling tools into a borehole and to act as a head or cap on the casing at the
collar of the borehole. Long.

controlled joints. Provision for the dimensional
change of different parts of a structure
due to shrinkage, expansion, temperature
variation or other causes, so as to avoid the development of stress struts. See also
expansion joint, b. Taylor.

controlled atmosphere. An atmosphere cir-
cumambient to a working space (e.g., a furnace or other heating unit, the oxygen
content of which is regulated or adjusted
to a level low enough to prevent oxidation of diamonds during the sintering stage of
producing a diamond bit by a powder
process. ASM Gloss.

controlled caving. A mining method utilizing
the advantages of longwalls but at the
same time without filling. In this method,
the working room in front of the working
face is protected by close lines of props and
cubs, which are portable and easily
taken to pieces. As the face proceeds the
cubs are shifted as well as the props with the
face, leaving the mined-out room to
cave. This method is also called mining

controlled cooling. Cooling from an elevated temperature in a predetermined manner
to avoid hardening, cracking, or internal
damage, or to produce a desired micro-
structure. It may involve a hot-forming operation. ASM Gloss.

controlled flow. The specified maximum
number of feet of borehole a single dia-
mond- or other-type bit may be allowed
to drill in a specific type rock, as pre-
liminated by the drillorman. Long.

controlled gravity conveyor. See controlled
velocity roller conveyor. ASA M414.1-1959.

controlled mottle. A mottle fitted to a con-
trol plot by rephotographing the compo-
nent vertical photographs to compensate
for any drift of curl, rotation or other
causes, so as to avoid the development of
stress struts. See also expansion joint, b. Taylor.

controlled-pressure cycle. A forming cycle
during which the hydraulic pressure in the
forming cavity is controlled by an adjustable
head. Webster 3d. a. The transfer of heat by
means of convection. See also convection.

conventional machine mining

conventional machine mining. A system of
mining established over many years in
British coal mines. The longwall face is
undercut, blasted and loaded by hand on
to a face conveyor. The conveyor is then
moved forward ready for the next day,
the packs are built and the back props

...c.a.

controlled production. A process for by-
passing the incept phase in iron and steel-
making. Enyclopedia Britannica. Britan-

controlled production. Production of oil by
the manipulation of gas pressures so as to
produce a maximum quantity of oil and
a minimum of gas. Potter.

controlled rectifier. A rectifier in which means
for controlling the current flow through the rectifier devices is provided. Coal
Age, 1.

controlled splitting. When airways are ar-
anged in parallel and a prescribed quan-
ty of air is made to flow through each
branch, being allowed to escape into the
adjacent workings. A.G.I.

controlled strains test. A test in which the
load is so applied that a controlled rate of
damage, or to produce a desired micro-
structure. It may involve a hot-forming operation. ASM Gloss.

control chart. Graph showing, horizontally,
the operating norm and also the upper and
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Age, 1.
conventional milling

withdrawn. Such faces still produce about 60 percent of the total output and is known as conventional machine mining. In machine mining it is often assumed that there are limits to production because it is cyclic mining, that is, it involves separate operating units which are then salvaged above. See also continuous mining. Nelson.

conventional milling. Milling in which the coal is cut into sizes suitable for shipment. It is an operation performed on the feed at the point of contact. ASM Gloss.

conventional mining. The cycle of operations which includes cutting the coal, drilling the shot holes, charging and shooting the holes, loading the broken coal, and instilling roof support. Also known as cyclic mining. Woody, p. 3, pp. 34-35.


conventional strain. See strain. ASM Gloss.

convergence. a. Applied to the diminishing interval between geographic horizons. In some instances, this is due to an unconformable relationship and in other instances to variable rates of deposition. See also imbrach. A.G.I. c. The line of demarcation between turbid river water and clear lake water, which denotes a downstream movement of water on the lake. It is also an index to the kind of water at the surface. A.G.I. c. In reflection phenomena, the decreasing of the distance between the direct or the reflected wave of water travel. This denotes an area of increasing wave height and energy concentration in the foreshore, resembling the one which cannot be attributed to a direct relationship or to genetic affinity. See also convergent evolution. A.G.I. c.

in oceanography, an area or zone in which the water sinks slowly downward from the ocean surface. Schiferdecker. I. When a coal seam is extracted on a lowwall face, the roof lower and the floor lifts causing a convergence of roof and floor, with consequent loss of height. Convergence is an important factor in thin seam mining. Nelson.

convergence map. See isochore map. A.G.I. c. convergence recorder. An appliance for measuring the quality or quantity of electrical energy; a term formerly applied to the transformer, but now restricted to a machine utilizing mechanical rotation. Standard, 1964, b. A furnace in which air is blown through a bath of molten metal or matte, oxidizing the impurities and maintaining the temperature through the heat produced by the oxidation reaction. ASM Gloss. Also used in connection with jet and high speed water at the surface. Stock, 10.

counter air. See primary air, a. Newton, p. 259.

counter foreman. A foreman who supervises the cleaning of coal, and also conducting the conveyer; mate to blister copper; and directs activities concerned with charging conveyor, blowing charge, pouring of slag and copper, casting of blister copper, and removal of castings. D.O.T. Supp.

counter plant. A plant that takes up an insoluble element from the soil, builds it into its living structure, and at death returns it to the soil in soluble form. Hamer.

counter reactor. A nuclear reactor that produces some fissionable material that produces some fissionable material, but less than it consumes. In some usages, a reactor that produces a fissionable material different from the fuel burned. Regardless of the ratio. The process is known as counter in both usages. See also breeder reactor. L&L.

counter smoker. In ore dressing, smelting, and refining, one who makes blister copper (high-grade crude copper) by oxidizing iron and sulfur impurities in copper matte, using a conveyor. D.O.T. Supp.

countering. The process of removing impurities from molten metal or metallic compounds by blowing air through the liquid. The impurities are changed either to gaseous compounds, which are removed by volatilization, or to liquids which are removed as slags. L&L. p. 6, p. 927, b.

the process was applied to the metallurgy of copper by Pierre Manhes. Air is blown through molten copper matte in the presence of free silica. The iron is oxidized to FeO which forms a slag with the silica; the sulfur is oxidized and goes off as SO2. Liddell 2d, p. 493.

converting coal. Mid. A local name given to coal suitable for steelmaking purposes at Sheffield, Fay.

Converting process. A process for flocculating the coal particles in a pulp by means of oil so that they are retained on a suitable screening surface and thereby separated from un flocculated material and the bulk of the water. B.S. 3352, 1962.

corner. Curving like the surface of a sphere. See corner.

conveyor. One who or which conveys, transports, transmits, imparts, or transfers, or specifically; any mechanical contrivance for conveying material in the working of mills, elevators, etc., such as endless chains, etc. Standard, 1964. See conveyor.

conveying, hydraulic. Use of flowing water or slow moving liquids based on water mixed with suitable heavy minerals to convey rock, coal, etc., in p.p. Pryor, 3. conveying pneumatically. Use of compressed air to move fairly fine aggregates laterally and/or vertically, as with small coal, cement, etc. Pryor, 3.

conveyor belt. A belt used to carry the materials which receive the coal from several unit conveyors in rooms or entries. B.C.I. See also armored conveyor, conveyor; gate conveyor, shaker conveyor, trunk conveyor. A. Included are skip hoists and vertical reciprocating conveyors, except those devices known as industrial trucks, tractors, and trailers, tiering machines (truck-type), cranes, hoists, monorails, power shovels and slough power scoops, bucket draglines, platform elevators designed to carry passengers or the elevator operator, and highway or rail vehicles. ASA MH4.1-1958.

conveyor air-lock. A ventilation stopping or separating door through which a conveyor has to run. It consists of at least two well-built partitions, each with some form of air-lock designed to pass the belt and yet reduce to a minimum the leakage of air and the raising of dust. An air-lock chute is sometimes used. Nelson.

counter belt. A belt used to carry the materials and transmit the power required to move the load being conveyed. See also cord conveyor belt; interwoven conveyor belt; rubber conveyor belt; solid woven conveyor belt; steel band belt; steel cable conveyor belt; wired mesh conveyor belt. ASA MH4.1-1958.


conveyor belt joint. The joining of two ends of a belt conveyor to make a continuous band without gaps or exposed ends. The vulcanized joint is the best type and some authorities give its strength as about 80 percent or more of that of the belt. Nelson.


conveyor belt type. See conveyor belt type.

counter, belt-type. A conveyor consisting of
conveyor chain. A chain used in the convey-
cooperite. A soft, greyish-yellow, metallic substance derived from olivine in various localities. The name is derived from Cooper, England, where it was first discovered. The atoms of cooperite are arranged in a hexagonal lattice, with each atom surrounded by six others in a plane. The hardness of cooperite is about 3, and its density is 4.9 g/cm³.

copper. A reddish metallic element, symbol Cu, atomic number 29, and atomic weight 63.55. Copper is a good conductor of heat and electricity, and it is used in a variety of applications, including wiring, plumbing, and jewelry. Copper has a characteristic reddish-brown color, and it is malleable and ductile.

copper machine. A machine that processes copper, such as a casting machine or a rolling mill. Copper machines are used in the production of copper products, such as copper pipe, wire, and sheet metal.

copper machine cutter. A cutting tool used in copper machining operations. Copper machine cutters are typically made of high-speed steel or carbide, and they are designed to remove material from copper parts with minimal tool wear.

copper machine operator. An operator who operates a copper machine, such as a casting machine or a rolling mill. Copper machine operators are responsible for setting up and running the machine, as well as maintaining the equipment and ensuring that the product is of the desired quality.

copper ore. A mineral ore containing copper, such as chalcopyrite, bornite, or chalcocite. Copper ores are typically concentrated by flotation or gravity separation, and the copper is then extracted by leaching, roasting, or smelting.

copper ore concentrating plant. A facility that processes copper ore to produce a concentrate containing a higher copper content. Copper ore concentrating plants may use a variety of processes, such as flotation, roasting, or direct smelting, to concentrate the copper.

copper ore recovery. The process of extracting copper from ore, typically by flotation, roasting, or direct smelting. Copper ore recovery is an important step in the production of copper, as it is the first step in converting copper ore into a commercial product.

copper ore smelting. The process of converting copper ore into a smelter feedstock, typically by roasting or direct smelting. Copper ore smelting is an important step in the production of copper, as it is the second step in converting copper ore into a commercial product.

copper ore welding. The process of welding copper ore, typically to form a concentrate or a feedstock for further processing. Copper ore welding is an important step in the production of copper, as it is the final step in converting copper ore into a commercial product.

copper ore welding furnace. A furnace used for welding copper ore, typically to form a concentrate or a feedstock for further processing. Copper ore welding furnaces are typically equipped with a variety of equipment, such as a charging system, a fuel system, and a gases evacuation system.
copper acetaconte

copper acetaconite; cupric acetaconite; cuprous acetate; Paris green. An emerald-green powder; (Cu(OH)₂, Cu₂O). It is soluble in water; and in most organic solvents. Its molecular weight is 99.85; blue; monoclinic; specific gravity, 1.9. Copper sulfate. D.C. D., Handbook of Chemistry and Physics, 45th ed., 1964, p. B-171. Also added to glass and pottery instead of getting the ground and grounds of copper oxide. It is desirable to get the levulons, reds, and purpures obtainable under these conditions. Copper cement. See emulguage. Hess.

Copper chalcanthite. Synonym for chalc.

Copper calcine. Copper-bearing sulfide ore.

Copper calcite. A white variety of calcite. See also calcite.

Copper calcite. Dioptase. Shipley.

Copper calamine. A brown or yellow powder. Used in refining copper, gold, and silver, in recovering mercury from its ores by the wet process, and in electroplating copper on aluminum. (C.D. 64. 1961).

Copper chloride dihydrate; copper chloride dihydrate. Green, deliquescent; orthohombic. CuCl₂·2H₂O; specific gravity, 2.19. It is used in refining copper, gold, and silver, in recovering mercury from its ores by the wet process, and in electroplating copper on aluminum. (C.D. 64. 1961).

Copper concentrate. A metal which comprises copper scrap from bars for use in casting refined copper. Aby, a bar of metal, of the copper concentrate. (C.D. 64. 1961).

Copper concentrate. The product of any one of a number of forms of concentration processes. (Ricketts.).


Copper, native. See copper oxide. C.D. 64. 1961.

Copper. Native. Like those of gold and silver, crystals of copper are of the cubic system, but well-shaped cubes are quite exceptional, and even complete crystals are rare. The metal usually has the form of thin plates filling narrow crevices in igneous rocks, slate, or sandstone. These are often dendritic. Many aggregates are also common, particularly in the upper parts of veins of copper ore. Native copper is usually dull and lustrous. It is seldom in sufficient quantity to be worked. C.M.D.

Copper nickel. See copper oxide. C.D. 64. 1961.

Copper nitride. Dark green powder; Cu₃N; molecular weight, 79.54; black; monoclinic; specific gravity, 5.84 (at 25° C. referred to water at 4° C). Decomposes at 300° C; decomposes in cold water and in acids. Bennett 2nd, 1962; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-172.

Copper ore. Rock carrying copper mineral or minerals. Wed. 1922; Copper ore; also chalcopyrite, atacamite, azurite, torbernite, lin-arite; malachite; tetratetrahedrite. Copper-ore gems. A mixture of various copper minerals, such as green malachite, green or blue chrysocolla, blue azurite, and red cuprite. Schaller.

Copper ore. Native copper. See copper nitride.

Copper ore, ruby. See cuprite.

Copper ore, zinc. See copper oxide; cupric oxide; copper monoxide; zinc oxide; and also chalcopyrite, atacamite, azurite, tetratetrahedrite, paramelaconite, Cu₂O; molecular weight, 79.54; black; monoclinic; specific gravity, 6.40; and insoluble in water. Bennett 24,
copper oxide, red

1922 Handbook of Chemistry and Physics. 5th ed. 1922 p 177

Copper oxide, red. Copper oxide, red. A form in which copper oxide was being treated with coal to reduce the copper to metallic state before leaching with an ammoniacal ammonium carbonate solution. The process involves heating the oxidized ore with a reducing agent and a halide salt at about 700 degrees C to produce metallic copper which may then be recovered by:

- Reduction with carbon: This can be achieved by reacting copper(II) oxide with carbon monoxide gas in the presence of a suitable catalyst, such as nickel or iron, to produce metallic copper.
- Electrolysis: Copper(II) oxide can be reduced electrolytically in molten cryolite to produce copper metal.
- Reduction with hydrogen: Copper(II) oxide can be reduced with hydrogen gas in the presence of a suitable catalyst, such as nickel or iron, to produce metallic copper.

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Coral reef. Coral reefs are massive structures composed of calcium carbonate secreted by marine organisms, primarily corals. These reefs are found in tropical and subtropical regions, typically in waters shallower than 200 meters.

Coral-reef coast. A coastal area characterized by coral reefs, which extend from the shoreline into the sea. Coral reefs provide vital habitats for a wide range of marine life.

Coral-reef coral. A type of coral that forms the framework of coral reefs. Corals belong to the phylum Cnidaria and are classified in the class Anthozoa.

Coral sand. Sand composed primarily of the remains of coral skeletons. These sands can be found in areas where coral reefs are located.

Coral-reef limestone. A type of limestone formed from the remains of coral skeletons. Coral reef limestones are found in areas where coral reefs are present.

Cordierite. A silicate mineral formed from the breakdown of other minerals, such as andalusite or sillimanite. Cordierite is often found in metamorphic rocks.

Corolite. A type of natrolite, a hydrated potassium feldspar, which is often found in metamorphic rocks.

Cordite. An explosive material consisting of a mixture of nitroglycerin, potassium nitrate, and absorbent matter.

Cordite relay. A device used in blasting operations to initiate the detonation of explosive charges. Cordite relays are often used in conjunction with other blasting devices.

Cordite test. A method used to determine the sensitivity and safety of cordite or other explosives. This test involves measuring the time it takes for a given weight of explosive to detonate.

Cordofan. A region in northeastern Africa, which is characterized by a series of mountain ranges.

Cordobian. A term used to describe events that occurred during the Cordobaian Stage of the Early Carboniferous Period.

Cordilleran. Pertaining to a mountain range or system of mountain ranges. The Cordilleran includes the Rocky Mountains, Sierra Nevada, and Cascade Range.

Cordilleran orogeny. A period of mountain building that occurred in the Cordilleran region during the Late Cretaceous and Early Tertiary periods.

Cordilleran province. A division of the Cordilleran region, which includes the Rocky Mountains, Sierra Nevada, and Cascade Range.

Cordynod. A term used in geology to describe the structural features of a region.

Core deposit. A core sample taken from a drilling operation to determine the characteristics of the rock formation.

Core material. The sample material extracted from a core sample.

Core sample. A cylindrical or rectangular piece of rock or sediment extracted from a core barrel.

Core sample. A section of rock or sediment that is extracted from a borehole or drill hole.

Core sample. A sample of rock or sediment that is extracted from a core barrel.

Core sample. A sample of rock or sediment that is extracted from a borehole or drill hole.

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Core sample. A sample of rock or sediment that is extracted from a borehole or drill hole.

Core sample. A sample of rock or sediment that is extracted from a core barrel.
core-drill sampling. The act or process of obtaining earth or rock samples by means of annular-cutting bit to penetrate rock formations, using a core-drill machine and equipment. Long.

core equipment. Bits, core barrel, and other equipment used to drill a borehole bored with a core-drill machine with a hollow core that is not bored or drilled in the shop; also, the parts or accessories which serve to retain the shape of a core while it is being removed or transported. 

core extractor, core fisher, core pick. A device used to recover a rock core from the core barrel in which it was drilled. Long.

core filed. A core hole bored to a desired diameter and depth, and having a solid or tube core selected as a sample for study. Long.

core fisher. See core extractor.

core-fishing machine. A device used to recover a rock core from the drill hole where it was drilled. Long.

core fishing. The act or process of recovering a rock core from a drill hole where it was drilled. Long.

core hole. A borehole bored into a rock formation to obtain a recognized portion thereof. Long.

core house. A structure in which boxed core samples are kept temporarily and for a time or permanent storage. Long.

core jam. Synonym for core block. Long.

core jammer. A device used to recover a core from the core barrel in which it was drilled. Long.

core jamp. A device used to recover a core from the core barrel in which it was drilled. Long.

core lifter. Long.

core lifter. A core-handling device consisting of a cup which is driven into a core barrel to recover a core from the core barrel. Long.

core lifting tong. Long.

core lining. Long.

core loss. The portion of rock cored but not recovered. Long.

core magazine. Long.

core library. A structure in which boxed cores are kept for study and reference. Long.

core matcher. A device used to recover a core from the core barrel in which it was drilled. Long.

core mixed. Long.

coreoperator. See diamond driller.

core operator. See diamond driller. 

core operating. Long.

core orientation. Long.

core orientation. The point in a borehole where a core or core body is recovered, as shown by the core; also, the width or thickness of the core body, as shown by the core. Long.

core sample. One or several pieces of whole rock, using a core-drill machine and equipment. Long.

core sample. Long.

core samples. Long.

core samples. Long.

core samples. Long.

core samples. Long.

core samples. Long.
...of rock. A. a core taken from the well drilbng that may be liquid and an inner core, that may be solid. B. a core produced into pieces by chemical treatments. C. core balance method. D. The central part of an anticlinal structure, the core of a hollow object. A. The central part of a plaster mold of the type used in foundries. B. The center of a nuclear reactor containing the fuel elements and usually the moderator. C. the central portion of the earth below itisolvew and chemical analvos. D. A specially formed material to make a cavity in a casting of Masonry. E. A one piece refractory or heat-insulating body, used in foundries. F. One or more members of a sand mold attached to an extrusion die to form holes inextruded brick or tile. G. 1963. A. A center of a nuclear reactor containing fuel elements and usually the moderator.

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we shase.

lore slOrain. See core library. Lost.
trefte

NMI and.

Fay. 4. G. G. Cor-

Can seated. A biotite hornfels formed during the cooling of a melt. In this hornfels A.G. cornelian. A translucent red variety of eka-

Lamstone. Eric

cornette. A peacock-blue, basic copper phos-

cantata. Eric

corner angle. On face milling cutters, the

corner break. The separation of a block of

cornered tray conveyor. See suspended tray conveyor. ASA MHS 1.1-1958.
corner joint. A joint between two members

corner racking. Square or triangular strips

corner walls. In a battery wall those courses

work made of which are directly exposed

material of which are directly exposed

wall. The position of the core

texting of the drill perfora-

Lost. B. The art or process

mine that is being mined. The drill perfora-

of the glasses that is trans-

of the core as it is

treat. A long, Synonym for inner tube, of a
core tray. An open or lidless core box.
core wall. In a battery wall those courses of
core velocity. The zone of maximum air ve-

core joint. A joint between two members

core tray conveyor. ASA MH4-1.1958.
corner. A point on a land boundary at which
two or more boundary lines meet. It is
not the same as a monument, which is the
physical evidence of the course of a corner on the ground. A.G. cornellite. A peacock-blue, basic copper phos-
sphere. See corundum. Grains of corundum that form a single crystal. A.G. cornelian. A translucent red variety of eka-

a series of temporarily or perpetually hard

corner 15. This is an impure form of corundum. Occasionally used as a tool, also as a

item within the royal harpel. It is

items with other metal.

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and investigating a sediment sample or core

coring bit. Synonym for core bit.
coring equipment. See core equipment. Long

coring out. Forming of the interior portions

corner angle. On face milling cutters, the

AP-21.1-1958. This series of temporarily or

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Correlation table

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<td>Correlation</td>
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Correlation, a. The determination of the equivalency in geologic age and or stratigraphic position of two formations or other stratigraphic units in separated areas; or more broadly, the determination of the contemporaneous events in the geologic histories of two areas. The same fossils constitute the chief evidence in problems of correlation. Fay. b. Determination of synchrony of homotaxia, or of relation to the scale of geologic time; usually used in the comparison of geologic formations or of fossil faunas or fossil floras belonging to different districts. Webster 3d. c. Correlation of beds. Fay. c. Determination of the similarity of paleontologic or physical evidence, A.G.I. d. In seismic interpretation, the picking of corresponding phases, the examination of the separations and seismometer spreads, of those seismic events which appear to originate at the
Erosion. a. Erosion of land or rock; specifically, wearing or denuding action of a river on its bed and on the banks. b. Anode. c. A diamond surface that has the appearance of having been etched by acid. d. A chemical liquid or gas that eats away a corrosion layer. e. A corrosion product or residue. f. A corrosion coating. g. A corrosion layer or film. h. A corrosion product or residue. i. A corrosion coating. j. A corrosion layer or film. k. A corrosion product or residue. l. A corrosion coating. m. A corrosion layer or film. n. A corrosion product or residue. o. A corrosion coating. p. A corrosion layer or film. q. A corrosion product or residue. r. A corrosion coating. s. A corrosion layer or film. t. A corrosion product or residue. u. A corrosion coating. v. A corrosion layer or film. w. A corrosion product or residue. x. A corrosion coating. y. A corrosion layer or film. z. A corrosion product or residue.
cotton miner. In Quebec, a miner employed in an asbestos mine. Fay.
cotton rock. A variety of chert with a black dense interior and a porous, colored exterior. A.G.I. b. A white to slightly gray or buff variety of limestone colored "cotton rock." The term is colloquial. A.G.I. Also cotton rock.
cottonite. A soft porous appearance suggestive of cotton.
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Cottrell operator. In ore dressing, smelting, coulee;
cottontite. A soft white to yellowish lead chalchite, 
Dodd.
coulee. A dry creek bed sometimes running in a straight line until it cuts off the faces of the work- 
Dodd.
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coulee. A dry creek bed sometimes running in a straight line until it cuts off the faces of the work-
Dodd.
counterflush. Synonym for reverse circulation.

counterflushing. A method of core drilling in which the circulating fluid passes down the borehole and returns up the inside of the rods, providing continuous recovery of the core. B.S. 3618, 1963, sec. 3.

counterflushing. Strengthening pier bonded and perpendicular to the inner side of a retaining wall, thereby stabilizing it against overturning, and increasing its strength. Ham.

countergangway. A gangway driven obliquely to an existing structure, built on the level or a lower level, or a gangway driven between two lifts and sending its coal down to the bottom. Fay.

counterion. Those able to neutralize anion or cation. Pryor, 3.

countersink. In a twist drill, the tapered and rounded portion around the top of a hole for deburring, for the pilot drill and the body. Osborne.

countershaft. a. A shaft which receives power from one part of a machine and transmits it to another part of the main shaft or to working parts. b. A shaft that allows one end of a main shaft to drive the other through reduction gears. Nichols.

counterstock. A taper drill, the taper and reduced portion situated between the pilot drill and the body. Osborne.

counterstamping. Forming a facing depression around the top of a hole for deburring, for receiving the head of a fastener, or for receiving a center. ASM Gloss.

countervent. A crossover running at approximately right angles to the main ore body. Weed. 1922.

counterweight. a. A weight used with a cylinder, with a chain, or at a pinch driving. Hag. b. A device for joining two rope ends, or pipe. Fay. c. A device for transferring electrical energy from one circuit to another, and may be applied to either straight or reducing sizes. Strock, 3. h. An arrangement for transferring electrical energy from one section of the mine to another or for checking the amount of refuse in coal. Shoot. Nelson. i. A horizontal line on which it cuts the country rock. Fay.

couple. a. In mining, a miner who performs the tasks of a drift miner, of a gang miner, of a skip miner, and of a scraper miner. b. A weight used with a cylinder, with a chain, or at a pinch driving. Hag. c. A device for connecting two cylinder ends of mine cars for joining a chain to the end of a rope. Fay. f. The degree of mutual interaction between the complex of elements resulting from mechanical, acoustical, or electrical linkage. ASM Gloss. g. Occasionally used to mean the connecting device and may be applied to either straight or reducing sizes, Stock, 3. h. An arrangement for transferring electrical energy from one section of the mine to another or for checking the amount of refuse in coal. Shoot. Nelson. i. A horizontal line on which it cuts the country rock. Fay.


coupled wave. A wave with surface seismic wave of complex motion in an elastic medium. It is described only by mathematical explanation. Also called coupled wave, A.G.I.

coupler. a. In mining, a laborer who connects drawbar, hook, chain, or automatic coupling of mine cars to form a set or journey. See also coupler, b. Long. c. A mechanical device used for connecting two rope ends, or pipe. Fay. d. An automatic clip; shackle. C. Nelson. e. An automatic clip; shackle. Nelson. f. A mechanical device used for joining two rope ends, or pipe. Fay. g. A weight used with a cylinder, with a chain, or at a pinch driving. Hag. h. A device for joining two rope ends without splitting. Zero. i. A horizontal line on which it cuts the country rock. Fay.

courthouse. A method used by companies for settling the channel through in coal. The refuse is picked from a few cars of run-of-mine coal daily, and when the amount of refuse is considerable, it is shown to the miner and his laborers. They may be suspended from work if the amount of refuse is too high. Mitchell, p. 216.

courthouse inspector. In bituminous coal mines, one, who examines mine cars of coal for impurities, such as slate, rock, and dirt, by the courthouse system (selecting cars at random for examination). Rejets, on basis of inspection, any group or lot piece as on a casting or forging. ASM Gloss.

coupe-over. Aust. A small chamber, into which an empty skip can be upset to as to allow a full skip to pass when there is only a single line. Called coup-up in Scotland. Fay.

couple plate. In coal mining, steel plate on which tubs are turned from one set of rails to another. Pryor, 3.

course. a. To conduct the ventilation backward and forward through the workings, by means of properly pitched stops and regulators. Fay. b. Som. A team of coal. Fay. c. A progressing or proceeding along a straight line without change of direction. Webster 3d. d. To ventilate a number of faces in series. B.S. 3618, 1963, sec. 2. e. Corn. An inoperative vein as opposed to a lode. See also cross-course. f. The horizontal direction of a geologic structure. Synonym for strike. Webster 3d. g. An influx of water from one direction. Strick, 1960. h. An unperforated lining or row of brick in a structure. HW.

courseted over. See course.

coursed blockwork. When concrete blocks weighing from 10 to 50 tons are used in breakwater construction, the blockwork is laid in horizontal, bonded layers or courses.

coursed brick. See brick, 272.


coursed ventilation. Mine ventilation by the same air current, that is, without splitting of air. Nelson.


course, g. Occasional or frequent. Standard, 1964.

courseted. A method of core drilling in which the circulating fluid passes down the borehole and returns up the inside of the rods, providing continuous recovery of the core. B.S. 3618, 1963, sec. 3.

countrystock. A strengthening pier bonded and perpendicular to the inner side of a retaining wall, thereby stabilizing it against overturning, and increasing its strength. Ham.

countrystock. See counterstock. Fay.

country. The name given by miners to the adjacent to an ore deposit. Fay.

country, c. The rock traversed by or adjacent to an ore deposit. Fay. b. Applied to the rock surrounding and penetrated by mineral veins or invaded by and surrounding an igneous intrusion. Holmes, 1920. c. The rock in which a mineral deposit or ore body is enclosed. Synonym for country. Webster 3d. d. The common rock of a region. Webster 3d.

country estate. Scot. Sale of coal at the mine; sale by cart, as distinguished from disposal by rail or sea. Fay.

country of锭. A combination of plant and equipment for mining. See also room-and-pillar. Fay.

country vertical. The deviation from the vertical. Webster 3d. 1. a. See dip angle; slope angle; vertical angle; horizon angle. Webster 3d. b. See dip angle; slope angle; vertical angle; horizon angle. Webster 3d. c. See dip angle; slope angle; vertical angle; horizon angle. Webster 3d. d. See dip angle; slope angle; vertical angle; horizon angle. Webster 3d. e. See dip angle; slope angle; vertical angle; horizon angle. Webster 3d. f. See dip angle; slope angle; vertical angle; horizon angle. Webster 3d. g. See dip angle; slope angle; vertical angle; horizon angle. Webster 3d. h. See dip angle; slope angle; vertical angle; horizon angle. Webster 3d. i. See dip angle; slope angle; vertical angle; horizon angle. Webster 3d. j. See dip angle; slope angle; vertical angle; horizon angle. Webster 3d. k. See dip angle; slope angle; vertical angle; horizon angle. Webster 3d. l. See dip angle; slope angle; vertical angle; horizon angle. Webster 3d. m. See dip angle; slope angle; vertical angle; horizon angle. Webster 3d. n. See dip angle; slope angle; vertical angle; horizon angle. Webster 3d. o. See dip angle; slope angle; vertical angle; horizon angle. Webster 3d. p. See dip angle; slope angle; vertical angle; horizon angle. Webster 3d. q. See dip angle; slope angle; vertical angle; horizon angle. Webster 3d. r. See dip angle; slope angle; vertical angle; horizon angle. Webster 3d. s. See dip angle; slope angle; vertical angle; horizon angle. Webster 3d. t. See dip angle; slope angle; vertical angle; horizon angle. Webster 3d. u. See dip angle; slope angle; vertical angle; horizon angle. Webster 3d. v. See dip angle; slope angle; vertical angle; horizon angle. Webster 3d. w. See dip angle; slope angle; vertical angle; horizon angle. Webster 3d. x. See dip angle; slope angle; vertical angle; horizon angle. Webster 3d. y. See dip angle; slope angle; vertical angle; horizon angle. Webster 3d. z. See dip angle; slope angle; vertical angle; horizon angle. Webster 3d. 

countryside. The name given by miners to the adjacent to an ore deposit. Fay.

countryside, a. A combination of plant and equipment for mining. See also room-and-pillar. Fay.

countryside, b. See course. Fay.


countryside, d. See course, a. Fay.

countryside, e. See course, b. Fay.

countryside, f. See course, c. Fay.

countryside, g. See course, d. Fay.

countryside, h. See course, e. Fay.

countryside, i. See course, f. Fay.

countryside, j. See course, g. Fay.

countryside, k. See course, h. Fay.

countryside, l. See course, i. Fay.

countryside, m. See course, j. Fay.

countryside, n. See course, k. Fay.

countryside, o. See course, l. Fay.

countryside, p. See course, m. Fay.

countryside, q. See course, n. Fay.

countryside, r. See course, o. Fay.

countryside, s. See course, p. Fay.

countryside, t. See course, q. Fay.

countryside, u. See course, r. Fay.

countryside, v. See course, s. Fay.

countryside, w. See course, t. Fay.

countryside, x. See course, u. Fay.

countryside, y. See course, v. Fay.

countryside, z. See course, w. Fay.

countryside, A. A combination of plant and equipment for mining. See also room-and-pillar. Fay.

countryside, B. See course, a. Fay.

countryside, C. See course, b. Fay.

countryside, D. See course, c. Fay.
courtzilite. A form of asphaltum allied to gilsonite. Fay.
cousin wheel. Scot. The drum or pulley on a self-acting plane. Fay.
Cowinian. Lower Middle Devonian. A.G.I.
cove. a. A small sheltered inlet or bay. For example, an irregular shoreline broken by many coves. A tidal stream. Webster 3d, b. A place wheretidal streams come together.
cove buffer. A group of boreholes drilled in advance of mine workings to probe for and detect water-bearing fissures or structures. Long.
cove half. In die casting, the stationary half of a die. ASM Gloss.
cove hole. One of a group of boreholes drilled in advance of mine workings to probe for and detect water-bearing fissures or structures. Long.
covering bored. Yor. A series of bored (rooms) formed on the side of a shaft pillar, from which longwall working is commenced. Fay.
covering formation. Very often beds containing economic deposits of minerals are folded, faulted, and in part eroded. If later they are covered with other younger layers which do not include economic minerals or contain deposits of a different kind from those found in the deeper sequence, then this layer is spoken of as the covering formation. Sheets, v. 1, p. 4.
covering power. a. The degree to which a porcelain enamel coating obscures the underlying surface. Bureau of Mines Staff. b. The degree to which a glaze hides or obscures a ceramic surface. Bureau of Mines Staff.
covering room. The space in which the dust and chippings are extracted from the holding chamber. Long.
cover brick. See cover brick, a.
cover brick. Common term for arch brick used to line soaking pit covers. Bureau of Mines Staff.
cover coat. The top or last coat of porcelain enamel coating obscures the underlying surface. Bureau of Mines Staff.
cover half. In die casting, the stationary half of a die. ASM Gloss.
cover hole. One of a group of boreholes drilled in advance of mine workings to probe for and detect water-bearing fissures or structures. Long.
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covering power. a. The degree to which a porcelain enamel coating obscures the underlying surface. Bureau of Mines Staff. b. The degree to which a glaze hides or obscures a ceramic surface. Bureau of Mines Staff.
covering room. The space in which the dust and chippings are extracted from the holding chamber. Long.
cover brick. Common term for arch brick used to line soaking pit covers. Bureau of Mines Staff.
cover coat. The top or last coat of porcelain enamel coating obscures the underlying surface. Bureau of Mines Staff.
cover half. In die casting, the stationary half of a die. ASM Gloss.
cover hole. One of a group of boreholes drilled in advance of mine workings to probe for and detect water-bearing fissures or structures. Long.
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crabhole. A. A coalbreaker. Fay. b. A manila crab locomotive. A trolley locomotive fitted with a crab or winch for hauling mine cars from workings where a trolley wire is not installed. Nelson.
crab locomotive. A trolley locomotive fitted with a crab or winch for hauling mine cars from workings where a trolley wire is not installed. Nelson.
cracking of oil. A name given to the method in which the molecule largely into carbon and petroleum fractions is performed in a shaft. Fay. b. In mining coal. Fay. c. A coal breaker. Fay. d. A hoisting winch used to pull ladles, drums, or other heavy objects that are to be hoisted up and down. Fay. e. A movable platform or scaffold suspended by a cable or rope from the surface, upon which repairs or other work is performed in a shaft. Fay. f. A type of drill that may be attached to a drill, column or arm. Also called caddie. Long. h. Mounting for rock drill. Fay. j. An instrument for holding the tip of a mounted pneumatic drill. C.T.D. k. A support bracket with a hinged connection to its load. Nichols. l. A cartridge. Nichols.
crakle. A. A crazed or cracked surface on art pottery or glass. To produce the effect on pottery the glaze is compounded so as to have a higher thermal expansion than the body; the craze pattern is sometimes emphasized by rubbing coloring matter, such as umber, into the fine cracks. Fay. b. A crazed or cracked surface on pottery, the glaze being made from a material that has undergone little or no relative displacement. A.G.I. c. A glaze in which the surface of which has been intentionally cracked by water immersion and partially heated by reheat- ing before final shaping. ASTM C162-66. d. A motarelled textural effect in a wet process porcelain enamel resembling a wrinkled surface. Fay. e. Enamel characterized by a novel pattern-work of surface resulting from special application and handling. C.T.D. f. See cracked stones. Shipley.
cracked quartz. See cracked stones. Shipley.
cracked stones. Stones in the structure of which numerous small cracks or fissures have been produced by heating and sudden cooling in water, at which time dyes may be forced into the cracks producing stones of various colors. See also Indian emerald. Shipley.
crackled texture. A concentric texture in which minute cracks have developed by shrinkage during crystallization. Schakel.
crackled wood. A term applied to glazed ware in which the glaze shows extensive crazing. Shipley.
crack off. The process of severing a glass article by breaking it, scraping and then polishing it until it splits. Fay. c. A short bar of metal having its two ends bent downwards at right angles for insertion into two adjoining pieces of stone, wood, etc., to hold them together. Fay. d. A pillar of rock or mineral left for support. Fay. e. A contrivance for holding parts of a frame in place during drilling. Fay. f. A locking bar of in-corrodible metal used to bind together adjacent stones in a course, and having bent ends, one of which is pointed and the other is adjustable for position by means of a screw. C.T.D. g. A locking bar of in-corrodible metal used to bind together adjacent stones in a course, and having bent ends, one of which is pointed and the other is adjustable for position by means of a screw. C.T.D. h. A pillar of ore left to support the roof or hanging wall. Fay. i. A part of a series of unworked during previous mining operations. Nelson.
crandallite. A. A stonecutter's hammer for dressing ashlar. Its head is made up of pointed steel bars of square section wedge in a slot in the end of the iron handle. Standard, 1946. b. To dress stone with a crandall. Standard, 1946. c. A movable platform or scaffold suspended by a cable or rope from the surface, upon which repairs or other work is performed in a shaft. Fay. d. A type of drill that may be attached to a drill, column or arm. Also called caddie. Long. h. Mounting for rock drill. Fay. j. An instrument for holding the tip of a mounted pneumatic drill. C.T.D. k. A support bracket with a hinged connection to its load. Nichols. l. A cartridge. Nichols.
crane

fibrous. Formerly called kalkwavelite. From Tiitnic district, Utah; Dehrn, Nassau, Germany. English.

crane. A machine for lifting and transporting heavy weights, generally from above. Mer-

erscave, 4th, p. 414.

crane board. N. of Eng. A return air course connected directly with the furnace. Fay.


crane ladle. A pot or ladle supported by a crane brae.


crane tower. That tower of a derrick crane to the top of which the jib is con-

ected by a tie rod. C.T.D.

cranny. A crack or opening of 6 strands of 37 wires around a hemp center. H & G, p. 129.

crater. A small coal, Wales. Fay. b. Term used in the pottery industry in two related senses: (1) a thin refractory belt used as an item of kiln furniture in the glint firing of wall tiles. A number of cranks, each supporting one or more tiles, are built-up to form a stack; the cranks are kept apart by refractory distance pieces known as dots; and (2) a composite refractory structure for the support of flatware during glint firing and decorating firing; the crank is designed to prevent the glazed surfaces of wall tiles from coming into contact with other ware or kiln furniture. Dodd.

crank. a. Small coal, Wales. Fay. Term used in the pottery industry in two related senses: (1) a thin refractory belt used as an item of kiln furniture in the glint firing of wall tiles. A number of cranks, each supporting one or more tiles, are built-up to form a stack; the cranks are kept apart by refractory distance pieces known as dots; and (2) a composite refractory structure for the support of flatware during glint firing and decorating firing; the crank is designed to prevent the glazed surfaces of wall tiles from coming into contact with other ware or kiln furniture. Dodd.

crank angle. In the pendulum industry, (1) the angle of the centerline of the crank with the centerline of the cylinders or the centerline of the attached slider; and (2) the angle through which the crank turns in a unit time. Porter.

crank press. A mechanical press, the slides of which are actuated by a crankshaft. ASM Gloss.

crankshaft. The engine shaft that converts the reciprocating motion and force of pistons and connecting rods to rotary motion and torque. Nichols.

cranny. Any small opening, fissure, or crevice, as in a wall or rock. Fay.

crappy. York. A term applied to friable or of small size. Webster 3d.

craquelé. See crackle, a. Dodd.

crate dam. A dam built of crates filled with molten metals into molds. Fay.

a. In general, a bowl-shaped topographic depression with steep slopes and gen-

erally an enclosing bowl-shaped area. Webster 3d.

b. The depression above or around the orifice of a volcano that often appears as a bowl-shaped area maintained by successive explosions at the top of a built-up cone. Webster 3d. c. The flaring or bowl-

shaped depression at the top of a volcano. Webster 3d. d. A depression formed by the impact of a meteorite. Webster 3d. e. Any one of thousands of formations on the surface of the moon that range in size from small

pocks less than 1 mile in diameter to walled plains nearly 150 miles across and thought by many investigators to have been caused by the impact of huge meteors and by others to be of igneous origin. Webster 3d. f. In blasting, the funnel of rupture, void, or crater that have very steep sides and a relatively small volume of broken rock. Steaufer. g. The formation of a crater in a volcano. Webster 3d. h. A crater is formed at the top of a well, resulting from a blowout or occasionally from caving. Brantly, 1. b. In machining, a depression in a cutting tool face eroded by chip contact. ASM Gloss. i. In welding, a depression at the termin-

ation of a bead or in the weld pool beneath the electrode. ASM Gloss.

crater; craterlike; craterous. Of or belonging to a crater. Webster 3d.

crater cone. A cone built up around a volcanic vent by lava which reached the surface through that vent, either in a molten state or in fragmental condition. A.G.I.

crater cuts. These cuts consist of one or several fully charged holes in which blasting is carried out towards the face of the tunnel, that is, towards a free surface at right angles to the walls. Langfors, p. 230. These represent in principle a completely new type of cut and make use of the crater effect which is obtained in blasting a single hole at a free rock surface. The possibility of a uniform enlargement can be counted on. This means that if the scale is enlarged so that the diameter and depth of hole and length of the charge are all doubled, the crater cut along the double depth will be obtained. The number of holes can be increased instead of increasing the diameter of the holes. Langfors, p. 232.

cratered. Having a crater or craters. Full of craters, as the cratered moon. Webster 3d.

crater lip. In explosion-formed crater nomenclature, the elevation increase at the crater edge formed by (1) uplifting of strata and (2) deposition of ejecta from the crater. About 25 percent of the apparent crater volume is deposited on the lip. Mining and Minerals Engineering, v. 2, No. 2, February 1956, p. 65.

crater, volcanic. A steep-walled depression at the top of a volcanic cone or on the flanks of a volcano. It is directly above a pipe or vent that feeds the volcano, and out of which volcanic materials are ejected. In its simplest form, it is usually a flat-bottomed cone, or bowl-shaped, or less circular in plan. The diameter of the floor is seldom over 1,000 feet; the depth may be as small as several hundred feet. It is precisely the result of explosions or of collapse at the top of a volcanic con-
duct. See also crater; explosion crater; lat-
cral crater; spatter crater; volcanic crater well. A gas or oil well which blows

its pipe out or leaks along the pipe and washes the soil away from the well until, around the well, a pond or small lake is formed. Bureau of Mines Staff.


crater. A relatively immobile part of the earth and generally of large size. Also spelled krate. The term is preferred in the United States. A.G.I.

cratonic shelf. The zone lying between the more positive and negative areas of a cra-

cranch. A piece of a vein left uncut as a support. Arkell.

crater Sunflower method. A method of mine roadway area measurement utilizing the Sunflower apparatus. This instrument consists essentially of a graduated brass rod, of adjustable length, which can be rotated through 360° in a vertical plane. Radial measurements are made from a central point in the airway, and at observed angles, and these are taken to the periphery of the road. From the data obtained, either a scale diagram of the roadway section is prepared, or else the area is calculated. R.C.M. p. 50-60.

crawler. a. A defect of glasses in which the glass draws up into droplets on the outside of the parts of the surface with insufficient glass. ACSC. b. Synonym for crawway; cat run. Dredges. c. Any machine mounted on such tracks. Bureau of Mines Staff. Local term for an apron feeder to a pan mill used in brickmaking. Dodd.

crawler tracks; caterpillars. An endless chain of plates driven by sprockets and used instead of wheels, by Caterpillar power shovels, tractors, bulldozers, drilling machines, etc., as a means of propulsion. Also a mining machine mounted on such tracks. Bureau of Mines Staff. d. Crawlers, etc. A term applied to friable or of small size. Webster 3d.

crawling. A condition very similar to tearing in which broken rock becomes caked or congealed, leaving visible explosions at the top of a built-up cone. The formation of a crater or a cratered area. Webster 3d. c. Any one of a pair of an endless chain of plates driven by sprockets and used instead of wheels, by Caterpillar power shovels, tractors, bulldozers, drilling machines, etc., as a means of propulsion. Also a mining machine mounted on such tracks. Bureau of Mines Staff. Local term for an apron feeder to a pan mill used in brickmaking. Dodd.

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May be caused by too heavy application, improper drying conditions or too finely ground enamel. Hansen.

crawley. A low passageway that only permits the passage of a man by crawling. A.G.I.

craw picker. Scot. One who picks stones from coal or shale. Fay.

craze. a. Corn. The tin ore which collects in the middle of the buddle. middling. Fay. b. Hairlike cracks appearing in a glaze. Also called crazing. C.T.D.

crazing. The cracking of a surface layer into small irregularly shaped contiguous areas. Tayler. b. Almost invisible cracking in a finished enamel surface, extending down to the base metal. This condition should not be confused with "hairlines". Exam. 2d. 1956.

crazing pot. Popular name in the pottery art. Fay.

crazing. a. The cracking of a surface layer into small irregularly shaped contiguous areas. Taylor. b. Almost invisible cracking in a finished enamel surface, extending down to the base metal. This condition should not be confused with "hairlines". Exam. 2d. 1956.

crease limestone. Forest of Dean. Division of the Carboniferous limestone containing coal or shale. Fay.


creassy peat. Term used in Scotland for a variety of the Carboniferous limestone containing coal or shale. Fay.

creasy peat. Term used in Scotland for a variety a highly bituminous peat. Tompkins 1954.


creede. An iron-black to steel-gray metallic mineral with a black to brownish streak and pavonine cleavage, CaMnO3. Dana 7d, 1956, p. 723.


creek. a. In maritime districts, a small tidal inlet. Fay. b. In inland districts, a small stream or branch of a river; a brook. Fay. c. A stream of less volume than a river. A small tidal channel through a coastal marsh. Local in Maryland and Virginia, a wide arm of a river or bay. A long shallow stream flowing intermittently or an arroyo; local in the southwestern United States. A.G.I.

creek claim. A claim which includes the bed of a creek. Under the statute of Oregon, a tract of land 100 yards square, one side of which abuts on a creek or rather extends to the middle of the stream. Fay.

creekology. a. An ironical term for unscientific methods of choosing drilling sites or prospective oil or gas seepage and particularly applied to selection based on the general appearance of outcrops, topography, drainage, etc. A.G.I. b. The term was derived from a prehistoric, primitive, unscientific practice of locating drilling sites for oil wells along creeks in Pennsylvania in the 18th and 19th centuries. Burwell 1957, p. 761.

creek placers. Placers in, adjacent to, and at the level of small streams. Fay.

creeper. An endless chain, with projecting coils. Used by Crosby to describe mineral veins which have been deposited by upwelling sea water; and hus a continuous boiling range. Webster 3d. c. As used in the petroleum industry for the purpose of working a creek claim. Fay.

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creeper. A crane of high lifting capacity for building steel arch and camisole bridges. It generally travels along the top chord of such a bridge during construction. Fay.

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creosote, beefwood
C. Also called creosote oil; creosote distillate. ASTM D324-41.
creosote, beefwood. See creosote, wood-tar.
creosote coal-tar solution. A solution of coal tar in creosote in various proportions. Used to contain 80 to 40 percent of coal tar. ASTM D324-41.
creosote, wood-tar; creosote, beefwood. A colorless or faintly yellow, oily liquid; characteristic smoky odor; miscible with alcohol, ether, and fixed or volatile oils; and specific gravity, 1.080. Used as an oreflotation agent. CCD 6d, 1961.
creosoting. The injecting of creosote into timber which is to be exposed to the weather, in order to increase its durability.
Cripin.
crescent cylinder. Strong wrought-iron cylinder in which railroad ties, etc., are exhausted of their moisture and filled with creosote pumped in under pressure. Cripin.
crep bord. Eng. A bord or room more or less straight ridge rising above the general land surface and extending parallel to the direction of ice movement. A.G.I.
crepe pillars. Eng. Pillars of coal which have crept through the various stages of creep. Fay.
crescent cast. See current crescent. Pettijohn.
crest. a. A. The summit of any eminence; the highest natural projection which crowns a hill or mountain, from which the surface dips downward in all directions, or in opposite directions. A.G.I. b. The highest point on an anticline. See also crestline. A.G.I. c. The line connecting the highest points on the same bed in an anticline. See also crest. A.G.I. d. Consisting of groups of tabular crystals forming ridges. Stepley.
crest gate. A gate for maintaining or lowering water level, erected at the crest of a dam. See also gate. Ham.
crimping; after it has been burned-in, the furnace bottom characterized by the fine-grained, earthy appearance. Hess.
crimping; after it has been burned-in, the furnace bottom characterized by the fine-grained, earthy appearance. Hess.
crifly. A miner's luncheon. Fay. c. Erg. A wooden foundation upon which a cast-iron ring in a shaft upon which tubber is supported.
critchie. A method of timbering used primarily to rectify a mistake of removing too great a percentage of the coal on the advance, and has the effect of replacing part of the coal. Some are made by using timbers in pigpen style; first laying timbers one way then placing other timbers across the first. This is continued in a zigzag fashion between the bottom and the roof is filled and wedged tight. Others are made by laying a layer of timbers first in one direction, then another layer across at right angles to the bottom layer. Space between the timbers in a layer varies according to requirements. The hollow type are generally filled with gob. Kentucky, p. 142.
criff dam. A dam constructed of interlocking rectangular sections of timber or precast concrete, laid to a batter, having cells, which are filled with earth or broken rock. See also gravity retaining wall. Hnm.
crib dam. See also crib. Fay.
crib. Segments of oak to encircle the shaft. Peel.
cribwork. A construction of timbering made by piling logs or beams horizontally one above another, and spiraling or chaining them together, each layer being at right angles to the one above and below. Also called crib, b. Fay.
cricktonite. A variety of ilmenite in which the proportion of titaniferous oxide is less than normal. Standard, 1964.
cribbing. Term used in South Wales for a carbonaceous shale or clay associated with coal. Tomkentff, 1834.
crill and Eversen process. A flotation process in which the ore is crushed to 50 mesh and mixed with a thick black oil. Boiling water containing enough acid to give it a tart taste is then added. This process was tested at Borough City, Ore., and at Denver, Colo., in 1889. Liddell 2d, p. 406.
crimp. The flattening made by a crimper near the mouth of a blasting cap for holding the fuse in place. Fay. b. To fix detonator on blasting fuse by squeezing it with a special plier. Fay. c. A tight bend in metal made under pressure. Nichols.
crimp and Bruges' formula. A formula connecting the rate of flow with its hydraulic mean depth and slope:
\[ v = \frac{244m^0.5}{2n} \]
where \( v \) is the velocity of flow, \( m \) is the hydraulic mean depth, and \( n \) is the hydraulic gradient. The units are in feet per...
crimp

second and see. See also Barnes' formula. Ham.
crimp. A tool specially made for fastening a cap to a fuse. Stauffer. See also cap opener.
crimping. a. The action of squeezing the open end of a metal, or detaching, that end from the body of the metal, or metal sheet, by means of a tool. b. Forming relatively small corrugations in order to: (1) set down and lock in place. c. An operation whereby the metal around or along the edge of the piece is shaped into the form of a roll or curl. Hensel.
crimson night shade. Purple flourite from Idaho. Schaller.
crinacea. A rock composed of sodic plagioclase, much titanaitaegite and olivine, with minor analcite,apatite, and opaque oxides. The texture is ophitic. A variety of theralite. Ag.
crinkle. A small fold, usually a fraction of an inch in wavelength. A.G.I.
crinkled. A textural effect on a porcelain enamel surface having the appearance of fine wrinkles or ridges. ASTM C286-65.
crinkled bedding. Bedding of laminations displaying minute wrinkles; in carbonate rocks crinkled bedding is believed related to algal mats. This term is also used for convolute bedding. Pettijohn.
crinkle marks. A series of sub-parallel corrugations of the bedding surface related to both the folded internal structures ascribed to subaqueous solifluction. See also creep wrinkles. Pettijohn.
crinal. A series of sub-parallel corrugations of the bedding surface related to both the folded internal structures ascribed to subaqueous solifluction. See also creep wrinkles. Pettijohn.
crinoidea. A large class of chiefly tropical echinoderms that have a more or less cup-shaped body provided with five or more feathery arms that are commonly bifurcated or many-branched and bearing pinnules, a mouth lying between the arms on the concave upper surface, and opposite the mouth usually a long jointed stalk fixed to the base of the body and having its opposite end divided into rhizoid processes that anchor the animal to the sea bottom. A.G.I.
crinoidea. A large class of chiefly tropical or fossil echinoderms that have a more or less cup-shaped body provided with five or more feathery arms that are commonly bifurcated or many-branched and bearing pinnules, a mouth lying between the arms on the concave upper surface, and opposite the mouth usually a long jointed stalk fixed to the base of the body and having its opposite end divided into rhizoid processes that anchor the animal to the sea bottom. A.G.I.
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critical minerals

damping constant and the undamped frequency of a seismometer or seismograph are of great practical importance. After a certain moving mass approaches rest position without overswing and the motion is said to be aperiodic.
critical density

density of a substance at its critical temperature and under its critical pressure. A.G.I. b. The unit weight of a saturated granular material below which it will lose strength and above which it will gain strength when subjected to real degradation. The critical density of a given material is dependent on many factors. ASCE P1826.6. In particle classification under approximately free conditions of fall through water, the minimum ratio of solid to liquid at which the hindered effect caused by the solid-liquid mixture is effective. Pryor, 3.
critical depth

given quantity of water in an open conduit may flow at two depths having the same energy head. When these depths coincide, the energy head is a minimum and the corresponding depth is Belanger's critical depth. Selsey, 1.
critical distance

in refraction seismic work, that distance at which the refracted wave and the direct wave in an upper medium is matched in arrival time by that of the refracted wave from the medium below having greater velocity. ASCE P1826.6.
critical experiment

an experiment conducted to verify the results of calculations relative to the critical size and other physical data affecting a reactor design. The power is kept so low that equipment to remove heat is not required. Critical facilities are acquired and used as the need arises. Pryor, 3.
critical facility

a facility where critical experiments are conducted. LBL. A. A condition of flow for which the mean velocity is at one of the critical values. See also critical velocity, subcritical flow.
critical height

the heights of vertical cuts in a cohesive soil (for example, clay) at which they will stand without supports. Nelson.
critical hydraulic gradient

the hydraulic gradient at which the effective pressure in a mass of cohesionless soil is reduced to zero by the upward flow of water. ASCE P1826.6.
critical mass

the state of a nuclear reactor when it is sustaining a chain reaction. See also dry criticality, wet criticality.
critical mass

the smallest mass of fissionable material that will support a self-sustaining chain reaction under stated conditions. ASCE P1826.6.
critical material

a material that is vital to the national defense, the main source of which is within the continental limits of the United States, and which may not be produced in quality and quantity sufficient to meet requirements. A.G.I.
critical minerals

minerals essential to the national defense, the procurement of which is difficult, which is less serious than those other strategic minerals because they can be either domestically produced or obtained in more adequate quantities or have a lesser degree of essentiality, and for which some degree of conservation and distribution control is necessary. ASCE P1826.6. A. Metals essential to national defense. B. Minerals or mineral associations that are stable only under the conditions of one given metamorphic facies and will change upon change of facies. For example, in Eskola's green schist facies, sericite and
critical path schedule. A methodical and critical rate. The rate of cooling required to critical speed. a. The speed at which a rotating or oscillating member reaches a specified level of performance.

critical point. The point at which the properties of a liquid and its vapor become indistinguishable. It is generally synonymous with critical temperature. A.G.I. b. The temperature or pressure at which a change occurs in the properties of a substance. ASM Gloss.

critical pressure. a. The maximum feed pressure which can be applied to a diamond bit without damaging the bit or core barrel. Long, b. The minimum load, in pounds per square inch, at which the diamonds cut the rock. Below this load, the diamonds slide on the rock surface without penetrating into a bit face, at which the diamonds cut the rock. Below this load, the diamonds slide on the rock surface without penetrating into the rock, and the diamonds polish, become dull, and are rendered unfit for further use in that particular ground unless renewed. Long, c. The pressure exerted by a substance in its critical state. Webster 3d. d. The pressure at which a substance can just be condensed to liquid by an increase in pressure. ASM Gloss.

critical range. The range of temperature in which the reversible change from one form to another (stable at high temperature) to ferrite, pearlite, and cementite (stable at low temperature) occurs. The upper critical range will be at a higher temperature than the lower limit for slow heating and cooling is about 700° C. C.T.D.

critical rate. The cooling rate required to prevent the formation of pearlite and to secure the formation of martensite in steel. With carbon steel this means cooling in cold water, but it is reduced by the addition of other elements, hence oil- and air-hardening steels. C.T.D.

critical slope. The maximum angle with the horizontal at which a sloping bank of soil or given height of soil will stand unsupported. A.G.I. P1826. b. Synonym for angle of repose, A.G.I.

critical speed. a. The speed at which a rotating drill bit begins to vibrate excessively; hence by either decreasing or increasing the rotational speed of the drill stem the vibration may be reduced or alleviated. Long, b. The theoretical speed at which a bit is held to the inner surface of the smooth drill lines by centrifugal force n = \[ \frac{7.66}{\sqrt{d}} \] 

where n equals revolutions per minute, and d the mill diameter in feet. Pryor, 4. c. A rotational speed that correlates with the efficiency and the endurance of the rotating member. ASM Gloss.

critical state. An unstable condition of a substance when on the point of changing from a liquid to a vapor, or vice versa, defined by its critical temperature and its critical pressure. The former is the highest temperature at which that particular substance can exist in a liquid state at any pressure. The latter is the vapor pressure at the critical temperature. For example, the critical temperature of dioxygen is 31° C and its critical pressure is 73 atmospheres. Standard, 1964.

critical strain. The strain just sufficient to cause the growth of very large grains during heating where no phase transformations take place. A.G.I. P1826.


critical surface. See critical circle.

flows. Magnetic solids adhere to underside of belt and are dragged clear. Pryor, 3.

crococite. See crocoite.

crocoite. An orange Siberian mineral consisting of lead chromate, PbCrO4; monochlor. Also called crocidolite. C.T.D. Also called crocodile ore. Webster 3d.

crocus. A term used in the Milford, N.H., quarries to denote gneiss or any other rock in contact with granite. Fay.

crocus cloth. Cloth to which pulverized oxide of iron is glued; used for polishing. Gruppin.

crocus bally. A name used for impure red ferric oxide pigments and polishing powders, usually produced by heating iron sulfate containing calcium sulfate, lime, or other inert filler. Also sometimes applied more generally to other impure oxides of red or yellow color. C.C.D. 6d, 1961.

crucible. A shallow, open vessel of clay or porcelain for holding a body during a fusion or other process; also, a mixed mass; as, a slag in refining. Webster 3d.


crus. red. A red pigment based on ferric oxide but containing a large proportion of calcium sulfate or similar material. Similar to Venetian red. C.C.D. 6d, 1961.

crop hang. Crags. Eng. A name to indicate recesses or concrescentionary masses of limestone. Arkell.


crokan. The rocks of the Upper Cambrian age in the Pacific province from St. Croix, Minn., to the type locality. C.T.D.

crokatlite. An alkali pyroxene, containing augite, melilite, and biotite; from the Crook Hill's, Antyll, Scotland. Holmes, 1928.

croknitting process. A process. ASM Gloss.

cronite #1. Explosive; used in mines. Bureau of Mines Staff.

croscendite. A coal-black to brownish-black hydrous iron silicate, 6Fe₂O₃·9SiO₂·2H₂O, with some admixture of Fe₅O₇; by Fe₅O₇ (Si ?); sometimes contains magnesium; structurally related to kaolinite, (+) = a chlorite. Fay, H.W., 2d, 1955.


crooked hole. A borehole which has deviated from the vertical or from the direction along which it was started. Horizonal and inclined diamond drill holes over 300 feet in length are liable to deviate badly. Holes which are drilled vertically may also deviate but not usually to the same degree. A borehole may become crooked due to (1) dipping strata of different hardness; (2) fault planes or shear zones; or (3) drilling defects or inefficiency. See also borehole surveying. Nelson.


crooketsite. A massive, compact, metallic, lead-gray selenide of copper, tellurium, and silver, Cu₂Te₃(Sb). See Fay. b. Synonym of tellurite. Fay 2d, 1922.


crop. a. The outcrop of a ledge; or the coal of poor quality at the outcropping of a
crop coal

steam. Standard, 1964. a. As a verb, to appear at the surface; to outcrop. Webster 3d.

crop coal or stone which has to be taken down in order to secure a safe roof in the workings. Fay. d. Corn. See crop tin, Fay. e. To leave coal at the bottom of a bed. See also cropping coal. Fay.

to fine when the coal in a tub contains too much refuse; it is done by deducting a percentage of the weight. Standard, 1964. g. A defective end portion of an ingot which is cut off as scrap. A.M. Gloss.

crop coal. a. Coal of inferior quality near the surface. Fay. b. N. of Eng. Coal remaining on the pit bottom due to a lack of points not on the outcrop of the bed. Synonymous with day fall. Fay.

crop line. A line following the outcrop. Austin.


cropping COW. The leaving of a small thickness of coal at the bottom of the seam by the cutterjib rising from the floor. Has to be taken up by picks. In miners' parlance, to crop upwards. Eng. In miners' parlance, to allow water to drain from the face into the coal. Trist. c. The coal next to the roof in a seam. Fay.

crop fall. A caving in of the surface at the outcrop of the bed caused by mining operations. Applied also to fragments of coal or stone which have to be taken down in order to secure a safe roof in the workings. Fay. d. Corn. See crop tin, Fay.

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used with niscal prisms (or equivalent polarizing devices) in the crossed position, will be often called crossed (crossed Nicol). Two niscal prisms placed one in front of the other, or one below the other, are polarizers. The light intensity will remain the same. Syenitic rock.

cross frog. A frog adapted for railroad tracks laying, essential for parallel track construction.

cross-folding. A folding mechanism that produces folds in a rock layer that is essentially parallel to the flow line. A.G.I. Supp. b. A junction in sedimentary rocks with more prominent joints at an approximate right angle. A.G.I. Supp. c. See head joint. ACSG.

cross-fossae. A system of cross joints in igneous rock oriented more or less perpendicular to the flow lines. Synonym for tension joint. A.G.I. Supp. b. A junction in sedimentary rocks that consists of tabular, irregularly lenticular, or wedge-shaped bodies lying essentially parallel to the plane of foliation and which themselves show a pronounced decorated structure in which the laminae are steeply inclined to the general bedding. A.G.I. c. Cross-stratification of foresets less than 1 centimeter thick. Pettijohn.

cross-bedding. A heading driven horizontally to cross a drift or to intersect and work coal seams. Nelson.

cross bedding. Fay.
crown flint glass

crown. In power shovel nomenclature, crowning is the thrusting of the dipper stile upward over the back of the dish. The term extruding is the reverse of crowning. Carson, p. 38.
crowing buffle. In froth flotation, a slotted board used to direct the rising mineralized froth toward the overflow lip of the cell. Pryor, 3.
crowing barrel. A handbarrow for bricks; it has a base and front, but no sides. Dodd.
crowe process. The treatment of ores to convert cyano-solution to remove air before the gold is precipitated. Nelson.
crowfoot. A V-shaped notch in an arch block; sometimes made in the bottom block where this rests upon the wall plate. Stauffer. b. A tool with a sideclaw, for grasping and recovering broken rods in deep boreholes. Fay. c. An iron claw or fork, to which a rope is attached, and by which the rods are lowered and raised when changing the tools in deep boreholes. Fay. d. Irregular or zigzag markings found in Tennessee marble. Also called stylolite. AIME, p. 331.
crowned. a. A timber crossbar up to 16 ft long supported by two heavy legs, or uprights, one at each end. Crowns may be set at 3-foot intervals and sometimes a roof bolt is put through the center of the crown. Nelson. b. The elevation of a road center above its sides. Nichols. c. The curved roof of a tunnel. Nichols. d. As used by the drilling and bit-setting industries in the United States, the portion of the bit insert or impregnated with diamonds formed by casting or pressure-molding and sintering processes; hence the steel bit blank to which the crown was not considered part of the crown. Long. e. The topmost part of a drill tripod, derrick, or mast. Long. f. Used in some countries other than the United States as a synonym for bit. Long. g. The part of a furnace forming the top or roof. ASTM C 17. h. A contour on a sheet or roll where the thickness or diameter increases from edge to center. ASTM Glass. i. The top section of a pulley, set where the cylinder and other working parts may be mounted. Also called dome; head; top plate; crown block. Asm glass.
crown arch. The arched plate which supports the crown sheet of the firebox of a boiler. Fay.
crown bar. a. One of the bars on which the crown sheet of a locomotive rests. Fay. b. Strong timber, usually round, in supporting the roof of a tunnel in the English method of driving. Stauffer.
crown blast. The procedure of blowing air at roof level into the exit end of a tunnel kiln to counteract the natural flow of gases in this part of the kiln. Dodd.
crown block. A pulley, set of pulleys, or sheaves at the top of a drill derrick on and over which the hoist and other running parts run. Also called crown pulley; crown wheel; Long.
crown brick. See key brick; center brick. Dodd.
crown die. Synonym for bit mold. Long.
crowned pulley. In power transmission, one with convex curve of driving rim, aiding flux flow to the teeth. Stauffer. 3.
crown fire. A fire burning in tree tops. Nichols.
crown flint glass. An optical crown glass bordering on optical flint glass because of the addition of a substantial content of
crown formation

lead oxide and with somewhat higher dispersion than optical crown glass. ASTM C3-65. A rod can be replaced by crown formation. Aust. Used in Bendigo for the outcrop of saddle reefs crowning the hills, from which points the reefs dip into the surrounding country.

crown glass. a. Glass of the alkaline-silica type, as opposed to lead glass (flint glass); used for electric light bulbs. Also called soda-lime glass. C.T.D. b. Glass of uneven thickness and slightly convex (therefore, producing some optical distortion), handmade by blowing and spinning. Compare optical crown glass. Dodd.

crown gold. Gold that is eleven-twelfths fine (91.67 percent pure gold). Used in the minting of the crown of the rose from 1526 and adopted in 1663 by King Charles II for other English gold coins. Webster 3d.

crown-in. The pressure of the overlying strata causing falls of roof or creep in the floor of a rock-salt mine. Nelson.

crowning. The heaving or lifting of the floor beds along a roadway to form a ridge or crown along the center line. Nelson. crowning-ins. S. Staff. The strata forming the roof or cover. Fay.

crown. a. The top of the furnace or firebox of an internally fired steam boiler. Webster 3d.

crown pulley. A pulley whose diameter is greater at the middle than at the edges of its face. This crown tends to prevent the belt from running off the pulley provided the belt is not slipping. Cripin.

crown sheet. The plate that forms the top of the furnace or firebox of an externally fired steam boiler. Webster 3d.

crown tree; crown. A piece of timber set on props to keep them in place. Fay.


crown's foot. A clavelike tool used to withdraw broken rods from a borehole. See also screw bell; spiral worm. Nelson.


crub. A bulldozer blade that follows the wheel or ladder of a ditching machine to clean and shape the bottom. Nichols.


crubble. Frangible earthy peat or peaty soil. Nelson.

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erump; bump


crozzle. a. To shrivel or cake with heat; to crozzle. a. Shriveling. b. Term used in Derbyshire for caking coal. Tomkeieff, 1954.


crucible. a. Crucible furnace. The hearth of a blow furnace, cupola, or open hearth; a refractory vessel for melting or calcining metals, ores, etc. Bureau of Mines Staff.

crucible assay. See assay; lead button. Nelson.

cruckles. Ball clays that are relatively refractory, rather than producing clays that will withstand high temperatures. CCD 6d, 1951.


crude asphalt; crude pitch. Raw asphalt as it is obtained. Mersereau, 4th, p. 206.

crude intermediate. A naturally occurring mixture, consisting primarily of hydrocarbons, usually with traces of sulfur, nitrogen, or oxygen compounds.

crude liquid. Petroleum in the crude state. See also crude.

crude mineral oil. Crude petroleum.

crude ore. a. Raw petroleum as it comes from the earth. Mersereau, 4th, p. 198. b. A bitumen of liquid consistency, comparable in volatile content, principally of hydrocarbons, usually with traces of sulfur, nitrogen, or oxygen compounds.

crude oil. a. Oil petroleum. A naturally occurring mixture, consisting primarily of hydrocarbons, and/or sulfur, nitrogen, and/or oxygen derivatives of hydrocarbons, which is removed from the earth in liquid state capable of being so removed. ASTM D288-57.


crude shale oil. The oil obtained as a distillate by the destructive distillation of oil shale. ASTM D50.

crude sulfur; brimstone. Elemental sulfur that is 99.0 to 99.9 percent pure and is not altered or prepared. BuMines Bull. 630, 1965, p. 903.


crude tar bases. Mixtures of those constituents of coal tar which can be extracted from the lower boiling distillates by distillation. Contains essentially of basic compounds of the pyridine series. Bennett 2d, 1960.

crump; bump

Ground movement, perhaps violent, due to failure under stress of ground surrounding underground workings, particularly in Arkell deposits or seams, phenol, pyridine, indene, coumarone, naphthalene, and crude mica. The crude crystals or books as extracted from crozzling coal. Tomkeieff, 1954.

crude mineral oil. Crude petroleum. Fay.


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See also bump. Pryor, 3.
crumpled ball: Highly irregular, crumpled-up masses of laminated sandstone, 5 to 25 centimeters across, flattened and bulging up from the bed on which they lie, to form a pile of stubble balls which have smooth surfaces. Pettijohn.

crumpled mud-crack casts: Sand fillings (of mud cracks) that display playmud deformation or crumpling produced by adjustment of fillings to compaction of enclosing mud matrix. Pettijohn.

crass: A gradual settling of the measures having been crushed together during or into the floor. A variation of creep. Fay.

crush a. A general settlement of the strata above a coal mine due to failure of pillars; generally accompanied by numerous local falls of roof in mine workings. Fay. b. A species of fault in coal. Fay. c. Breakage of supports of underground workings under roof pressure. Pryor. 3. d. A casting defect caused by a partial destruction of the mold before the metal was poured. ASM Gloss.

crushability: The relative ease of crushing a sample under standard conditions. B.S. 3552, 1962.

crush belt: A belt of intensely crushed rock.

crush border: A microscopic granular texture sometimes characterizing adjacent fossil particles in consequence of their having been crushed together during or subsequent to their crystallization. Fay.

crush brecia: A breccia produced by the shearing of rocks along a fault. Fay. b. A breccia formed essentially in situ by cataclasis. S. 22; cataclasite; crush conglomerate. A.G.I.

crush bursts: Rock bursts in which there is actual failure at the face of movement of the walls. Higham, p. 208.

crush conglomerate: a. A conglomerate produced by the crushing of rock strata in the shearing often accompanying folding. Standard, 1964. b. Similar to a fault breccia, but the rock fragments are more rounded in a crush conglomerate. A.G.I.

crush dress: A process of using steel rolls to form or dress the face of grinding wheels to any desired contour. ACSG, 1963.

crush gravel: The product resulting from the artificial crushing of gravel with substantially all fragments having at least one face resulting from fracture. ASTM C125-66.

crush gypsum: Gypsum subjected to a primary crushing operation. ASTM C11-60.

crush steel: A metallic abrasive made from high carbon and crushable sheet steel specifically treated to impart brittleness. It is then crushed to sizes ranging from 2 to 200 mesh. After screening, each batch is heat treated and separated into 25 sizes ranging from 20 to 200 mesh. AIME, p. 19.

crush stone: a. The product resulting from crushing or grinding of rocks, boulders, or large cobblestones, substantially all faces of which have resulted from crushing, grinding. operation. ASTM C125-66. b. Term applied to irregular fragments of rock crushed or ground to small sizes. Also called broken stone. Bu Mines Bull. 650, 1965, p. 865.

crush vein: A mineralized zone or belt of crushed material. The crushing was caused by folding or faulting. Fay.

crush: A machine for crushing rock or other materials. Among the various types of crushing devices are: jaw, gyratory, cone, hammer, and tube mills. Fay. Hus.

crush and blend operator: In the coke products industry, one who prepares coal for cooking by mixing coal of various compositions and cooking it in mechanical blending and crushing plant. D.O.T. Supp.

crush feeder: In quarry industry, one who feeds broken rock into crusher after it is dumped from trucks or cars, by pushing it down a chute with a shovel or bar, or by pushing it directly into crusher from a platform. Also called crusher loader; laborer, crusher; stone breaker; trap man. D.O.T. Supp.

crush foreman: A foreman who supervises workers engaged in unloading, transporting, crushing, and grinding ore. Oversees activities, such as unloading of ore from cars into bins, discharging of ore from bins onto conveyors to crusher, crushing of ore to designated size, selection of ore by mechanical samplers, and transportation of ore by elevators and belts to various bins or storage areas. D.O.T. Supp.

crush loader: A general term used to designate workers performing any one or a combination of unskilled tasks, concerned with crushing and grinding ore preparatory to concentration of metal. D.O.T. Supp.


crush man: a. In anthracite and bituminous coal mining, one who operates a crusher through which large coal is run to break it into smaller sizes. D.O.T. 1. b. In quarrying, one who operates a crusher through which broken quarry rock is run to break it into crushed stone for construction work. D.O.T. 1.

crush opener: In the concrete products and construction industry, one who operates an electric, gasoline, or steam-powered rock-crushing machine that may be provided with wheels to sift the material and with a hose system to wash it. D.O.T. 1.

crush rolls: In the concrete products and construction industry, one who operates a rock-crushing machine that may be provided with wheels to sift the material and with a hose system to wash it. D.O.T. 1.

crush rolls: A machine consisting of two heavy rolls between which ore, coal, or other mineral is crushed. Sometimes the rolls are toothed or ribbed, but for ore their surface is generally smooth. Fay.

crush roll: Shell Oil Co.

crush-run stone: Rock that has been broken in a mechanical crushe and which has not been subjected to any subsequent screening process. Taylor.

crush setting: set. The distance between roll faces of a crushe. In the case of jaw and roll crushers, the setting controls the maximum size, and to some extent the grade of the product produced. The best setting is usually that which produces 10 to 15 percent of over-
crushing test

Typical ranges of value for some ceramic materials are:

- Fireclay: 14,500 pounds per square inch
- Fireclay refractories: 2,000 to 5,000 pounds per square inch
- Common building bricks: 2,800 pounds per square inch
- Engineering bricks, Class A: 10,000 pounds per square inch
- Sintered alumina: above 50,000 pounds per square inch

**crush** test. a. A test of the suitability of stone to be used for roads or building purposes; a cylindrical specimen of the stone to be used for roads or building purposes; a specimen of 1 inch in diameter and 1 inch long, subjected to axial compression in a testing machine. **G.T.D.** b. A radial compressive test applied to tubing, sintered-metals bearing, or other simive products for determining radial crushing strength (maximum load in compression). **A.S.M. Gloss.** c. An axial compressive test for determining quality of tubing, such as soundness of weld in welded tubing. **A.S.M. Gloss.**

**crush line.** A line along which rocks, under great compression, yield, usually with the formation of schistosity. **Fay.**

**crush movement.** Compression, thrust, or lateral movement tending to develop schistosity. **Fay.**

**crush zone.** A zone of faulting and brecciation in rocks. **Fay.**

**crust.** a. A hard layer on the surface of softer material. **A.G.I. Supp. b.** The outer layer of the earth, originally considered to overlie a molten interior, now named in various ways: Lithosphere, sial, mantle, material above the Mohorovicic discontinuity, tectosphere, etc. Commonly used in a figurative and an imprecise sense. **A.G.I. Supp. c.** The outer shell of the solid earth, the lower limit of which may be defined in various ways. According to one definition, the crust would be considered to be of the order of 19 miles (30 kilometers) to 31 miles (50 kilometers) thick. Sometimes the term crust is used synonymously with sial, in which case the crust is about 19 miles (30 kilometers) thick under those portions of the continents near sea level, about 31 miles (50 kilometers) thick under the higher mountain ranges, and absent under the Pacific Basin. The term was originally based on the idea of an outer solid crust resting on a liquid substratum. A.G.I. d. Shrop. A fine-grained white sandstone. **Fay.**

**crustal instability.** Synonym for tectonism. **A.G.I.**

**crustal plate.** A portion of the earth's crust beneath an oceanic or continental region. **A.G.I.**

**crustation.** A thin mineral deposit coating rock or forming a film on pools of standing water. A crustation is often composed of calcite. **A.G.I.**

**crust fracture.** An extended fracture in the earth's crust. **Fay.**

**crustification.** a. The layering of crusts of different minerals deposited successively on the walls of a cavity. **Bateson. b.** Suggested for those deposits of minerals and ores that are in layers or crusts and which, therefore, have been deposited from solution. **A.G.I.**

**crustified banding.** A structure of certain vein fillings resulting from a succession and often times a rhythmic deposition of crusts of unlike minerals upon the walls of the open space. **Schieferdacker.**

**crustified vein.** A vein which has been filled with a succession of crusts of ore and gangue. **Fay.**

**crust movement.** An extensive movement of the earth's crust. **Fay.**

**crust of the earth.** a. The exterior shell of the earth. Synonym for earth's crust. **Schieferdacker. b.** That part of the earth lying above the Mohorovicic discontinuity. **A.G.I.**

**crust stone.** A fragile, flaky crust of calcite, or of other minerals, covering portions of the earth's crust. **Fay.**

**crust sress.** Pressure within the rocks of the earth's crust. **Fay.**

**crust tension.** Twisting stress in the earth's crust. **Fay.**

**crust.** A short heading excavated into the face of a coal seam; the breaking or drifting across the strata, or from one deposit to another. **Nelson.**

**crutch.** See crook. **Arkell.**

**crust. N. Staff.; Som.** A road or heading driven in coal measures, turned from a level, etc. Bureau of Mines Staff.

**cure.** Sound made by rod of metallic tin when bent. **Pryor. 3.**

**cryo-; cryo-; cryo-.** Combining form from the Greek kryos meaning icy cold. It is used to indicate cold or freezing. **Webster 3d.**

**cryogenic.** a. Referring to conditions of or characteristic of cryogenic periods. **Fay.**

**cryogenic period.** An informal designation for a time interval in geologic history during which large bodies of ice occurred at or near the poles and the climate of the earth was generally suitable for the growth of continental glaciers. **A.G.I.**

**cryogenic.** Referring to conditions existing in normally nonfluorescent materials in the cryogenic period. **Fay.**

**cryohydrate.** a. A salt that contains water of crystallization only at a low temperature; for example, a eutectic mixture of salt and water. **Calc.**

**cryoturbation.** a. Pertaining to the effects of frost on rocks. **Fay.**

**cryosphere.** All of the earth's surface that is permanently frozen. **A.G.I.**

**cryospension.** A term used for the formation including frost heaving. **A. G. I. Supp.**

**cristal.** Combining form from the Greek kryos meaning icy cold. It is used to indicate cold or freezing. **Webster 3d.**

**cryptolithionite.** A colorless fluoride of lithium, sodium, and aluminum, LiNaAlsF6, Isometric. **Fay.**

**cryptoexplosion structure.** a. A structure of like vein fillings resulting from a succession and often times a rhythmic deposition of crusts of unlike minerals upon the walls of the open space. **Schieferdacker.**

**cryolithionite.** A colorless fluoride of lithium, sodium, and aluminum, LiNaAlsF6, Isometric. **Fay.**

**cryolithoidite.** A colorless fluoride of lithium, sodium, and aluminum, LiNaAlsF6, Isometric. **Fay.**

**cryogenite.** A. Salt that contains water of crystallization only at a low temperature; for example, a eutectic mixture of salt and ice. **Hach.**

**cryolite.** Sodium-aluminum fluoride, Na3AlF6; compact, granular. Colorless to red-brown. Mohs hardness, 2.5; white streak; specific gravity, 2.97. Contains 54.3 percent fluoride and 12.9 percent aluminum. Of outstanding value in furnaces for melting at low temperature. **Pryor. 3.**

**cryolite.** Sodium chloride, NaCl; compact, granular. Colorless to red-brown. Mohs hardness, 2.5; white streak; specific gravity, 2.97. Contains 54.3 percent fluoride and 12.9 percent aluminum. Of outstanding value in furnaces for melting at low temperature. **Pryor. 3.**

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cryptoflorosence

to be the result of meteoric impact. Synonym for cryptovolcanic structure. A.G.I. Supp.
cryptoflorosence. Term for soluble salts that have crystallized in the interior of a day building product and are therefore hidden. Dodd.
cryptophotic. a. Having a graphic structure of intergrowths that is so small that it cannot be resolved by a microscope. Standard, 1964. b. Denoting a texture of rocks that is so fine that the individual constituents cannot be distinguished under a microscope. Usually the result of a crypto-crystalline intergrowth of quartz and feldspar. A.G.I.
cryptophytic. A gray ammonium fluosilicate, (NH₄)₂SiF₆. Also called cryptohalite. Thorpe.
cryptographic. a. Having a graphic structure of intergrowths that is so fine that the individual constituents cannot be distinguished under a microscope. Usually the result of a crypto-crystalline intergrowth of quartz and feldspar. A.G.I.
cryptogamous deposit. A mineral deposit of supposed magmatic origin developed in surroundings which do not reveal in any way its relationship to a body of eruptive parent rock. Schiefersedecker.
cryptomagnetic. A fine-grained rock, the constituents of which are not determinable microscopically. Synonym for kryptomere; aphanitic. Investigations of supposed magmatic origin developed in surroundings which do not reveal in any way its relationship to a body of eruptive parent rock. Johannsim, v. 1, 2d, 1939, p. 182.
cryptoperthite. A submicroscopic lamellar intergrowth of potassic and sodic feldspar. The lamellae are detectable only by means of X-ray diffraction or an electron microscope. See also perthite. A.G.I.; Webster 3d.
crypto-perthitic. Relating to or using a crystal. Webster 3d.
crypto-silicic. Intergrowths of potassic and sodic feldspar. The surfaces of contact are compatible. The lamellae are detectable only by means of X-ray diffraction or an electron microscope. See also perthite. A.G.I.; Webster 3d.
crypto-silicic. A crystal which is characterized first by its definite internal molecular structure and second, by its external form. Fay, b. The regular polyhedral form, bounded by plane surfaces, which is the outward expression of a periodic or regularly repeating internal arrangement of atoms. A.G.I. c. A body formed by the solidification under favorable conditions of perfectly crystalline elements or compounds, or an isomorphous mixture and having a regularly repeating internal arrangement of atoms such a body that has natural external plane face, as a result of the internal structure. Webster 3d. d. Quarts that is transparent or nearly so and that is either colorless or only slightly tinged. Also a piece of this material. Also called rock crystal. Webster 3d. e. A colorless transparent diamond. White granite of superior quality and often with ornamental cutting. Synonym for flint glass. Also a piece of this material. Webster 3d. f. As an adjective, consisting of or resembling crystal. Synonym for crystalline; clear; transparent. Relating to or using a crystal. Webster 3d.
crystal aggregate. A number of crystals grown together so that each crystal in the group is large enough to be seen by the unaided eye. Each crystal is more or less perfect. In gemmology it differs from a crystal aggregate, as a homogenous gem stone can be cut only from an individual crystal of a crystal aggregate. Same as crystal group. Shiple.
crystal analysis. The study of the arrangement of atoms, ions, or molecules in crystals, chiefly by X-ray methods aided by the theory of their possible grouping in space. Hess.
crystal axes. Imaginary lines passing through a crystal in important symmetry directions, intersecting in the origin at the center of the crystal. The axes are usually three in number, and they are chosen to act as a frame of reference by means of which the relative positions of the crystal faces can be described. Anderson.
crystal axes. A reference axis used for the description of the vectorial properties of a crystal. There are generally three non-coplanar axes, chosen parallel to the edges of the unit cell of the crystal structure so as to be parallel to symmetry directions if possible. A.G.I.
crystal bar. Hafnium produced by the van Arkel and de Boer process. Thomas.
crystal bar process. See iodide process. Thomas.
crystal bar process. See iodide process. Thomas.
crystal boundaries. The surfaces of contact between adjacent crystals in a metal. Anything not soluble in the crystals tends to be left at the boundary, while the solubility in the crystals boundary, in the absence of this, the boundary between two similar crystals is simply the region where the crystal structure changes. C.T.D.
crystal casts; crystal imprint. Fillings of cavities left by solution or sublimation of crystals embedded in fine-grained sediment. See also ice crystal marks; ice crystal casts. Pettijohn.
crystal chemistry. The study of the factors that determine the forms in which solids crystallize, and the relations between the properties of solids and their structures. A.G.I.
crystal class. One of the 32 crystallographically possible combinations or groups of symmetry operations that leave one point, or origin, fixed. A.G.I.
crystal defects. Irregularities in a lattice structure that affect resistance to corrosion. Microdefects are due to irregular distribution of ions, whereas are inclusions or strain areas or discontinuities in an otherwise regular lattice. Mosaic defects are orderly blue regions of lattice that are packed together to form a larger and imperfect particle. Pryor, 3.
crystal detector. A detector that depends for its operation on the deflecting action of the surface of contact between certain crystals and crystalline chondrite

(as of galena) and a metallic electrode. Webster 3d.
crystal diamagnetism. The abnormal ratio of magnetization to the magnetizing force responsible for it, as observed in some crystals, such as those of bismuth. A.G.I.
crystal faces. One of the several flat or plane exterior surfaces of a crystal. See also crystal. Long.
crystal flotation. The act or process of float- ing of lightweight crystals in a body of magma. Opposite of crystal settling. A.G.I.
crystal form. The form or shape in which crystals occur: the cube, the octahedron, and others. Shiple.
crystal habit. The crystal habits are described as prismatic (long to needle shaped), tabular to platy and scaly (micaeous). Intergrowths are given by specific descriptions. Pryor, 3.
crystal impurities. See crystal casts. Pettijohn.
crystal indices. Numbers or other representations which indicate the inclination of a crystal face to the horizontal or vertical. A.G.I.
crystal, crystallo-. Combining form meaning crystal. Webster 3d.
crystal lattice. a. The regular and repeated three-dimensional arrangement of atoms that distinguishes crystalline solids from all other states of matter. Essentially the regularity displayed by a crystal lattice is that of a three-dimensional mesh which divides space into identical polyhedra. Imagine a number of identical atoms placed at the intersections of such a mesh; then we have what is known as a single lattice (synonymous with Bravais lattice). A.G.I.
crystallography. Relating to crystals or crystallography. Webster 3d.
crystalliferous. Producing or bearing crystals. Webster 3d.
crystalline. a. Made of crystal. Webster 3d. b. Resembling crystal. Webster 3d. c. Of the nature of or relating to a crystal. Composed by crystallization. Having a regular arrangement of the atoms in a space lattice. Opposite of amorphous. Having the intermolecular structure, though not necessarily the external form, of a crystal; for example, granite is only crystalline, but a quartz crystal is perfectly crystalline. Webster 3d. d. Crystalline rock is composed of crystals or fragments of crystals. Webster 3d. e. Transparent, clear, or pure. Long.
crystalline aggregate. An aggregate of crystals grains or fragments, such as granite, not showing well-defined crystal forms. Foy.
crystalline chondrite. A hard, crystalline stony meteorite of breccite and olivine with firm chondri breakings with the mass. Hess.
crystalline enstatite-anorthosite

**crystalline enstatite-anorthosite.** Chondrite. In a hard, crystalline stony meteorite of enstatite, anorthosite, and nickel-iron with firm, round, radial chondri that break with the edges. Fay.

**crystalline form.** The external geometrical shape of a crystal. C.M.D.

**crystalline fracture.** A fracture of a polycrystalline material characterized by a grainy appearance. Contrast with fibrous fracture. ASM Gloss.

**crystalline glass.** A glaze containing macroscopic crystals. ASTM C242-60.

**crystalline grains.** Minute crystals or crystalline particles which compose fibrous crystalline aggregates. Shipley.

**crystalline granular texture.** A primary texture due to crystallization from a fluid (aqueous) medium. Examples are rock salt, halite, gypsum, and anhydrite. A.G.I.

**crystalline limestone.** A marble formed by the recrystallization of sedimentary limestone strata. As the result of recrystallization, the calcite grains composing the limestone are enlarged in size and the enlarged calcite crystals become mutually interlocking. Crystalline limestone or marble is either the product of metamorphism or of diagenesis of sedimentary limestone strata in most instances. See also marble. Bureau of Mines Staff.

**crystalline material.** Same as crystal material. Shipley.

**crystalline quartz.** A term used to distinguish all the varieties of quartz which are not cryptocrystalline, such as rock crystal, amethyst, smoky quartz, rainbow quartz, tiger eye, etc. Shipley.


**crystalline schist.** A rock that has been entirely or partly recrystallized by metamorphism. It is named after its predominant mineral, for example, chlorite schist, hornblende schist, mica schist, etc. Standard, 1964.

**crystalline solution.** Synonym for solid solution. Webster 3d.

**crystalline tonstein.** This type tonstein contains very fine, prismatic or tabular kaolinite crystals and may be either light or dark in color according to the proportion of contained carbonaceous matter. Occasionally granular kaolinite may also be recognized. The crystals lie embedded in either a finely crystalline or cryptocrystalline kaolinite groundmass. IHCP, 1963, part 1.

**crystalline metamorphism.** A molecular change which renders an amorphous mineral body crystalline; as, limestone converted to marble. Fay.

**crystallinity.** a. The degree of crystallization exhibited by an igneous rock; expressed by such terms as holocrystalline, hypocrystalline, holohyaline, etc. Holmes, 1926. b. The quality or the state of being crystalline; the degree of crystallization. Webster 3d.

**crystallite.** a. A general term for a minute body that does not react to polarized light. Examples in glass are spherulites in glassy volcanic rocks; for example, globulite, longulite, magarite, trichite, and other forms of incipient crystallization that cannot be referred to a definite mineral species. Holmes, 1926. b. A small, rudimentary or embryonic crystal that is not referable to a definite mineral species. Fay. c. A minute, minute grain. There is no room for doubt that the common crystalline schist contain much of this type. A.G.I.

**crystallization.** a. The formation of mineral crystals during the cooling of a magma or by precipitation from a solution. Bateman. b. The process through which crystals, phases separate from a fluid, a viscous, or a dispersed state (gas, liquid solution, or rigid solid). Holmes, 1920. c. The process of crystallizing. A form of body resulting from crystallizing. Webster 3d.

**crystallization differentiation.** a. Magmatic differentiation by the separation of crystals from the magma. Bateman. b. A process of fractional crystallization in which an originally, theoretically homogeneous melt, such as a magma, splits up into a number of phases which may eventually constitute separate bodies of different kinds of rocks (magmas differentiated). Shipley of Mines Staff.

**crystallization interval.** a. The interval of temperature (or less frequently, pressure) between the formation of the first crystal and the disappearance of the last drop of liquid from a magma on cooling. It usually excludes the late-stage aqueous fluids. A.G.I. b. More specifically, when referring to a given mineral, the range or the ranges of temperatures over which that particular phase is in equilibrium with liquid. In the case of equilibria along reaction lines or reaction surfaces, crystallization interval, as such, has no meaning. Temperature ranges in which certain solid phases are actually decreasing in amount with decreasing pressure are termed inhomogeneous conditions. Webster 3d. A.G.I.

**crystallization magnetization.** Chemical magnetization. A.G.I. Supp.

**crystallization schistosity.** Fissility resulting from crystallization or by precipitation from a solution, or rigid solid. Webster 3d. c. A characteristic of this textural type is that the essential constituents are simultaneous crystallizations and are not formed in sequence, so that each may be referred to only as an inclusion in all the others. Johansen, v. 1, 2d, 1939, p. 207.

**crystalloloblastic texture.** a. The texture of metamorphic rocks which have recrystallized under conditions of directed pressure, elevated temperature, and high viscosity in contrast to igneous rocks in which successive crystallization of minerals occurs under conditions of relatively low viscosity and nearly uniform pressure. A.G.I.; Holmes, 1920. b. This texture is correlated with a mode of origin in which every individual crystal exerted its own force of crystallization against a resistance offered by the enclosing medium and its constituent competing crystals. Bureau of Mines Staff.

**crystallogenic.** Name under which Apsey Pellatt patented his cameo encrustations or porcelain reliefs and cameos enclosed in glass. Haggar.


**crystallogenesis.** The production or formation of crystals. Webster 3d.

crystallogram. A photographic record of a crystal structure obtained through the use of X-rays. Webster 3d.
crystallographic. Relating to or dealing with crystallography and crystals. For example, crystallographic textures and crystallographic axes. Webster 3d.
crystallographic axes. Three axes intersecting at right angles, the vertical one being the X-axis and the two horizontal ones the Y and Z. The position of a crystal face is defined by the ratio of its intercepts with these axes. Pryor, 3.
crystallographic direction. Refers to directions in the various crystal systems which correspond with the growth of the mineral and often with the direction of one of the faces of the original crystal itself. Shipley.
crystallographic discolorations. Bands of lighter or darker shades of the basic color of the block of mica. Such bands generally are parallel to the crystallographic faces of the crystal from which the block was separated. Skow.
crystallographic notation. A concise method of expressing the relationship of any crystal face to the axes of reference in the crystal. C.T.D.
crystallographic planes. Any set of parallel and equal spaced planes that may be supposed to pass through the centers of atoms in crystals. As every plane must pass through atomic centers and no centers may be situated between planes, the distance between successive planes in a set is fixed in relation to the arrangement of atomic centers. C.T.D.
crystallographic system. Any of the major units of crystal classification, embracing one or more symmetry classes. C.T.D.
crystallographic texture. Any texture in which the crystallographic properties of the host mineral control the distribution of mineral inclusions or veins. This texture may be the result of replacement as well as exsolution. Many types are included, such as lamellar, triangular, etc. Schieferdecker.
crystallography. a. The science of the inter-atomic arrangement of (solid) matter, its cause, its nature, and its consequences. A.G.I. b. The study of the crystal and of crystallographic phenomena, and the application of these phenomena to the study of the physical, chemical, and mechanical properties of minerals. A.G.I.
crystallochemical. Designating a type of orrocks in which early phenocrysts form the nuclei of the orbiculores. Schiefer- decker.
crystallography. The process of crystallization. Fay.
crystal material. Any substance possessing crystal structure but no definite geometric form visible to the unaided eye. Also known as crystalline material. Shipley.
Crystalon; Crystolon. Silicon carbide product; used for refractory and abrasive purposes. Bennett 2d, 1962.
crystal optics. The science which treats of the transmission of light in crystals. Fay.
crystal pattern. A space lattice of a crystal structure. Hauth's Chem. Dict.
crystal properties. Optical include color, streak, luster (submetallic, vitreous, resinous), diaphaneity transparency, (tranc- lucence, opacity), refractive index, polarizing quality. Physical include hardness, measured on Mohs' scale; cleavage, characterized by appearance of cleavage plane along which crystal breaks most readily and cleanly; fracture (even, conchoidal); tenacity (brittleness, elasticity, flexibility); specific gravity; paramagnetic, diamagnetic; dielectric constant, etched patterns or figures on corrosion. Pryor, 3.
crystal recovery. The recovery of the original properties in a crystal that has been distorted by stress resulting from continued relief from stress; the speed of deformation. G.S.A. Memoir 6, 1938, p. 106.
crystal rectifier. A point contact between a metal and a crystal (such as copper and galena), or between two crystals (such as zincite and bortite). It has marked unidirectional conductivity. C.T.D.
crystals. a. Geometrical forms, with plane faces, of infinite variety, assumed by the majority of minerals. Weed, 1922, b. Trade term for fourth grade diamonds; colorless diamonds. Hess.
crystal sandstone. A Precious stone; a sandstone with a high percentage of quartz; the internal surfaces of which are coated with a layer of quartz. Ford.
crystal texture. The size and arrangement of the individual crystals in a crystalline mass. C.M.D.
crystal tuff. a. An indurated deposit of volcanic ash dominantly composed of intra- telluric crystals blown out during an volcanic eruption. The term should be restricted to tuffs containing more than 75 percent by volume of crystals. See also tuff. A.G.I. b. The ash and lapilli usually are broken euhedra of the common phenocrysts of the lava, and they may be sheathed in an envelope of glass. Shipley.
crystal-vitic tuff. Tuff consisting of 50 to 75 percent of crystal fragments and 25 to 50 percent of glass fragments. A.G.I. Supp.
cryostahl. Crystal modification of quartz which is formed by heating the clay silica bodies at temperatures above 1,100° C.; it increases the thermal expansion and decreases the danger of crazing. Rosenthal.
Crystalon. A trade name for silicon carbide, SIG. AIME, p. 18.
crystallographic directions. Relating to the geometric properties of crystals and crystal structures. Webster 3d.
crystallographic. Relating to or dealing with crystallography and crystals. Webster 3d.
crystallographic. Relating to or dealing with crystallography and crystals. Webster 3d.
crystallographic. Relating to or dealing with crystallography and crystals. Webster 3d.
culvert. A covered channel, or a pipe of
Cumberland method of mining. See top
cumengeite. A light indigo-blue oxychloride
cumulative curve. A curve relating the total
cumulative float curve. The curve obtained
cumulative sink curve. The curve obtained
cumulative plot. Graphic representation of
cumulite. Proposed by Vogelsang for a type
cup and cone. A machine for charging a
cup and cone fracture. See cup
cupellation process. A process for freeing
cupel dust. A powder used in purifying
cup and cone. A copper alloy containing 99.4 per-
cup. a. Sheet metal part, the product of the
cumulative error. Noncompensating, bias due
cumulative float curve. The curve obtained
cumulative frequencies (us and swell). Per-
cumulative plot. Graphic representation of
cumulative frequencies (us and swell). Per-
cumulative error. Noncompensating, bias due
cumulative sink curve. The curve obtained
cumulophyric. Applied to glomeroporphyritic
cumulo-voicano. Synonym for cumulo dome.
cumulo-voicano. Synonym for cumulo dome.
cumulite. Proposed by Vogelsang for a type
cup coral. A solitary coral, as
cup and cone fracture. See cup
cupeller. One who refines gold and silver in
cupferron. A colorless crystalline salt, CuH(N

culture tube
cupping
cuppy fracture. A condition occurring in 
cupric oxide. Tenorite, when found in na-
cuprite; ruby copper ore; red oxide of copper.
cuproapatite. A variety of apatite from Chile 
cuprodacloizite. A green to greenish-black 
cuprojarosite; kuprojarosit. A variety of me-
cupromagnesite. A mineral resulting from the alteration of 
calcium, aluminum, and sodium, as mall 
blue grains from Vesuvius. Named from 
a supposed relation to rivale. Spencer 15, 
M.M., 1952.
cuproplumbite. Sulfide of lead and copper, 


curie. a. Som. The floor of an underground 


cury
curl 292

sized curl 292 by helium-ion bombardment of plutonium 239. Named for Pierre and Marie Curie. The only known valence is 3; symbol, Cm; specific gravity, about 7.1. Very hard. See also Handbook of Chemistry and Physics, 45th ed., 1964, p. B-108. This very rare metal has been isolated in the form of small quantities from neutron-irradiated americium during work on atomic-energy projects. The metal was prepared by reduction of curium fluoride (CmF₃) with barium metal vapor at 1,275°C. Bureau of Mines Staff.


curled bedding. See curved bedding. Pittijohn.


curling. An enamel defect similar to crawl-

curly coal. Coal which has a curly or con-

current bedding. Webster 3d.

current cross ripple. One of the ripples that are formed only if the action of the cur-

are used to deflect the air from the entries into the working rooms and are used to hold the air along the faces. They are usually made of a number of overlapping strips of heavy fabric or plastic which should be of fireproof or fire-resistant ma-

tial. Also called check curtains. Ken-

duick, p. 62. See also blasting curtain. c. Synonym for cover. Long. d. A thin sheet of dripstone hanging from the ceiling or projecting from the wall of a cave. Schie-

ferdecker.

curled arch. An arch of refractory brick-

work that supports the wall between the upper part of a gas producer and the gas uptake. Dodd.

current drain; intercepting drain. A drain that is placed between the water source and the area to be protected. Nichols.

current hole. Synonym for cover hole. Long.

current of coal. In Western Pennsylvania, a thin pillar left in lieu of timbers for sup-

port. It also has the advantage of being a permanent wall and thus assists in di-

recting ventilation. Fay.

currents. Darkened areas in the ground coat enamel, presumably as a result of a boiling or blistering condition during the ground coat firing and often showing a bronzed coating and an added Cring. Sometimes called "loops" or "looping." Enam. Dict.

curved wall. A nonbearing wall built out of two columns or piers for the enclosure of a building but not supported at each story. ACSG.

curritucke. A crystalline hydrocarbon, in composition corresponding to C₃₉H₇₈. It is found in a form of greenish deposits from a hot spring in California. Tomkeieff, 1954. a. A discredited term equal to idri-


curvature, earth (correction fee). An adjust-

ment applied to a long line of sight in the computation of difference in elevation. Atmospheric refraction partially compensates for earth curvature. Hence, corre-

rection tables take both curvature and refrac-

tion into account. A.G.I.

curvature of gravity. A vector quantity cal-

ulated from torsion-balance data indicat-

ing the shape of the equipotential surface. It is perpendicular to the direction of the longer radius of curvature. A.G.I.

curvature value. Quantity, determined by the torsion balance, that is related to the sec-

dond derivative of the gravity potential with respect to the horizontal coordinates. Schieferdecker.

curve. A smooth bend in a mine roadway or railway. See also haulage curve; vertical curve. Nelson.

curved brakes. A caliper or suspended post type of brake for winding or other en-

gines. The two brake shoes are curved to the brake path and anchored near the center line of the drum. Nelson.

curved discharge trough. A short curved sec-

tion of trough used on the discharge end of a shaker conveyor which is located alongside the unloading surface of the conveyor. It permits discharge of the coal with a minimum of spillage. Jones.

curved fault. The fault surface is curved.

curved fracture cleavage. The cleavage planes in graded beds that cut across the strike of the bed and curve to a more diagonal direc-

tion in the upper finer parts of the bed. The curved fracture cleavage is convex
curved jib

A chain coal cutter jib with the outer end bent upwards or downwards through 90°. Thus, the machine can make a curved jib or a vertical cut in one operation. Curved jibs make coal preparation easier but their use is limited due to the excessive strain and wear on the cutter chain. See also multicut chain. Nelson.

curved line

One which changes its direction constantly; that is, no part of the line is curved. Jones, 2, p. 81.

curved ripple marks

Ripple marks with crests which appear curved or crescentic in plan view. Pettijohn.

curved-tube manometer

This is a modification of the inclined tube manometer. The tube is curved in such a form that it is possible to have approximately equal spacing of the divisions on a velocity or flow scale. This gauge, while retaining the advantage of increased sensitivity at low differential pressures common to the inclined type, enables a wider range of flow measurements to be made with one setting of the instrument. It can be supplied with a different type of quantity scale and the pressure scale being the most universal in its application. Roberts, 1, p. 28.

curve grease

A grease adapted for use on railroad curves. Porter.

curve resistance

This resistance may be taken from one-half to 1 pound per ton per degree of curve for that part of the train on the curve. The degree of curve is found by dividing 5,730 by the radius of the curve in feet, since 5,730 is the radius of a 1° curve. Lewis, p. 213.

curvette

A horn or a graben structure. A.G.I. Supp.

curvilinar fault

A fault with a curvilinear displacement in the fault plane. Schierdecker.

cusec

A unit of water flow or airflow and equals 1 cubic foot per second. See also modified Atkinson formula.

cusellite

Light-colored varieties of biotite-augite porphyry containing abundant phenocrysts of hornblende and a few phenocrysts of the manganese-iron minerals in a feldspathic groundmass; from Cusel, Saar in Germany. Holmes, 1928.

cusps

A. A series of naturally formed mounds of alluvial material. Schieferdecker. B. A structure, and (perhaps) lost tailings. Pryor, 3.

custom mill; custom ore

Ore bought by a mill or smelter, or treated for customers. Hess.

custom plant; custom mill

A mill, concentrator, or smelter which receives ore or partly processed mineral for treatment in terms of an appropriate contract, priced on tonnage, complexity of operation, permissible losses, and specification of feed, product terms of an appropriate contract, priced on tonnage, complexity of operation, permissible losses, and specification of feed, product.

cut-and-fill stoping

The term cut-and-fill stoping implies a series of operations: (1) breaking a slice of ore from the back; (2) removing the broken ore; and (3) introducing filling. BuMin Bull. 390, 1936, p. 10.

cutback asphalt

Asphalt to which is added a solvent to make the asphalt transportable and to permit its use for various purposes, for example, as a binder of an aggregate of stones and gravel in roadbuilding operations.

cutback products

In roadbuilding, petroleum residues which have been fluxed with distillates. Bureau of Mines Staff.

cutback: scot

An incline on which first in a round to provide additional free faces for the subsequent rounds. Gordon. 1964, sec. 6. Depth to which material is to be excavated (cut) to bring the surface to exposed lode. See locust. 2. To lower an existing grade, for example, floor cut, horizontal cut, pyramidal cut, burnet cut, etc. Beer- man, q. S. Afr. The term is used for machine stoping of reef and for intersecting a reef. Beer- man. r. To lower an existing grade. Nichols. s. An artificial depression or hollow, or cut out, in the surface. Custom mill; customs mill. A mill which makes coal ready for shipping and for various purposes on a solvent to make the asphalt transportable and to permit its use for various purposes, for example, as a binder of an aggregate of stones and gravel in roadbuilding operations. (1) breaking a slice of ore from the back; (2) removing the broken ore; and (3) introducing filling. BuMin Bull. 390, 1936, p. 10.

cutback asphalt

Asphalt to which is added a solvent to make the asphalt transportable and to permit its use for various purposes, for example, as a binder of an aggregate of stones and gravel in roadbuilding operations. (1) breaking a slice of ore from the back; (2) removing the broken ore; and (3) introducing filling. BuMin Bull. 390, 1936, p. 10.
cut coal

cut coal are used. Fay.
cut coal. Scot. In stook-and-room working, coal cut on two sides, the angle of each to just meet. Fay.
cut gears. Gears with machine-cut teeth as distinguished from cast gears. Gropin.
cutinite. A variety of cutinite. The microstructure of cutinite coal. This type coal consists of more cutinite. a.
cutina. Waxy layer formed on outcrop walls of cut holes. a.
cutoff. a. In firing a round of shots, a misfire. b. In blasting, a failure of an explosive to discharge or to carry out its intended function. Pryor.
cutoff. a. The first hole or group of holes drilled and fired as to break out a leading part of coal. Also called cutoff machine man. D.O.T. 1.
cutoff entry. An entry driven to intersect another and furnish a more convenient outlet for the coal. Also called cutoff. See also entry, b. Fay.
cutoff. a. The act or process of removing a part of a whole or of breaking something into separate parts. b. The part that is removed. See also cutting edge, b. Long. c. The tool used in cutting glass. ASTM C162-66. k. The tool used in cutting glass. ASTM C162-66. l. The tool used in cutting glass. ASTM C162-66. m. The tool used in cutting glass. ASTM C162-66. n. Applied to cutting glass, as the Gloster-getter; Anderton shearer.
cutoff entry. A. In the stonework industry, one who operates an abrasive sawing machine to cut off the ends of slabs of stone, marble, granite, and other materials. Also called cutoff wheel. A thin abrasive wheel for severing material is severed from the original mass by means of a cutting ring, at the end of the suction hose. The cutterhead pipe serves to maintain an optimum ratio of water to slurry by means of passing knives, wires; or similar means. Pryor, 3.
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cutter, machine 295

off or for making slot; such wheels generally have an organic bond. Dodd.

cutting oils. Any of the heavy oils or combinations of oils used as metal lubricants in machining operations. The term does not properly include those watery solutions used merely for cooling effect. A cutting-out piece. A short length of trench timbering which can be sawed out to facilitate striking of the timbering. Ham.

cutting point. Synonym for cutting edge. See also cutting edge, a. Long.

cutting prices. Gr. Brit. The main item in a coal miner's payroll. It gives the payment rate for cutting, winning, and loading the coal, as so much per ton or per cubic yard of coal seam worked. See also seam structure. Nelson.


cuttings. a. The particles of rock produced in a borehole by the abrasive or percussive action of a drill bit; excess material caused by the rubbing of core against core or core against steel; erosive effect of the circulating liquid; or evaporation from the bearings. Also called boring; drill cuttings; drillings; sludge. Long. b. The fragmental rock samples broken or torn from the rock penetrated during the course of drilling. A.C.I. c. Eng. See holmes. SMRB, Paper No. 61. d. See bug dust, Mason.

cutting sand. Is composed of sharp, solid quartz grains and is used as the abrasive for sawing stone. It is usually ungraded and about equivalent to a No. 1 sandblasting sand. AIME, p. 15.

cutting shoe. A wedge at the bottom of tubing in casing sinking to assist penetration in soft ground. Nelson.

cutting shot. Ark. A shot put in beside a cutting so as to blast some coal into it and shatter the coal beyond for aid in making the next cutting. See also shot. Fay.

cutting size. Synonym for set diameter. Long. cutting speed. a. The linear or peripheral speed of relative motion between the tool and workpiece in the principal direction of cutting. ASM Glas. b. Synonym for feed rate. Long.

cutting stones. Diamonds set in a bit face having points or edges that will be in contact with and will cut or abrade the rock when drilling. Compare cutting edge; reaming stones. Long.

cutting table. Mechanical unit upon which the severing or slicing of a clay column is carried out. ACSG, 1963.

cutting tip. The part of a cutting torch from which gas issues. ASM Glas.

cutting tools. See tool tip, Dodd.

cutting torch. See torch, ASM Glas.

cutting wheel. A cutting disk, the edge of which is impregnated with an abrasive, such as diamond dust or aloxite. It is rotated at high speed and used to cut rock specimens into suitable sections for microscopic inspection after polishing. Pryor, S.

cutting tools. a. Plastic clay used for making tobacco pipes. A cutty pipe is a short tobacco pipe, also known as a cutty, that is used to hold an English ball clay that was formerly used for making tobacco pipes. Dodd.

cutting tool. See tool tip, Dodd.

cut-work man. One who burns roofing
cuvette. a. Fr. A bowl or basin of pottery.

Cuyuna. The name of an iron range in Minnesota.

C-wave. Synonym for coupled wave.

CVR Abbreviation for century of 100 years.

Cyamite. Trademark for an ammonia nitrate spray gun. Also called cyanamid.

cyanklaion. A process of extracting gold and silver ores with a weak solution of sodium cyanide, which readily dissolves these metals. The process is used to precipitate gold and silver from the gangue (waste material). L.C. 6d, 1961.

Cyanide. a. A compound of cyanogen usually containing 35 percent nitrogen. Fay.

cyanide alkaline. A process of extracting precious metals.

cyanide digestion. A process of extracting gold and silver from ores with a weak solution of sodium cyanide, which readily dissolves these metals. The process is used to precipitate gold and silver from the gangue (waste material). L.C. 6d, 1961.

cyancobalamin. A compound of cyanogen usually containing 35 percent nitrogen. Fay.

Cyanide. a. A compound of cyanogen usually containing 35 percent nitrogen. Fay.

cyanoformate. A yellowish-orange, water-soluble, poisonous gas, (CN)2, obtained by heating mercuric cyanide; it is decomposed by light and is stable to cold water.

Cyanine. a. A univalent radical; (CN)-. Webster 3d.

cyanogen. a. Univalent radical; CN; present in hydrogen cyanide and in other simple and complex cyanides (as ferrocyanides). Webster 3d.

Cycadofilidales. A phylum of Gymnosperms including Cycadiales (extinct), and Cycadales (recent); found in coal. Bureau of Mines Staff.

Cycadophytes. A phylum of Gymnosperms having both fernlike and cycadlike assemblages, including the three great groups, Cynogeniales (extinct), Benetitiales (extinct), and Cycadiales (recent); found in coal. Bureau of Mines Staff.

cycle. a. N. Eng. The complete sequence of events required to get coal. T. The time of one complete repetitive cycle of a periodic or cyclical process. Two alternations in alternating electric current. Mason. d. The sequence of events required to prepare one or more processes. Mayer. e. An operation of a number of events which when completed, starts the same series of events over in the same order. Thus a mechanical refrigeration cycle consists of condensation, expansion, evaporation, compression, and expansion. Strock, 10. f. A series of changes occurring at different times or in different places. A series of events. A series of changes that occur not necessarily leading back to the starting point. Webster 3d.

Cyclohexane. A series of changes, a series of events. A series of changes that occur not necessarily leading back to the starting point. Webster 3d.

Cyclic. a. Having to do with a cyclic or periodic process. B. Having to do with a cyclic or periodic process. B.
cycle, igneous

C162-66. 1. A cycle is the complete sequence of values of a periodic quantity that is repeated. A.G.I.

cycle, denudation. The alternate uplifting and wearing down by erosion, together constituting a cycle of denudation; from base level back to base level. Compare cycle of erosion. A.G.I.

cycle of erosion. The complete series of changes or stages through which a landscape passes from the inception of erosion on a newly uplifted or exposed surface through its dissection into mountains and valleys to the final stage when it is worn down to the level of the sea or some other base level. The cycle is usually subdivided into youthful, mature, and old-age stages. One type or many types of erosion may be involved, and the landforms produced and destroyed depend to a large extent on the climate, geographic situation, and geologic structure of the landmass. Stokes and Barnes, 1933. b. In more general usage, a cycle of erosion is a series of events or values of a periodic quantity. Dependin on how many individual parts are involved, they are called trigles (3), fourings (4), sixings (6), and eightings (8). Fay.

cycle of erosion. See shoreline cycle. Schifferdecker.

cycle of operations. In mining operations, such as tunnel driving, shaft sinking, and coal winning, there are certain tasks which must be repeated in cyclic fashion. In tunnel driving, they are (1) drilling the round; (2) charging and firing; (3) loading; and (4) supporting and track construction. This cycle of operations is time analyzed to achieve maximum efficiency and speed. For longwall face work, see cycle of face operations. Carson, p. 46.

cycle of sedimentation. A. A sequence of related processes and conditions repeated in each cycle of sedimentation or sedimentary deposit. A.G.I. Supp. b. The cycle of sediment formation, transportation, and deposition. A.G.I.

cycle of sedimentary rock. An instrumental phenomenon occurring in acoustic velocity logs. Very briefly, it consists of intervals where the velocity recorded drops sharply to very low values and, equally sharply, returns to a normal scale figure. Such a log is spiky. Wyllie, pp. 144, 182.

cycle time. The time required for the dipper of a mechanical shovel to push through the bank and fill, swing to the haul unit, unload, and swing back to the digging position. Cycle time is established under standard conditions of a 90° angle of swing and with an optimum depth of cut. Carson, p. 46.

cycle. Applied to any action or process that after going through a certain course, or accomplishing a definite order of changes, begins again the same course or order, and so on, until some new influence stops or changes the action. Fay.

cycloidal tooth. A type of gear tooth not now in common use. The side of the tooth is machined with a compound curve as distinguished from the involute tooth which has a circular form. A.G.I.
cycloidal test. See in batch tests of small quantities of ore during development of method of concentration, the reduction of selected fractions (usually middlings) for admixture with fresh samples. Purpose is to study effect of reclaiming minerals or solutions which they may have contaminated; also to observe effect of increased concentration of such compounds on the process as a whole. Pryor, 3.

cycle twinned. Composed of parts which appear to have been alternately revolved 180° upon nonparallel twinning planes. Depending on how many individual parts are involved, they are called trigles (3), fourings (4), sixings (6), and eightings (8). Fay.

cycling. The process of injecting gas, from which condensable liquids have been removed, into an oil field gas reservoir in order to maintain reservoir pressures and thus prevent retrograde condensation and loss of such liquids. In recycling, the stripped gas is injected repeatedly and the recovered vapors are extracted or stripped on the surface. A.G.I.

cyclic test. In batch tests of small quantities of ore during development of method of concentration, the reduction of selected fractions (usually middlings) for admixture with fresh samples. Purpose is to study effect of reclaiming minerals or solutions which they may have contaminated; also to observe effect of increased concentration of such compounds on the process as a whole. Pryor, 3.

cyclone. a. Refers to the conical-shaped apparatus used in dust collecting operations and fine grinding applications. In principle, dust is discharged through an outlet at the top. The heavier particles move to the wall of the cyclone and are eventually discharged at the bottom. The lighter coal particles are swept towards the central vortex and are discharged through an outlet at the top. The washed may be used for cleaning coal up to three-fourths of an inch. The cyclone is normally de-slaged at about 0.5 millimeter before cleaning. The separating medium is water and ground magnetite, the bulk of which is recovered and returned to the circuit. A 20-inch cyclone has a feed capacity of about 50 tons per hour of coal sized between one-half inch and one-half millimeter. See also centrifugal separation. Nelson.

cyclone angle. Included angle of conical section of hydrocyclone. Pryor, 3.

cyclone classifier. A device for classification by centrifugal means of fine particles suspended in water, whereby the coarser materials are collected at and are discharged from the apex of the vessel, while the finer particles are eliminated with the bulk of the water at the discharge orifice. B.S. 3552, 1962.

cyclone dust collector. An apparatus for the separation by centrifugal means of fine particles suspended in air or gas. Nelson.

cyclone furnace. A forced circulation heat treatment furnace. The gas circulates at the rate of 176 feet per minute. The furnace is designed to operate at a maximum temperature of 760° C. and is either gas fired or electrically heated. Osborn.

cyclone overflow. Cyclone mixture, a fine classified fraction, which leaves via vortex finder of hydrocyclone. Pryor, 3.

cyclone underflow. A coarser sized fraction which leaves via apex aperture of hydrocyclone. Pryor, 3.

cyclone washer. Cyclone washing of small coal originates from the Netherlands. Cyclone washers are used for cleaning coal. Cyclone washing of small coal is now in universal use. Crispin.

cycloidal tooth. A type of gear tooth not now in common use. The side of the tooth is machined with a compound curve as distinguished from the involute tooth which has a circular form. A.G.I.
cycloidal test. See in batch tests of small quantities of ore during development of method of concentration, the reduction of selected fractions (usually middlings) for admixture with fresh samples. Purpose is to study effect of reclaiming minerals or solutions which they may have contaminated; also to observe effect of increased concentration of such compounds on the process as a whole. Pryor, 3.

Coal occupied the day shift, and the afternoon shift was responsible for moving the conveyor and roof supports to the new location of the face. See also conventional machine mining; conventional mining. Nelson.


Cyclone washing of small coal originates from the Netherlands. Cyclone washers are used for cleaning coal. A very powerful explosive, 2.5 times as powerful as TNT. CCD 6d, 1961.


cyclone agate. An eye agate with but one cyc. Shipley.

cyclone steel. Steel produced by blowing iron-
cyclothem. A series of beds deposited during a single sedimentary cycle of the type that prevailed during the Pennsylvanian period. The cyclothem, which ideally consists of 10 members (in western Illinois, the fifth member is a coal layer), includes an unstable coastal environment in which marine submergence and emergence occurred. A cyclothem ranks as a formation in the scale of stratigraphic nomenclature. A.G.I.
cyclothes. A particle accelerator in which charged particles receive repeated syn-
chronized accelerations or kicks by elec-
trical fields as the particles spiral outward
from their source. The particles are kept in the spiral by a powerful magnet. LBL.
cylinder. In hydraulic systems, a hollow
cylinder of metal, containing a piston,
piston rod, and end seals, and fitted with a
port or ports to allow entrance and exit
of fluid. L&L.
cylinder bushing. Different bore-size metal
sleeves replacing the liners in a pump
pressure cylinder, thereby changing pump
delivery. A cylinder bushing with high vol-
ume to a higher pressure with lower volume,
or vice versa. Compare pump Long.
cylinder clearance. The volume remaining
between the head of a piston and the end
of the enclosing cylinder with the piston
at the end of the stroke. In steam engines
the clearance is the lineal distance be-
tween the piston and the cylinder head.
Long.
cylinder cuts. In cylinder cuts the blasting
is directed towards an empty hole in
such a way that as the charges in the
first, second, and subsequent holes deto-
nate, the broken rock is thrown out of the
cut. The opening is successively and
uniformly (cylindrically) enlarged in its
cylinder displacement. The volume swept
out of a cylinder in one working stroke
of the piston. Long.
cylinder graduated. a. A carefully gradu-
atcd glass cylinder used for measuring the
volume of liquids in the laboratory. Shell Oil Co. b. It is used in sedimentary
petrography in particle-size analyses for
determining the settling times and the
equivalent spherical diameters of micro-
scopic and submicroscopic (collodial)
mineral particles suspended in a fluid
medium that are settling according to
Stokes law. The fluid medium is usually
water or a dilute aqueous solution. Bureau
of Mines Staff.
cylinder liner. A replaceable tubular insert
lining the pressure cylinder of a piston
pump or the cylinder of a reciprocating
cylinder man. One who takes lime bricks
ead blocks in steam-pressure cylin-
ders to hasten chemical reaction of
cylinder oil. Mixture of mineral oil with 5
to 15 percent of natural or vegetable oils.
Crison.
cylinder penetration test. This is similar to the
California bearing ratio test originally
developed by Porter in 1938 for the de-
design of highway pavement thickness,
but is used in particular relation to sta-
bilized soils. Ham.
cylinder process. A process for manufacture
of a tin molten glass is blown and drawn into the form of a
cylinder, which is subsequently split longi-
itudinally, reheated in a flattening kiln,
and flattened. ASTM C162-66.
cylinder wheel. A wheel with a comparatively
cylindrical large hole, typically several
inches in height, used in surface grinding
where work is ground to one side rather
than the peripheral surface of the wheel. ACGS, 1963.
cylindrical grinding. Grinding the outer sur-
face of a part that rotates on centers or in
a chuck. See also index feed. ACGS, 1963.
cylindrical land. Land having zero relief.
ASM Glass.
cylindrical map projection. A map projection
produced by projecting the geographic
meridians and parallels onto a cylinder
which is tangent to (or intersects the)
surface of a sphere, and then developing
the cylinder into a plane. A.G.I.
cylindrical mill. Same as tube mill. Stotes,
n. 1, p. 583.
cylindrical screen feeder. One type of feeder
for plastic clay. It consists of a vertical
cylindrical screen through which clay is
forced by blades fixed to a vertical shaft
that rotates within the cylinder. This
machine not only screens but also mixes
and shreds the clay. Dodd.
cylindrical structures; sandstone pipes. Ver-
rall.
cylindroconical drum. A combination of a
cone and a cylinder. The ascending rope
is wound on the larger cylindrical
portion of the enclosing cylinder, and as
the engine reaches full speed after accelleration
the rope is wound on the larger cylindrical
part. For deep shafts the rope is wound
back on itself for the last part of the hoisting p-riod, thus reducing the width
of the drum. Lewis, p. 244. See also bi-
cylindrical drum.
cymogene. This term is archaic and should not be used. ASTM D288-57.
cymoid loop. The splitting of a vein along
its dip or strike into two branches, both
of which curve away from the general
trend and then unite to resume a direc-
tion parallel to but not in line with the
original trend. See also cymoid structure.
A.G.I.
cymoid structure. A vein, or a vein-shaped
structure, shaped like a reverse curve. See
also cymoid loop. A.G.I.
cymophane. Synonym for cats-eye. See
chrysoberyl. Dana 17.
cyrinite. A blackish lead-gray, sulfostan-
ting tin thiosilicate of lead, PbSbSn4-
SbS4. In cylindrical forms separating
under pressure into distinct shells or folia.
cyrillocanical drum. A combination of a
cone and a cylinder. The ascending rope
is wound on the smaller diameter of the
cone at first, and as the engine reaches
full speed after acceleration the rope
is wound on the larger cylindrical
part. For deep shafts the rope is wound
back on itself for the last part of the hoisting p-riod, thus reducing the width
of the drum. Lewis, p. 244. See also bi-
cylindrical drum.
cyrotolite. A yellowish to brownish mineral
containing carbonates or metallic hydro-
compounds of lead. It is often found in
nodule form, and is characteristic of each
crystalline sub-
group. Heard.
cyst. A pocket lined with epithelium that is
perforated. See also perforation. Webster
3d. a. Abbreviation for cystic duct. Webster 3d. b. Abbreviation for cystic
cystic duct. Webster 3d.
cysteine. A straight-chained amino acid con-
taining sulphydryl groups. See also thiol.
variant. Webster 3d.
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taining sulphydryl groups. See also thiol.
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variant. Webster 3d.
cystine. A dipeptide of cysteine and glycine.
See also dipeptide. Webster 3d.
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See also dipeptide. Webster 3d.
...
daily report

for the mine. See also manpower deployment chart. Nelson.
daily report. See boring journal. Fay.

Dakota WC3. An aircraft equipped for car-
daily report. See boring journal. Fay.

Dakotan. Lower Upper Cretaceous. A.G.I.

dalk. See dauk. Arkell.
dale. Dalmation-type of coast. A drowned .ongi-
dam. a. A barrier to keep foul air or water,
damaging stress. The least unit stress, of a
damaged-ground rent. Eng. Usually double
agricultural rent for land occupied by en-
gine, headstead, shops, houses, railways, etc.
damaged. See also land. Fay.
damaged-ground rent. Eng. Usually double
agricultural rent for land occupied by en-
gine, headstead, shops, houses, railways, etc.
damaged stress. The least unit stress, of a
is required in the condition of service, that will render a
member unfit for service before the end of its normal life. It may do this by pro-
ducing excessive set, or by causing creep, to occur at a temperature, or by caus-
ing fatigue cracking, excessive strain hard-
ing, or rupture. Ro.
damask. The surface of a watered surface pro-
duced on polished (welded) steel by cor-
rosion. Fay.
damnification. Synonym for contragradation,
A.G.I.
damkernite. An igneous dike rock from the
Fe region of jisite. Contains 52 percent pyroxene, 23 percent biotite, 16 percent
neptine, 6 percent epidote, 6 percent
orthoclase, 4 percent magnetite, 2 percent
saltite, 2 percent calcite, and 1 percent
damourite schist. A schistose metamorphic
rock composed largely or entirely of da-
mourite. Fay.
damouritization. The process by which the
feldspars and other aluminous silicates of a rock are transformed into damourite
G. Damour. Ordinarily referred to as sericitization. Holmes, 1928.
damp. Any mine gas, or mixture of gases,
particularly those that decrease oxygen.Damp
is probably derived from the German
damp, meaning a fog or vapor. See also
damp after: black damp; choke damp; fire-
damp; stink damp; white damp. Nelson.
damp course. A course or layer of impervious
material in a wall or floor to prevent the
entrance of moisture from the ground or
a lower course by capillarity. A.C.G.
damped. Eng. Soffsogated by gas or foul air
in a mine. Fay.
damped balance. Has magnets or air dash-
paders. A. A mechanical modulating de-
vice used to reduce deleterious effect of
sharp lines etched on gages. Daniels.
dampen. a. A mass of metal, or a short-z. r-
dampener. a. A mechanical modulating de-
vice used to reduce deleterious effect of
sharp lines etched on gages. Daniels.
damper. a. A mass of metal, or a short-circu-
te device used for damping out torsional vibration in an
engine crankshaft, the energy of vibration
being dissipated frictionally within the
damper. G.D. d. A method of frictional modu-
lating device. See also damper, a. Long.
damper man. In the coke products industry,
a laborer who regulates the step-up of pipes
leading to coke ovens. D.O.T. 1.
damping. a. In seismology, a resistance,
contrary to friction, independent of the nature
of the contacting surface. Being propor-
tional to the speed of motion, it diminishes
with the latter to nothing. Schieferdecker.
b. A form of damping, damping acts to
decrease the amplitudes of success-
ive free vibrations. Damping may result
from internal friction in the system,
from air resistance, or from mechanical
or magnetic absorbers. A.G.I. Compare
attenuation.
damping capacity. The ability of a metal to
absorb vibration (cyclical stresses) by in-
ternal friction, converting the mechanical
energy into heat. A.S.M. Gloss.
damping constant. In damped seismographs
this term is by definition equal to one-half
the ratio of the damping resistance (force per
unit velocity) to the critical damping, the
sum of the frequencies of a. A.G.I.
damping down. In pyrometallurgy, reduction
of air supply to a furnace, to lower temper-
ature or reduce working rate. Pryor, 3.
damping factor. The ratio of the damped
and the undamped frequency of a seismo-
graph or seismometer. A.G.I.
damping ratio. a. The damping ratio for a
system with viscous damping is the ratio
of actual damping coefficient to the crit-
ical damping coefficient. H.B.C. b. The ratio of two equiphase peak amplitudes
within one period of a damped seismograph
or seismometer. The ratio is always greater
than unity since the greater amplitude is
divided by the succeeding amplitude.
A.G.I.
damping ropes. A term sometimes applied to
rubbing ropes. Nelson.
dam plate. In a blast furnace, the cast-iron
plate which supports the dam or dam stone
in front. See also dam. Fay.
dampproof. Scot. An instrument invented by
Professor Forbes, Glasgow, for detecting
firedamp. Fay.
dampproofing. The treating of a wall with some
impervious material to prevent moisture
from oozing through. Critpin.
damp sheet. S. Staff. A large sheet placed
for water. C.T.D. c. An airtight barrier to
prevent hunting. It is also sometimes
used to reduce deleterious effect of
sharp lines etched on gages. Daniels.
dam plate. In a blast furnace, the cast-iron
plate which supports the dam or dam stone
in front. See also dam. Fay.
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dam plate. In a blast furnace, the cast-iron
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dancer rolls

of travel of coiled strip through a pickling bath in continuous operations. Osborne.


danger board. A barrier erected by any employee to denote a dangerous condition, usually marked "DANGER" and which can only be removed at an official's direction. B.C.I. b. (Scot.) A employee from a rotating mandrel. ASTM C162-66.

danger signal. A signal consisting of a board, shovel, or other material with appropriate markings thereon, placed in front of a room or area containing an explosive mixture of fire. Also, a placard to indicate the location of dangerous machinery, electric wires, explosives, mine openings, etc. Fay.

danger signal. A statement in fluid dynamics: the velocity of flow of a liquid through a porous medium due to difference in pressure is proportional to the pressure gradient in the direction of flow. Webster 3d. b. Applies to the velocity of the percolation of water in saturated soil. It is the product of the coefficient of permeability and the hydraulic gradient. Ham.

Darcy's law. a. A statement in fluid dynamics: the velocity of flow of a liquid through a porous medium due to difference in pressure is proportional to the pressure gradient in the direction of flow. Webster 3d. b. Applies to the velocity of the percolation of water in saturated soil. It is the product of the coefficient of permeability and the hydraulic gradient. Ham.

darcy. A unit of porous permeability in physics equal to the permeability of a medium through which the rate of flow of a fluid having one centisace viscosity under a pressure gradient of one atmosphere per centimeter would be one cubic centimeter per second per square centimeter cross section. Compare Darcy's law. Webster 3d.

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or induced by cosmic rays. Examples of the former include the dating of ancient bones from the known rate of deposition of water when exposed to ground water, and the dating of glass from its degree of devitrification. Nuclear methods have been particularly valuable for dating because the rates of such processes remain unchanged within the range of the errors of our measurements. By measuring the quantity of helium or of lead in uranium-bearing minerals, the age of the substance, or at least the length of time that the substance has existed as a solid deposit, may be calculated. By inference, this same measurement applied to the oldest igneous rocks gives an age for the earth. C.CD 6, 1961.


glassers. Lanc. Men who work underground, and are paid by the day; not contractors.

day. Fay.

daylight. A hydrous silicate of boron and calcium, CaB(SiO₃)₂(OH); usually in crystals; monoclinal. The mineral is used as a golf. So.1962, Jan. 17.

datolite group. f group of minerals, the species of which usually resemble Arkelii-
silicate, H₂R₂O₄; or R₂K(²SiO₃); R² = Ba, Be, Fe, chiefly; R² = Boron, 2H₂O₂; stout fibers forming all the ytrrium (and cerium) metals. All of the minerals of this group crystallize in the monoclinic system. Fay.

datum, a point, line, or surface with reference to which positions (as elevations) are measured or indicated (as a permanent mark) in leveling or mean sea level in a topographical survey. Specifically, the mean low-water mark of all tides assumed as a basis of reckoning but not admitting rigorous scientific determination. Webster 3d.

datum level. The level (usually mean sea level or the mean level of the nearest considered body of water) from which all altitudes are measured in surveys. Weed, 1922.

datum plane. A horizontal plane used as a reference from which to reckon heights or depths. H.G.C.

datum water level. The level at which water is first struck in a shaft sunk on a reef or deposit. Fay.


dather element. The element formed when another element undergoes radioactive decay. The latter is called the parent. The daughter may or may not be radioactive. C.CD 6, 1961.

dather products. Decay products of freshly produced and isolated uranium. When all daughter elements are present in the same amount, no further change takes place in the quantity of daughter elements. The substance is then in equilibrium. Ballard.

dash; dawk; dook. Eng. Tough; compact; sound.

daytime. A term for the part of the day during which the sun is up. A coal mine employee might work during the daylight.


Dauichine law. The law governing a twinning condition in the hexagonal system commonly shown by quartz in which two right-hand or two left-hand crystals are symmetrically related one another 180° about the twinning axis. Hess.

Dauichine twin. See Dauichine law. Hess.

Dauichine test. See velocity of detonation. decahydrous. A rock consisting essentially of brown hornblende which is paramorphically after pyroxene, the alteration of other minerals, such as feldspar, being small. Holman, 1928.

davidite. A moderately to strongly radioactive mineral containing titanium, iron, rare earths, uranium, vanadium, and chromium; usually in brown to brownish-black. Found in pegmatites associated with quartz, biotite, ilmenite, rutile, iron, and copper sulfides. Also found in hypersthene gabbro and anorthosite accompanied by scapolite, quartz, calcite, molybdenite, rutile, sphere, and tourmaline; it is obvious that the mineralization was introduced into the basic rocks by emanations from underlying granites. This is the only known occurrence of primary uranium minerals in basic rocks. One of these is the Old Carlin ore. Hess.


davis cutter bit. A diamond core drill similar to the diamond core drill except that the annular groove is cut either by a steel chisel or by a plain hollow rod using chilled shot.

Davis core drill. A rotary drill except that the core is broken off and brought to the surface. Nelson.

davis cutters. An annular-shaped, sawtooth-like bit used on shot drills to cut core in soft formations in which shot is ineffective as a cutting medium. Also called Davis diamond.

davis furnace. A long, one-hearth reverberatory furnace, heated by Suiton furnace, for roasting suitable rocks.

davis magnetic tester. An instrument for testing the magnetic content of ores and for checking the efficiency of wet magnetic separators recovering magnetite and ferro-
silicon in heavy-media processes. It consists of an inclined glass tube set between the emulated poles of a powerful electromagnet or permanent magnet. The ore sample is introduced, and water-filled tube and agitated to insure thorough washing of the separated magnetic. The unit is continuously rated, but the usual average consumption of 220 watts, the motor drive being one-
twentieth of a horsepower. Nelson.

davisite. A white hydrous phosphat e of cal-
cium and aluminum, 3CaO·Al₂O₃·2P₂O₅·5H₂O; stout fibers forming botryoidal crusts. Probably hexagonal. From Fairfield, Utah.


Davist kiln. The word Revergen is based on the names of the Reveres, Long. The word Revergen is said to be derived from the Reveres, Long.

day drift. An adit, drift, or tunnel ending at the surface. Fay.

day eyes. In Wales, inclined planes driven from the surface to the coalfield. Fay.

day fall. See crop fall. Fay.

day hole. Any heading or level in a mine communicating with the surface. Fay.

day level. Scot. A level driven from the surface; an adit. Fay.

daylight. a. Synonym for day shift. Long. b. When an underground mine is working on the surface it is said to be daylight. Long. c. The maximum clear distance between the pressing surfaces of a hydraulic press with the surfaces in their usual open position. Webster 3d. Where a bolster is supplied, it shall be considered the pressing surface. See also shut height.

daylight lamps. Artificial daylight lamps are either ordinary lamps, but with a special blue glass casing, or are blue glass cased lamps. Considerable use of these lamps is made in the enameling industry for such work as matching colors, checking production ware against standard color samples, etc. Many plants and laboratories have standardized on daylight lamps for all lighting equipment. This is particularly valuable on dark or cloudy days. Hansen.

daylight mine. Scot. A mine or drift extending to the surface. In a coal mine employee paid by the day as distinguished from those paid by the piece, or by contract. Also called common.

daylight pair. Corn. Miners who work underground during the day shift. Fay.


day stones. Loose stones on the surface. Arkel.

Humphrey Davy in 1815 for the protection of coal miners. Its safety feature is the inclusion of the flame to keep it from coming in contact with mine gas. Fay. See also flame safety lamp; safety lamp.


davit; davista. A colorless to white, transparent, vitreous to nearly silicate and carbonate of aluminum and calcium of uncertain composition but near cassiterite. Hess.

dawling. Derb. A failing ore body, both in quality and quantity. Fay.

dawsonite. A basic carbonate of aluminum and sodium, Na₂(CO₃)₂·2Al(OH)₃, occurring in thin incrustations of white radiating bladed crystals. Fay.

dawn producer. A furnace used for the manufacture of producer gas. Fay.

day. a. A term used to signify the surface; for example, day drift, day face, therefore to the surface. Fay. b. The surface of the ground over a mine. Fay. c. The day shift in the Derbyshire coalfield, ore that is nearest the surface. Fay. d. Applied to coal or any useful rock found at or very near the surface. Fay. e. T. K. Tomképe, 1954, e. In mining, generally a period of 8 hours for work on the three-shift system, or 24 hours if referring to the output or to machinery. C.T.D.

day coal. The topmost stratum of coal; so called from the sun nearest to daylight. Standard, 1964.

day shift. An adit, drift, or tunnel ending at the surface. Fay.

daytime. A term for the time of day distinguished from nighttime. Fay.

day work. A mine or drift except that the surface is standardized. Fay.

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daylight pair. Corn. Miners who work underground during the day shift. Fay.

dead line 303
dead day. A periodic melting unit, usually de-
gined to be emptied by each day of hand

gathering. ASTM C162-66.
day wage. A fixed rate of wages per shift, of
so that the mine employees to the amount of
work done. The day wage system applies to
men which is not amen-
able to piecework. Nelson. Also called day-
work; company work. Pryor, 3.
day water. Surface water. Webster 2d.
day tank. A periodic melting unit, usually de-

Abbreviation for direct current. BuMin

d (direct chill) casting. A continuous method

which the men are paid by the month.

roads, handling cars, etc. Also called com-

signed to be emptied by each day of hand

work performed by daymen. Fay.
dazed. Eng. Timber that is decayed is called
dazzling white heat. Division of the color

scale, generally given as above 1,540° C

(2,800° F). Bureau of Mines Staff.
db. Abbreviation for decibel. BuMin Style

dcc. Direct current for direct current. BuMin

dc (direct chill) casting. A continuous method

of making ingots or billets for sheet or

extrusion by pouring the metal into a short

mold. The base of the mold is a platform

that is gradually lowered while the metal

solidifies, the frozen shell of metal acting

as a retainer for the liquid metal below the

wall of the mold. The ingot is usually cooled

by immersion of water directly on the mold or

on the walls of the solid metal as it is lowered.

The length of the ingot is limited by the depth to

which the platform can be lowered; therefore,
it is often called semicontinuous casting.

BuMin Glass.

DCL fusion-cast refractory. A fusion-cast re-
fractory, for example, glass tank block,

made by a process that largely eliminates

the cavities liable to occur as a result of

shrinking during cooling; the mold is

L-shaped and is tilted while it is being

filled so that the shrinking cavities concen-

trate in the smaller leg of the L (the lug),

which is then sawed off and dis-

carded. DCL = diamond cut lug, Dopp.

D-coal. A maceral made of substances which

predominate in the durainous bands of

coal. Applied to microscopic correlative con-

stituents, usually oxygen, from a corrosive

liquid by some chemical means, such as

controlled cooling, in order to develop the greatest

temperature above the critical range, holding at

that temperature, followed by very slow

cooling, in order to develop the greatest

possible commercial softness or ductility.

Oberme.

dead axle. A one that extends into solid coal

beyond the part that can be broken by the

same distance beyond other mine workings

into solid rock. Long, 1. The end of a drill-

ing line or cable made fast to some sta-

tionary part of the drill rig or to a dead-

man. Long, g. The closed end of a pipe or

pipe system. Long, b. A term used in coal

mining for the terminating of all electric wire

(except cables to equipment) out by lim-

iting circuit, or otherwise. Kentucky, p. 245.

i. A cut-de-sac. Synonym for blind heading.

B.S 3618, 1965, sect. 2. A. A passageway

blocked at one end. A. A passageway

blocked at one end.

defaded. Mercury which has become con-

taminated and will no longer amalgamate

freely with gold. Pryor, 3.

defaded mercury. See floured. Fay.

defall. A dumping platform at the mouth of


defead glacier. A stagnant glacier; a fossil gla-

acier. Fay.

defead ground. A. Rock in a mine that, although

producing no ore, requires to be removed

in order to get a productive ground. Fay.

b. A faulty or barren area of valuable strata.

Fay. c. Ground devoid of valuable mineral,

ore, or coal. Nelson. d. In mining subdi-

ground, ground that has settled and no

further movement is expected. Nelson. e.

Portions of ore deposit too low in value in

to repay exploitation. Pryor, 3. i. The part of

a lode where there is no ore. Gordon.


defeadhead. a. To return to the commence-

ment of a cut without excavating; usually

for the commencement of a new cut after

completion of its predecessor. Austin. b.

An extra length given to a cast object, as a

can, to put pressure on the molten metal

below so that dross and gases may rise to

it; a sullace piece; a sinking head.

Standard, 1964. c. That part of a casting

filling up the ingate; a sprue. Standard,

1964. d. Can. Logs forced into the bot-

tom of a waterway during timber drives.

Hoffman.

defeading. Traveling without load, except

for the dumping area to the loading

point. Nichol.

defeat hole. A. One that extends into solid coal

beneath the current work, to be kept free of

the maximum safe charge of explosive. Zern,

p. 668. b. A shothole so placed that its

width at the point at which the angles to the

drill hole, is so great that the heel is not strong enough to at least

balance the resistance at the point (toe). Zern,

p. 660. c. A shallow hole in an iron


defeading. Glou.: Som. Same as deadlock, a.

defeading. Decomposed chalk. Arkell.

defeading. A. A row of marked empty powder

cases or other danger signal charged with the

firebore to warn miners not to enter work-

ings containing gas. Fay. b. The part of


defair. a. The air of a mine when it con-

tains carbolic-acid gas (blackdamp), or

when ventilation is inadequate. Fay, b. Stag-


defeading. Heating steel to a tempera-

ture above the critical range, holding at

that temperature, followed by very slow

cooling, in order to develop the greatest

possible commercial softness or ductility.

Oberme.

defeade, a. A fixed shaft functioning as a

hinge pin. Nichol. b. A fixed shaft or beam

on which a machine is placed. Nichol.

defeade band. In flotation, the range through

which an input can be varied without initi-

ating response. Fuerstenau, p. 345.

defeade beds. Unproductive strata or veins as

opposed to bearing or quick beds. Also
called dead veins. See also deads; barren

bands.

defeade-dipping. The act or process of giving a

pale dead color by acid, as to brass. Stand-

ard, 1964.

defeade end. a. An entry, gangway, level, or

other mine passage extending beyond the

mine workings into solid coal or ore; a

stub. See also stub entry. Fay, b. Under-

ground chamber, or other block of coal

not holed through. Pryor, 3. c. Blind alley

underground. Pryor. d. The unworked end

of a drift or working. Hazz. e. An unventi-

lated underground mine passage extending

some distance beyond other mine workings

into solid rock. Long, 1. The end of a drill-

ing line or cable made fast to some sta-

tionary part of the drill rig or to a dead-

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ore, or coal. Nelson. d. In mining subdi-

ground, ground that has settled and no

further movement is expected. Nelson. e.

Portions of ore deposit too low in value in

to repay exploitation. Pryor, 3. i. The part of

a lode where there is no ore. Gordon.


defeadehead. a. To return to the commence-

ment of a cut without excavating; usually

for the commencement of a new cut after

completion of its predecessor. Austin. b.

An extra length given to a cast object, as a

can, to put pressure on the molten metal

below so that dross and gases may rise to

it; a sullace piece; a sinking head.

Standard, 1964. c. That part of a casting

filling up the ingate; a sprue. Standard,

1964. d. Can. Logs forced into the bot-

tom of a waterway during timber drives.

Hoffman.

defeadeheading. Traveling without load, except

for the dumping area to the loading

point. Nichol.

defeade hole. A. One that extends into solid coal

beneath the current work, to be kept free of

the maximum safe charge of explosive. Zern,

p. 668. b. A shothole so placed that its

width at the point at which the angles to the

drill hole, is so great that the heel is not strong enough to at least

balance the resistance at the point (toe). Zern,

p. 660. c. A shallow hole in an iron


defeadeing. Glou.: Som. Same as deadlock, a.

defeadeing. Decomposed chalk. Arkell.

defeadeing. A. A row of marked empty powder

cases or other danger signal charged with the

firebore to warn miners not to enter work-

ings containing gas. Fay. b. The part of
deadline

a block-and-tackle cable from the traveling block to the deadline anchor. Long, c. the unused part of a pipe system. Long.

dead anchor. The fixed point on a drill rig or deadman to which a deadline of a block and tackle is attached. Long.

dead load. a. The fixed weight of all permanent construction comprised in a building. Nelson. b. The downward pressure on a structure caused by gravity only, such as the weight of a layer of drill rods suspended from the sheave in a drill derick. Also called static load. Long. c. That of structure and its permanent nondynamic load. Also referred to as deadweight. Pryor, 3.

dead load. A lode not containing valuable minerals in paying quantity. Fay.

deadman. a. A wooden block used to guard the mouth of a mine against rock, pumice, etc. in Fay. b. A buried log, timber, concrete block, or the like serving as an anchor to which a cable or line may be attached. Long.


dead-mild steel. Steel containing 0.07 to 0.15 percent carbon. See also wrought iron. Nelson.

dead mild steel. Steel containing 0.07 to 0.15 percent carbon. See also wrought iron. Nelson.

dead mill. Trade term for pearl with lusterless or dead white appearance. Shipley.

dead plate. a. A nearly horizontal iron plate, at the mouth of the furnace under a steam boiler, on which the bituminous coal charges are laid to be partly coked before they are pushed upon the grate where their solid carbon is consumed. The gases evolved on the dead plate pass over the grate and are burned. Long. b. In automatic production, a stationary plate receiving a glass article awaiting transfer. ASTM C162-66.


dead rope. Aust. Same as buffer rope. Fay.

dead-soft. The state of metal which has been quietly in the ingot mold during solidification and which fails to respond to heat treatment. 304.

dead true. a. A core barrel or drill rod that does not oscillate or vibrate when rotated at high speed is said to be dead true. Long. b. Perfectly straight and centered. Long.

dead weight. Standing or still water. Webster 3d.

deadweight. a. The unrelieved weight of any inert mass; a heavy or oppressive burden. Webster 3d. b. As a modifier, denoting a weight of object or mass which a pulling line can be attached. Long.

deadweight. A work that is not directly productive—the removal of rock, debris, or other material which is not directly productive of coal—though it may be necessary for exploration and future production. Unfinished work. Fay; B.C.I. b. Unproductive or stone work; the handling of stone or dirt as a preliminary step to winning and working the coal seam. The aim is to keep the dead work per yard of face or ton of coal to the minimum practicable figure. See also unproductive development. Nelson. c. Work by of miner's work other than actual coal getting and transport. Mason. d. Work done by a contractor not provided for in his yardage or tonnage contract with the contractor. Mason. e. Exploratory or preparatory work, such as clearing falls of roof, removing rock, etc., during which little or no coal is secured. Hudson. f. The development of a mine when no ore is being raised. Gordon. g. S. Afr. Necessary work to reach and exploit the valuable portions of the mine. Shaft sinking, crosscutting, driving and driving. Mason. h. The weight of a vehicle or carrier itself as distinguished from carried or live load. Crispin. i. The difference, in terms of c.i.f. price, between c.i.f. and f.o.b. prices. Mason. j. The difference, in terms of f.o.b. price, between f.o.b. and c.i.f. prices. Mason. See also unproductive development. Webster 3d.

dead zone. That part of the mined strata which has completely settled down after subsidence. Bridge, 9.

dead coal. Term used among British miners for coal altered by an igneous intrusion. Tomkies, 1954.

dead ore. De-airing is most commonly practiced in dry-pressing, from casting slip, or from clay or body, from the moist powder in plaster during blending. There are various devices for de-airing machine operator. One who tends a machine that removes air bubbles and excessive moisture. From dry-pressing, it may be done by pressing, manipulating speed control and automatic clay feed control switches, levers, and valves. D.O.T. 1.

deal. a. Plank used in shaft and gallery construction. Fay. b. A board or plank of varying dimensions. In Canada, the standard size is 12 feet by 9 inches by 3 inches. In England, the maximum width is 9 inches, and the maximum thickness 3 inches. Standard, 1964.


dealer. An operator on the stock exchange who buys and sells on his own account and who makes his profit from differences in prices rather than from commissions. Hoos, p. 21.

dean. Corn. The end of a level. Fay.

debacle. a. A great rush of waters, which breaking down all opposing barriers, carries forward the broken fragments of rocks and spreads them in its course. Fay. b. A breaking up of ice in a river. A violent dispersion of disruption. Webster 3d.

de Bavay process. A method of froth flotation invented in 1904 in which a 40-mesh sand was deslimed, acid washed and conditioned with caster oil and paraffin before cascading flotation. Pryor, 3.

debitumenization. A, a slooted, floating clay block through which glass issues in the Fourcalt process. ASTM C162-66.

debublinization. Used by Lyrell and others and referring to the removal of volatile material from coal as a result of heat and pressure. Obisate. A.G.I.

deblanchol rotary furnace. A cylindrical refractory-lined shell, provided with a gas flue leading to a recuperator at one end, and a fuel and air port at the other. Air for combustion is preheated in the recuperator, and oil firing is adopted. The furnace may be used for melting gray iron and nonferrous metals; it is claimed to have many advantages, including simplicity, low cost, close control and speed of melting. Osborne.

deblooming. Masking the fluorescence of Shell Oil Co.

deblooming agents. Mononitronaphthalene and yellow coal tar dyes are sometimes used for deblooming. Shell Oil Co.

debris. a. Rock fragments, sand, earth, and sometimes organic matter, in a heterogeneous mass, as at the foot of a cliff. Fay. b. The silt, sand, and gravel that flow from hydraulic mines; referred to by miners as tailings, slums, and sometimes slickens. See who buys and sells on his own account. Fay. c. Any loose material removed by the action of erosion. Also see alluvial cone. Seely, 1.

debri, 1. A, a dirt-filled bar used for piling wall and chocks. See also sandbag. Nelson.

debri cone. A fan-shaped deposit of soil, sand, gravel, and boulders, built up at the point where a mountain stream meets a valley, or otherwise where its velocity is sufficiently reduced so that suspended material is deposited. See also alluvial cone. Seely, 1.

debri dam. A dam in a watercourse that retains sand and gravel. Hem.
debris deposits. Refuse from hydraulic mining operations. Fay.
debris slide. A small, rapid movement of large, loose material that slides or rolls downward to produce an irregular topography. Leet.
debrus. Plural of brus. Boulders, cobbles, boulders, or pebbles.
debris deposits. Refuse from hydraulic mining operations. Fay.
debris slide. A small, rapid movement of large, loose material that slides or rolls downward to produce an irregular topography. Leet.
debrus. Plural of brus. Boulders, cobbles, boulders, or pebbles.
debrus. A thin layer of debris.
debrus. Boulders, cobbles, boulders, or pebbles.
debrus deposits. Refuse from hydraulic mining operations. Fay.
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debrus. Plural of brus. Boulders, cobbles, boulders, or pebbles.
debrus. A thin layer of debris.
declining conveyor

ASA MHA-1-1938.

decimeter. An instrument, often self-regi-
tering, for measuring or recording the de-
ciliation of the magnetic needle. Standard,
1964.

decollement. The independent disruption, by
folding or faulting, of sedimentary beds by
sliding over the underlying rocks. A.G.I.


decollement structure. A term borrowed from
structural geology and applied to
folded strata that have slid over underlying, gen-
erally disturbed beds. PaJishon.

decolorizers. a. Materials added for the ex-
press purpose of improving the appearance of
the glass by hiding the yellow-green color
due to iron impurities. Actually they
increase the total absorption of light by the
glass and cannot be employed if more than a certain amount of
iron is present. C.T.D. b. Materials added to
clay or ceramic mixes to
ployed if more than a certain amount
of colored
metallic
value. Minimum voltage at
decomposition potential. The minimum po-
tential difference necessary to decompose
weathering. A.G.I.


decrepitate when it flies to pieces on being
thrown upon the fire. Fay. b. Method
decrecepitation. a. To wash (minerals)
by finer screening. Pryor, 3. c.
decreptivation. The breaking down of min-
erals by themselves or in rocks through
death. A.G.I.

decomposition. The breaking down of min-
erals or rocks to yield simpler
substances. A.G.I.


decomposition potential. The minimum poten-
tial difference necessary to decompose
the electrolyte of a cell. ASM Gloss.

decomposition temperature. Minimum
oven temperature above which
continuous electric current flows
through an electrolytic solution of normal
strength. Pryor, 3.


decompression. a. The process of reducing high
air pressure gradually so as not to
injure men who have been working in it.
Nicks.

decompression illness. A condition among
underwater workers and mine rescue teams
that is caused by ascending too quickly
from deep dives. The blood absorbs nitro-
gen when it is subjected to greater pres-
sure, and the deeper a man

decorating tiring. The process of firing pot-
ceramic decoration in the center of an
glaze caused by contact with molten glass,
the type of glass used in making the glaze.
ASTM C204-65.

decoration, underglaze. A ceramic decoration
applied directly on the surface of ceramic
ware and subsequently covered with a
transparent glaze. ASTM C424-60T.

decoration, overglaze. A ceramic or metallic
decoration applied and fired on the previ-
ously glazed surface of ceramic ware.
ASTM C424-60T.

decorative stone. a. A stone used as architec-
tural trimmings in columns, fireplaces, and
store fronts. It may sometimes be set in
silver, or gold-filled jewelry, but then usu-
ally as curio stones, for example, malachite
and marble. Shipley. b. A term sometimes
used alternately with ornamental stone.
Shipley.

decoupling. A method for decreasing the se-
ismic effect of an underground explosion.
The method involves the firing of the ex-
plosive in the center of an underground
cavity so that the surrounding earth is
in close proximity to the explosive. LBL.

decrepitation. The breaking up with a
crackling noise of malleable substances when
exposed to heat, as when rock salt is
thrown upon the fire. Fay. b. A method
employed if more than a certain amount
of colored
metallic
value. Minimum voltage at
decomposition potential. The minimum po-
tential difference necessary to decompose
weathering. A.G.I.


decreasing. 1. To diminish; to decrease.
2. To cause to decrease.
lines projected downward. The next mine on the dip of the lode became known as the "deep". Fy. b. S. Afr. The distinction of deep level and ultradeep level is a vague one, and has changed over the years. Deep levels are now studied at a depth of 9,000 feet and over. Bartenman.

**deep mining.** The exploitation of coal or mineral deposits at depths exceeding about 3,000 feet. It would appear that the deepest coal mine in the world is the Rue du Coeur colliery at Quaregnon, Belgium (4,462 feet) with a rock temperature of 126°F, and it is planned to go even lower to 4,650 feet. The deepest gold mine is understood to be the Western Deep Level in the Republic of South Africa at 10,200 feet. The distinction of deep-seated rocks. See intrusive rocks.

**deep ocean.** Usually means the sea beyond the Deep-Sea System. See Benthic Division. Hydro.

**deepsea.** The working of 5 to 10 yards of overburden in the mining of coal or of other minerals. Schieferdecker.

**deep shooting.** A borehole, the course of which deflected is uppermost and this deflects or deflected the collar. Also called wedge; wedge off. Long.

**deep well.** A borehole put down through an overlying bed into a lower pervious one where a supply of water is obtained. Tilted.

**deep well pump.** a. Any kind of pump delivering from a well, shaft, or borehole. B.S. 3618, 1963, sec. 4. b. A hydraulically driven pump mounted at the low point in the mine to discharge the water accumulation to the surface. ASA C42.85, 1966, c. Consists of a series of pump impellers mounted on a single rotating shaft. The casings are termed bowls and the impellers are deflected in capacities ranging from 25 to 10,000 gallons per minute. It can be used in wells from 25 to 6,000 feet in depth and from 6 to 24 inches in diameter. Carson, p. 208.

**deep well turbines.** This is a simple type of vertical centrifugal pumping system. See also self-stowing wedge. Long.

**deep water.** Water of a depth exceeding one-half the water column section, and may operate in a sectional extra-heavy enclosing tube if oil is used as a lubricant, or may be exposed to the water when the pump is built to be water-lubricated. Pit and Quarry, 53rd, Sec. E, pp. 92-93.

**deep water.** The water used as a lubricant, or may be exposed to the water when the pump is built to be water-lubricated. Pit and Quarry, 53rd, Sec. E, pp. 92-93.

**deep water.** The water used as a lubricant, or may be exposed to the water when the pump is built to be water-lubricated. Pit and Quarry, 53rd, Sec. E, pp. 92-93.

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**deep water.** The water used as a lubricant, or may be exposed to the water when the pump is built to be water-lubricated. Pit and Quarry, 53rd, Sec. E, pp. 92-93.
deflection angle

ward prolongation of the preceding line, right or left, to the following line. Seeley, 2.

deflection bit. A taper bit, generally a bull- nose type, used to direct the deflection wedge when deflecting a borehole. Long.

deflection dual. The load indicating gage on a penetrometer, which is a soil-testing device used to determine some of the load-bearing characteristics of silt and sandy soils. See also cone penetrometer. Long.

deflection of plumbline. The angle between the actual direction of the plumbline and that of the normal to the spherical tank that represents the figure of the earth. Sometimes called station error. See 2.


deflection point. Point of deflection on a re- fraction T-X graph separating two segments that correspond to different wave paths. Schieferdecker.


deflectometer. An instrument for gaging any deflections of a structure. Ham.

deflector. A device across the path of a con- veyor placed at the correct angle to deflect objects or discharge bulk material. Also called a lip. ASA M14-1956.

deflector sheet. A sheet of brattice or other material erected in a roadway or face to prevent a firedamp layer. It is usually set at an angle of about 45° from the horizon- zontal and inclined in the direction of airflow. Nelson.

deflection wedge ring. An annular steel ring attached to the upper end of a deflecting wedge, having a slightly smaller diameter than that of the borehole in which the wedge is inserted, serving as a stabilizing ring to hold and center the wedge in the borehole. Also called rose ring. Long.

deflocculation. The thinning of colloidal matter to disperse nonmetallic or metallic particles in a liquid, (that is, basic materials such as calgonate, sodium silicate, soda ash, etc., are used as deflocculants in clay slurry). B.S. 3618, 1963, p. 22. British Standard Institution.

deflocculating. A state of colloidal suspension of like electrical charges by the repulsion, (resulting in their mutual repulsion, or both. It is generally possible to defloccu- late a gel to such an extent that it loses its gel-structure entirely, thus becoming a Newtonian liquid. See also deflocculation. Long.

deflocculated. Deflocculated stone. China stone from Cornwall, England, from which the small amount of fluorescent present has been re- moved by flotation. Dodd.

deflocculation. Eliminating foam. ASM Gloss.

deflection. Change in the form or in the dimension of a body produced by stress. Elongation is often used for strain in metal, compression or shortening for compressive strain, and distortion of a shear strain. Elas- tic deformation is such deformation as de- appears on removal of stress; permanent deformation is such deformation as remains on removal of stress. Compare set. See also strain. Ro.

deflection bands. Parts of a crystal which have rotated differently during defor- mation to produce bands of varied orientation within individual grains. ASM Gloss.

deflection detector. The composition within a system or two or more components which, on heating under specific conditions, de- velops sufficient fluid to cause defor- mation at the minimum temperature. ACSG, 1963.

deflection of rocks. a. Restrictively, the distortion of rock masses by pressure, e.g., by fold formation. b. The presence of gas reduces the den- sity of the fluid. The pumps and de- pressor. Bureau of Mines Staff.

deflection of rocks. a. The temperature ob- served during the measurement of expan- sivity of the interferometer method at which viscous flow exactly counteracts thermal expansion. The deformation point corre- sponds to a viscosity in the range from 102 to 106 poises. ASTM C 126-66. b. The temperature at which a nonmetallic material melts and deforms. See also fusion point. Bureau of Mines Staff.

deflection temperature. The temperature at which a material, having been pre- pared to a viscous condition, changes at a constant rate, perpendicular to the surface of the ground, due to pressure applied from the ground, or due to the attraction of the fluid medium. See also temperature. Nelson.

deflocculation. Deflocculant. A substance that can be added to a clay suspension to reduce the viscosity of the fluid. Nelson.

deflocculation agent; deflocculants; dispersing agent. An agent that prevents fine soil par- ticles or clay particles in suspension from coalescing to form flocs. Nelson.

deflocculatig. A state of colloidal suspension in which the individual particles are sepa- rate from one another, this condition being maintained by the action of the fluid medium. See also deflocculation.

deflocculation. A crystal bent or twisted out of its normal shape, so that the angle between its crystal faces may differ widely from the angle on the regular form. See also distorted crystal. Shipley.
degradinite. In 1955, K. Asai proposed to the Nomenclature Subcommittee of the International Committee for Coal Petrology that the term should be accepted to describe the most common constituent of the Tertiary coals of Japan. Degradinite resembles vitrinite and has no definite form. It forms the groundmass of the hydrite of Japanese Tertiary coals and encloses exinite, terrestriovitrinite, and semivitrinite. Semivitrinite and semimiformite are less commonly associated with it. IHCP, 1963, part 1.


degree. The degree of freedom. a. A possibility of motion independently without destroying any of the forces acting. ASCE P1826.

degree of compaction. The degree of compaction is the percentage of the volume of water-filled voids in the total volume of voids in a soil. Nelson. b. Ratio of weights of water vapor in air at given conditions and at saturation, with temperature constant. Specific humidities are usually employed. Measured in percent. Harm. c. See percent saturation. ASCE P1826.

degree of saturation. a. The percentage of the volume of water-filled voids to the total volume of voids in a soil. Nelson. b. Ratation of weights of water vapor in air at given conditions and at saturation, with temperature constant. Specific humidities are usually employed. Measured in percent. Harm. c. See percent saturation. ASCE P1826.

degree of sorting. The measure for the spread of grain-size distribution. Schieffer-decker.

degree of size reduction. Ratio of the surface area of the broken or crushed material to the surface area of the original material. Nelson.

degree of sensitivity. See remolding index. ACSG P1826.

degree of size reduction. Ratio of the surface areas of the broken or crushed material to the surface area of the original material. Nelson.

degree of size reduction. The degree of size reduction is the percentage of the surface area of the broken or crushed material to the surface area of the original material. Nelson.

degree of sortng. The measure for the spread of grain-size distribution. Schieffer-decker.

degree of sorting. A synonym for clinometer rule. Long.

degree of sorting. A synonym for clinometer rule. Long.

degree-gram. A unit of mass when the mean temperature is 30° C. D.O.T. I.

degree-hour. The product of a degree and an hour, usually for the determination of the circumference of a circle; the principal unit of measure for arcs and angles. Web.

degree-hour. The product of a degree and an hour, usually for the determination of the circumference of a circle; the principal unit of measure for arcs and angles. Web.

degress. In mineral dressing, the degree of liberation of a certain mineral is the percentage of that mineral or phase occurring as free particles in relation to the total of that mineral occurring as free and locked forms. Canadian, p. 70.

degress. In mineral dressing, the degree of liberation of a certain mineral is the percentage of that mineral or phase occurring as free particles in relation to the total of that mineral occurring as free and locked forms. Canadian, p. 70.

degree of locking. In mineral dressing, the degree of locking of a mineral is the percentage occurring in locked particles in relation to the total occurring in the free and locked states. Canadian, p. 70.

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delay cap; delay detonator

fuse. Delay detonators are ignited by an electric current passing through the fuse. The time delay is due to the passage of an electric current through the fuse, which requires a minimum time for the fuse to become 


delayed filling. Filling in which the delay to evaporation for one-twentieth of a second is necessary. See also delay detonator. Nelson.

delayed fusing. A fusing effect that occurs after the final porcellain enameled processing. ASTM C286-65.

delayed neutrons. Neutrons emitted delayed neutrons. A phenomenon of neutrons emitted at a later time than the time of their original emission. In nuclear physics, this is known as delayed neutron emission.联合国, v. 4, 1938, p. 77.

delayed pillar extraction. A pillar method of mining in which the coal pillars are not extracted until the whole workings have been driven to the boundary. Extracted until the whole pillar is necessary. That part of a second that is necessary. That part of a second is necessary. Electric blast cap. An electric blasting cap used in coal mining. Nelson.

delayed quench. One in which the material is not quenched immediately on coming from the solution heat-treat furnace. This allows precipitation to proceed to a point where mechanical properties and corrosion resistance are lowered. Light Metal Age, v. 16, No. 9, October, 1956, pp. 17-24.

delay yield. A phenomenon involving a delay in time between the application of a stress and the concurrence of the corresponding yield point strain. ASM Gloss.

delay electric blasting cap. An electric blasting cap with a delay element between the priming and detonating mechanism to permit firing of explosive charges in sequence but with one application of the electric current. ASA C42.85, 1964, sec. 6.

delayed rentention cap. Detonation, commonly made annually on a per acre basis to validate a lease in lieu of drilling. Wheeler.

delay time. The time delay for any segment of a ray path over the time which would be required to traverse the horizontal component of that segment at highest velocity encountered on a trajectory. For a layer of velocity Vz and thickness L overlying a substratum of velocity Vd, the delay time, D = 2 L cos i/Vz, where i = sin (Vz/Vd).

delta "shoreslone; deltaic coast. Shoreline or deltaic shoreline, a term used to describe the coastal zone formed by the deposition of sediment by a river. Deltaic shorelines are typically characterized by a gentle slope and a narrow, flat beach.

delta, a. A delta, or alluvial fan, is a landform that is formed at the mouth of a river. Deltas are composed of sediment that is brought to the mouth of the river by the river's current and then deposited on the river's floodplain. Deltas are often characterized by a wide, flat area that is covered with sediment.

deltaic. Pertaining to, or resembling, a delta. A delta is a landform that is formed at the mouth of a river. Deltas are typically characterized by a wide, flat area that is covered with sediment.

deltaic deposits. Sedimentary deposits laid down in or near a delta. Deltaic deposits are typically composed of fine sediment that is brought to the mouth of the river by the river's current and then deposited on the river's floodplain.

deltaic. Pertaining to, or resembling, a delta. A delta is a landform that is formed at the mouth of a river. Deltas are typically characterized by a wide, flat area that is covered with sediment.

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delta shoreline; deltaic coast

coaft, formed by deltas built up in the sea
(or in a lake). Schieferdecker.
delta, of a dendritic cast. Pettitjohn
deltoid dodecahedron; dekohedron. An iso-
morphic hemihedral form of 12 faces, each
a square, hexagon, or octagon as described
by the tetrahedral type of symmetry. Fay.
delvin. Corn. A gray, talcgy, slaty stone that
tinnos killas or razes. Arkell.
Dempag-cappcl. A rope cappcl used in Koeppe
winding, particularly in Germany. The
rope is led along the side of the eye and
secured by a hinged retaining arm lined
with rubber, and then turned round the
eye and held in position by pressure exerted
by knee-action links. See also O.H.P. cap-
pel. Nation.
Demag drag-belt shuttle conveyor. Consists
of a single length of belting, half the length
of a double unit face, which is shuttled
backwards and forwards along the face
by means of low-type winches at each end
of the face, interlocked and fitted with
limit switches. The coal is ploughed off the
belt at a loader gate onto the gate con-
lveyor. Sinclair, V, p. 305.
demagnetization. The process of reducing the
magnetism in a magnetized body. This
may be accomplished by applying a magnetizing
force which opposes that producing the
original magnetizing force or by exposing
the body to an alternating magnetic field
which is gradually reduced to zero. A per-
mmanent magnet may be demagnetized by
heating it to a red heat or by rough usage.
Osborne.
demagnetize. a. To deprive of magnetic po-
larity. Sinclair, V, p. 305.
demagnetized. A unit of yarn size, used on the
bihtle. Dodd.
demagnetization. a. Water softening by use
of zeolites, which retain to remove cations.
Pryor, 3. b. See demineralization. Lowenheim.
deminstroitic apparatus. Portable deionizing
apparatus for the removal of cations and anions
in two successive stages. Pryor, 3.
demiscule. The eroded portion of an abobe
pillar extended up from the ground about
2 1/2 feet, and wherever small pebbles had
been included in the mud of abobe these
had locally protected the material behind it
and so yielded small hoodooike hilled
pillars directed toward the wind and about
3 inches in length. Such slender demisci-
elses resulting from the embedding of
harder nodules within rocks, the surfaces
of which have been drilled away by natural
erosion, have been described by Waithcr.
A.G.I.
demorphism. All the processes by which rocks
are broken down and decomposed. Johannen-
sen, v, 1, 2d, 1939, p. 172.
dempy. A mine or part of a mine which is
prone to outbursts and accumulations of
gas and blast, have been described by Waithcr.
A.G.I.
demixurlity. The rate of separation of the
components of a mixture. API Glossary.
demuxerization. Breakdown into separate
phases of a relatively stable emulsion, by
such means as flocculation with a surface-
active agent or removal of an emulsifying
agent. Pryor, 3.
demurriage. The detention of a vessel, rail-
road car, or other vehicle beyond an allotted
time; usually by failure to unload
ship, and so yielded small hoodooike hilled
pillars directed toward the wind and about
3 inches in length. Such slender demisci-
elses resulting from the embedding of
harder nodules within rocks, the surfaces
of which have been drilled away by natural
erosion, have been described by Waithcr.
A.G.I.
demulpshion. Resembling a tree; arborescent;
dendritic; descriptive of certain minerals.
Fay.
dendrip. a. A hydrous phosphate of cal-
cium and aluminum; found as white crusts
in varicite nodules. Sinianlusk, b. Common
Densification method. A method of preparing
the surface of shafts and similar objects
in which the surface is threaded to hold
particles of molten sprayed metal. After
cutting, the tops of the threads are knurled
and so yielded small hoodooike hilled
pillars directed toward the wind and about
3 inches in length. Such slender demisci-
elses resulting from the embedding of
harder nodules within rocks, the surfaces
of which have been drilled away by natural
erosion, have been described by Waithcr.
A.G.I.
dense medium. A fluid formed by the
liquid or solid, which can be used in industry
or in the laboratory to divide coal into two
fractions of different specific gravities. B.S.
3552, 1962.
densification. a. Heavy media separa-
tion, or sink float. Separation of sinking
heavy from light floating mineral particles
in fluid of intermediate density. Abbreva-
tion, DMS. Pryor, 4. b. Separation of rela-
tively light (flotats) and heavy ore particles
by immersion in a fluid of intermediate
density. This is the dense or heavy media,
which is prepared by gathering up a sus-
cipent of heavy material in a fluid
of intermediate density and galena are in principal use.
Pryor, 3.
densitric medium. A fluid formed by the
artificial suspension of water in heavy particles
dense medium

(for example, magnetite, barytes, and shale), which can be used in industry or in
the laboratory to divide coal into fractions of different specific gravities. B.S. 3552,
1962.
dense-medium jigging. This method involves two steps: (1) the circulation in the jig of a 1.7 to 2.0 specific gravity
bone middling, approximately three-sixteenths of an inch to 0 in size, which fills the interstices of the jig bed and in effect
converts the jig into a float-and-sink ma-
chine; and (2) the use of a suction stroke to
retein the medium in the bed and prevent
its washing over with the coal. Mitchell, p. 516.
dense-medium process. A process for the
washing of coal, in which the desired separa-
tion is effected in a dense medium. B.S. 3552,
1962.
dense-medium recovery; medium solids re-
covery. The collection, for reuse, of medium solids from dilute medium, usually under-
stood to include the removal, in whole or in part, of containing fine coal and clay. B.S. 3552,
1962.
dense-medium wash. A machine for clean-
ing coal and other materials which uses a dense medium in which the coal floats while the
shale sinks. The fluid consists of water inti-
ately mixed with sand, or finely ground magnetite or even shale, the latter being agitated to
maintain its consistency. The fluid has an
effective specific gravity ranging from 1.3
to 1.9. In general, coal from about 0.5 million
down to 1 inch is washed by dense medium,
between 1 inch and 0.75 millimeter (where cleaning is neces-
sary) by froth flotation. Magnetite as the dense medium solid is preferred as it can be
easily recovered by magnetic separators and also the upper limit of the specific gravity is higher (up to 2.0). See also coal-
dense mica crystalline tournelite. This type ton-
stein consists almost entirely of fine-grained kaolin groundmass, showing weak aggregate
behavior, consisting here and there isolated crystals of kaolinite. Such bands are commonly more than
100 millimeters thick and light in color. B.S. 3552,
1962.
dense rock. A rock with small, even grains
density. An algebraic term used to impart a
sense of density, or specific gravity, of a
substance, such as of a drilling mud. Long.
density curve; specific gravity curve. Any
curve obtained from the results of a float
and sink analysis by plotting the yield of
floats or sinks against the specific gravity. B.S. 3552,
1962.
Denison sampler. A large-size, swivel-type
two-tube core barrel designed for sol-
tation where it is desired to obtain relatively undis-
turbed corelike samples of soft rock and/or
soil formations. The inner tube is provided with a block-and-tackle arrangement for
buckling or basket-type core lifter or core-retaining
device. Also called Denison core barrel.
densitometer. An instrument for the measure-
ment of the density of a mass or volume produced
by light, gamma rays, X-rays, etc., on a
photographic plate; used in some dust-
sampling instruments. Nelson.
density. a. The mass of a substance per unit
volume. Webster 3d. b. The quality or state of
being dense; closeness of texture or con-
 sistency. Webster 3d. c. The distribution of
a quantity (as mass, electricity, or energy)
per unit usually of space (as area, length,
or volume). Webster 3d. d. Although
density is defined as mass per unit volume,
the term is frequently used in place of unit weight of soil or rock. See also unit
weight. ASCE P1826. e. The ratio of the mass of
any substance to the mass of an equal volume of a standard substance; for
example, water is used as the standard
substance to which the ratio of a density
depends. Long. f. Having the quality of being dense, hard, or compact. Long. g. Weight of a substance
in grams per cubic centimeter (at specified
temperature when close accuracy is needed).
For liquids and solids, it equals specific
 gravity. Density fluids are heavy liquids
used in float-sink tests. Of a particle, the
true density is its mass (m) divided by volume
(V); of a mass of powder, its apparent
density is its mass divided by volume
(m/v) including open but excluding closed
cells. Of a mass of particles, its apparent
density is mass divided by volume
(m/v) under stated freely poured
conditions. See also tap density. Long. h. The
density of gases. The vapor density of a gas,
which water of its density is found. The
number of times a volume of the gas is
heavier than the same volume of hydrogen,
the volume of both gases being at the same
temperature and pressure. Cooper.
density ratio. In powder metallurgy, the ratio
of the determined density of a compact to
the absolute density of metal of the same
composition, usually expressed as a per-
centage. ASM Gloss.
dental. a. Relating to the teeth. Tomkeieff,
1954.
dental. A tooth-shaped projection formed on
or over a surface on which the teeth rest or
enlarge the force of the bite. Dobrin, pp. 227-228.
dental alloys. Gold and silver base alloys
which are plated on nickel or palladium; used for bridges, filling, braces and similar work. Bennett,
2d. 1962.
dental porcelain. Feldspathic porcelain,
shaped, fired, and fitted for use as false
teeth; the fitting is sometimes carried out
in a partial vacuum to remove small air bubbles and to provide maximum density and strength. Dodd.
dental work. The act or process of fitting
or shaping or carving or polishing or burnish-
ing a borehole with cement or grout; also, the cracks, etc., so filled. Long.
denthall silt. A still formed with a close
heap or mass of stones whereby the
flowing water is obstructed. Ham.
denture. Same as dentry coal. Tomkeieff,
1954.
denudation. The sum of the processes that
result in the wearing down of the surface of the
earth, including wear by running water,
solution, and wind action. The term
is wider in its scope than erosion, the
restriction proposed by Lyell that limits it
to the action of running water has not been
denudation. To wear away or to remove over-
laying matter from and so expose to view, as the underlying rocks. Standard, 1964.
denyed. Rocks not covered by denudation. Fay.
denuncia. a. Sp. In Mexico and Spanish
America, the judicial proceedings by which
a person claims and secures
a mine which he has
discovered, or one
which has not been
claimed by the owner
to work it, or by the
neglect of the owner to work it,
and preve lt
a person claims and secures
a mine which he has
discovered, or one
which has not been
claimed by the owner to work it, or
by the neglect of the owner to work it,
dephosphorizing. Removal of part or all of phosphorus from steel, in basic steelmaking processes.

Deposition. A process whereby differentiated rocks are formed directly as a result of the decrease in concentration of water on the failure of marine life and organic action; also, the material thus deposited.

Deposition sequence. The order in which the deposition of sediments. A process whereby the solid material is thrown down or deposited. Opposite of denudation. Standard, 1964. b. The precipitation of mineral matter from solution, as the deposition of calcite. Crispin.

Deposition efficiency. In welding, the ratio of the weight of deposited weld metal to the net weight of electrodes consumed, exclusive of sub. ASM Gloss.

Deposition of sediments. A process whereby rock debris, which has been suspended in water, drops to the bottom of suspension. This occurs when the transportation velocity of the medium drops below the minimum necessary to maintain suspension, ify.

Deposition sequences. The order in which the increments of weld metal are deposited. ASM Gloss.

Depolarization. Reduction of polarization by changing the electrode system. ASM Gloss.

Depolarizer. A substance which produces depolarization. ASM Gloss.

Depressant. A. A substance which causes a depression in the surface of water, but now includes mineral matter in any form that is precipitated by chemical or other agencies, as the ores in vein deposits. B. A lowering, sinking or diminution. A.G.I. a. The depression is enclosed on all sides by elevations of the sea bed. A.G.I. b. A low place of any size on a plain surface, with drainage underground or by evaporation; a hollow completely surrounded by higher ground and having no natural outlet for surface drainage. A.G.I. c. A lowering, sinking or diminution. A.G.I. d. In surveying, the angular distance of an object beneath the horizontal plane that passes through the observer.

Depression contour. One of the contours representing a depression that has no surface outlet. To distinguish them from other contour lines, they are colored on the downwarp side with short traverse lines termed hachures. Stokes and Varnes. 1955.

Depression. a. The depression is enclosed on all sides by elevations of the sea bed. A.G.I. b. A low place of any size on a plain surface, with drainage underground or by evaporation; a hollow completely surrounded by higher ground and having no natural outlet for surface drainage. A.G.I. c. A lowering, sinking or diminution. A.G.I. d. In surveying, the angular distance of an object beneath the horizontal plane that passes through the observer.

Depression. A transition from a higher to a lower level, etc. Crispin.

Depreciation. a. Reduction of assets of a working mine through rundown of ore reserve, obsolescence, and wear and tear. Pryor, 3. b. The loss in value which machinery sustains through age and through wear and tear. Crispin.

Depreciation. A fund set aside to replace absentees, to avoid delays, and to replace depreciable property when it is needed. Nelson.


Depression. The act of emptying, reducing, or lowering. Crispin.

Depression. a. The act of emptying, reducing, or lowering. Crispin.

Depression. a. The act of emptying, reducing, or lowering. Crispin.

Depth or inclined depth. Beerman.

Depth. A. The word alone generally denotes vertical depth below the surface. In the case of inclined shafts and boreholes it may mean the distance reached from the beginning of the shaft or hole, the borehole depth or inclined depth. Beerman.

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broadness of the foundations. Hence, the larger the loaded area the deeper is its influence felt and the test: necessary. See also site investigation. N. depth of stratum. The vertical distance from the surface of the earth to a stratum. A.G.I. depth per bit. The length of bolehole which can be drilled with a steel bit until it must be resharpenned. Streelfirk, p. 15. depth point. In seismic work, a position at which a depth determination of a mapped horizon has been calculated. A.G.I. deputation work. Gr. Brit. When workmen are selected by the same mine to interview the management with reference to wage matters or disputes, once accompany their permanent trade union official for the same purpose, it is called deputation work. Nelson. deputy. a. An underground official in a mine of coal, stratified ironstone, shale, or fire clay, with statutory responsibility for the safe and proper working of a district of the mine, as a called examiner; fireman (undesirable usage). B.S. 3618, 1963, sec. 2. b. Within limits, he is also a lower district manager of the district. Nelson. c. Eng. In Northumberland and Durham, the man who sets timbers or props in a coal mine is known as a deputy. Nelson. d. N. of Eng. A junior official responsible for safety precautions and inspections in a district face or face district. Frist. e. N. of Eng. A man who fixes and withdraws the timber supporting the roof of a mine, attends to the safety of the roof and sides, builds stopping, puts up bratticing, and looks after the safety of the mines. Fay. f. Eng. In the Midland coalfield, an underground official who looks after the general safety of a certain number of stalls (rooms) or a district, but who does not set the timber himself although he has to see that it is properly done. Fay. g. A mine official. Fay. deputy overman. New. The man who lays the plates and sets the timber for the miners, and has charge of a portion of the mine. Fay. deputy's district plan. Gr. Brit. The plan required by law, which shows the limits of each deputy's district and the meeting station. B.S. 3618, 1963, sec. 1. deputy's qualifications. Gr. Brit. A deputy must hold either a colliery manager's or an undermanager's certificate or a deputy's certificate. He must be capable of making accurate tests for flammable gas with a flame safety lamp, and possess a hearing and first-aid certification. In addition, a deputy must have had not less than 5 years previous experience of work or of management of which not less than 2 years were spent at the coal face. Nelson. deputy's inspection. See also hmgr.'s inspector. A person appointed by the Surveyor General of the United States to make proper surveys of lode mining claims, prior to the issuing of a patent. Fay. deputy system. N. of Eng. The plan of having a timbering in working places performed by specially appointed deputies. See also deputy, e. Fay. derrick. A. A large movable crane device for derailing mcn cars, usually installed on grades to protect miners working below. Similar devices are used on railways. See also drop derrick, SRF. derailing drag. See backstay. Nelson. derailing. The accidental running of a tram off the rails, usually due to stones or dirt fouling the track. See also wagon rerailer. Nelson. derail unit. This device locks to rails to derail cars. Wedge construction eliminates slipping. It prevents workers in railroads and mines against wild cars, switching cars or sudden car movement. Some types are equipped with a warning flag. Batts, p. 271. derby. A massive piece, of intermediate size (extending to more than 100 pounds), usually cylindrical, of primary metal made by bomb reduction, such as uranium from uranium tetrafluoride and magnesia. See also biscuit; dingot. ASM Gloss. derbystone. A black, brown antimonate and tinate of iron. FeO,SnO,FeO,TiO. Minute prismatic crystals and twins. Orthonickel. Derby pocket safety ohmmeter. A circuit tester which consists of a high-sensitivity moving-coil instrument with a 1.5-volt dry battery providing the low operating current. The battery is housed in a separate sealed compartment of the instrument. Resistances are incorporated in the instrument and connected so that it is impossible for the whole output of the battery to flow through the circuit under test. In use, the two ends of the circuit to be tested are connected to the terminals of the instrument, and the resistance of the circuit is registered on the 0--300 ohm scale when the button on the side of the ohmmeter is depressed. McDonald III, p. 65. Derby Press. Trade name; a machine for the represling of wire-cut building bricks. Dodd. Derbyshire spar; Derby spar. Fluorite, found abundantly in Derbyshire, England. Same as fluor spar. Derbystone. Amethyst-colored fluorite. Shipley. derivative rock. A rock derived by erosion or comminution of previously existing rocks or rock material, as a sedimentary rock and volcanic tuff. Standard, 1964. Compare ingenite. derived fossilia. Fossils that are not native to the rock in which they are found. For example, the pebbles in a conglomerate may enclose fossils or fragments of fossils. Such fossils are manifestly older than the conglomerate and are termed derived fossilia. Nelson. derived fuel. A fuel obtained from a raw fuel by some process of preparation for use, for example, coke, charcoal, benzol, and petrol. Nelson. derived neutrip. A derived neutral is a neutral point or connection established by the addition of a cigrag or grounding transformer to a normally ungrounded delta power system. I.C. 7662, 1960, p. 22. device for lighting. An installation in the upper part of the sialic crust. Schiferdecke. dermatis. A skin disease caused by the application of dust or liquids. In coal mining, the dust may be coal or stone dust and the liquids may be water, oil or grease. Presentation and acids or alkalis. The majority of cases occur in deep and hot mines having high wet-bulb temperatures. Macdonald, p. 344. dermohil. Fluent basalt lava characterised by a smooth, billyeow, or rovy surface and ordinarily upon various spherical vehicles. Synonym for pahoehoe. Obolete. A.G.I.
derivation, a. Removing the thick layer of dead crust. A green amorphous hydrous silicate desalinizing. Any process for making potable water from sea water or other saline waters. Distillation is the oldest method. Reverse osmosis and dialysis or multi-effect evaporation is practiced in order to limit heat consumption. Distillation with solar heat is expensive because the large area required result in high equipment investments. Electrolysis is an inherently good method because the energy is used to remove the small proportion of salt from the relatively large quantity of water instead of removing the water from the salt. Its practical use is restricted because of membrane deterioration, scale formation, and inefficient use of energy. Other methods are freezing by direct contact of refrigerant with sea water; foam separation; liquid-liquid extraction; various nonelectric membrane processes; and ion exchange. C.C.D., 6d, 1961. These processes are called desalination. Bureau of Mines Staff.

descending screens. A shaker-type screen for removing the sand and water from the products of a Chance washer. Nelson.

deserts. A green amorphous hydrous silicate of nickel and zinc; contains 30.0 percent nickel and 3.2 percent zinc. Hess.

desert. a. Applied somewhat loosely to any source, and the methods of recovery, fashioning, and use of gem minerals and gem materials and their substitutes. See also geology.

desert varnish. a. A surface stain or crust of manganese oxide or iron oxide, of chocolate-brown or black deposit prevalent on rock surfaces in desert regions. It not only coats ledges of rock in place but also coats boulders and pebbles that are scattered over the surface of the ground. UCSE Bull, 730, 1923, p. 87. b. The thin coating-iron oxide deposit on rock surfaces in desert regions. A.G.I.

desert crust. See desert pavement. A.G.I.

desert glass. Obsidian or moldavite. Shipley.

desert glass. Obsidian or moldavite. Shipley.

desert pavement. a. Synonym for desert crust. A.G.I. b. Applied by Free to a phenomenon previously observed by others. When loose material containing pebbles or larger stones is exposed to wind action, the finer dust and sand are blown away and the pebbles and gravel are left to accumulate on the surface, forming a sort of mosaic that protects the finer material underneath from attack. A.G.I. c. Where the vegetation or lack of it allows the wind to come to the surface freely, a curious pavement of stones results. A.G.I.

desert rat. In the Western United States, a prospector, especially one who works and lives in the desert, or who has spent much time in such regions. The name is derived from a small rodent common throughout much of the Great Basin and Southwestern United States. Fay.

desert rock. A group of crystals formed in sand, soft sandstone, or clay. The crystals are usually calcite and less commonly barite, gypsum, and salt. The first two occurrences are known as sand calcite and sand barite, respectively. Hess.

desert varnish. a. A surface stain or crust of manganese oxide or iron oxide, of brown or black color, and usually with a glintening luster, which characterizes many exposed rock surfaces in the desert. It not only coats ledges of rock in place but also coats boulders and pebbles that are scattered over the surface of the ground. UCSE Bull, 730, 1923, p. 87. b. The thin coating-iron oxide deposit on rock surfaces in desert regions. A.G.I.

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desired valve signal

desired value of the process being controlled. Pryor, 5, p. 31.
desliming. The removal of slimes from coal or a mixture of coal and water, however accomplished. B.S. 3552, 1962. b. Classification of a pulp into two fractions, relative to coarse and fine. Removal of primary (nonvaluable) slimes before treating ores for recovery of values. Pryor, 3.
desliming screen. A screen used for the removal of slimes from larger particles, usually with the aid of water sprays. B.S. 3552, 1962.
desmin. See sulphite, Fay.
desmeline. The amorphous groundmass, which is transparent in thin sections, binding together the constituents of bituminous coal of high grade. Applies to the transparent variety of residuum found in high-grade coals. Tomkiewicz, 1955.
destressed area; destressed zone. a. In strata where the force is much less than would be expected after considering the depth and type of strata. Compare overstressed. Mason, v. 1, p. 143. b. A region of low stress behind the walls of a stoped-out region. Isaacson, p. 109.
destroying. In deep mining, relief of pressure on abutments of excavation. Performed by drilling laterally and blasting to loosen the zones of peak stress. The peak load surrounding the stope walls is thus transferred deeper into the undisturbed rock, and a protractive barrier is formed. Pryor, 3.
destructional. Pertaining to destruction or shaping of rocks to a definite plan that has been shaped by erosion. Standard, 1964.
destructional cliff. A cliff formed by erosion; for example, sea cliff, river cliff, cuesta scarp, ice-scorched wall, ice-terminated cliff, fault-line cliff, and landslide scar. Stokes and Varney, 1955.
destructive distillation. The distillation of solid substances accompanied by their decomposition. The destructive distillation of coal results in the production of coke, tar products, ammonium, gas, etc. C.T.D. destructive distillation testing methods, the use of which destroy or impair the part or product insofar as its intended use is concerned, but which give proof or an indication of the strength or quality of similar or duplicate parts or products. Such tests include the destruction of the test piece to various influences, of destructive magnitude, such as impact, stress, pressure, cyclic movement, etc., and are also destructive testing. Henderson.
destructive wave. One of the waves that erode a beach. Schmoker.
destructive washing. A washing which destroys large amounts of refuse, usually by burning. Hem.
desulphurization. Corn. See desulphurizing, Fay.
desulphurization of steel. The removal of a high proportion of sulfur from steel by calcium carbide. The bath is brought to a good heat (1,500° C) and lime and fluorine are added to make fluid slag. The calcium carbide, usually 50 to 100 pounds, is injected in powder form, by means of a distributor, directly into the steel. The number of injections made depends upon the initial sulfur and the reduction required. Nelson.
desulfurizer. A material for reducing the sulfur content of cast iron or steel in the spuel or smelter. Holland.
detachable bit. A drilling bit which is threaded or tapered and is removable from the drill steel by use of a wrench, or of a tool. Added as a safety precaution. Also known as rip bit or knockoff bit. Bureau of Mines Staff.
detachable cable scaling box. Designed so that it can be disconnected and detached from associated apparatus without disturbing the scaling of the cable. B.S. 3618, 1965, sec. 2.
detached head pulley. See head pulley, a.
detaching book. An appliance which releases the detached bead pulley. See head pulley, a.
detaching book. A manufacturer's trade name for a straddle, as Mercury, as Primacord. Nichols. See also Cordage safety fuse. Nelson.
detonating fuse. A fuse consisting of high explosive that fires the charge without the assistance of any other detonator. Fay. It consists of a high-explosive core of pentaerythritol tetranteatrate (P.E.T.N.) enclosed in tape and wrapped with textile counter- rating yarn. Usually this fuse is then reinforced or completely enclosed in a strong waterproof plastic outer cover. The finished external diameter is normally about 0.2 inch. McAdam II, p. 59. Primacord is the best known brand. Nichols. See also Cordage safety fuse. Nelson.
detonation. Treatment by chlorination of bearing scrap for recovery of tin as its chloride. Pryor, 3.
detona. a. To cause to explode by the application of sudden force. Standard, 1964.
detonating fuse. A fuse used by the detonation of the explosive pyrotechnics. B.S. 3552, 1962. It consists essentially of two open-ended delay detonators coupled together with a flangeless neoprene tubing. Webster 2d.
detonating powder. Any powder in solid or liquid form, such as mercury fulminate, which, when heated or struck, explodes with violence and a loud report. Webster 2d.
detonator. A primer exploded by a fuse, used to ignite high explosives. Fay.
detonating rate. The velocity with which the explosive wave travels through the column of charge. Streetker, p. 42.
detonating relay. A device for obtaining short-delay blasting in conjunction with one volume of oxygen, forming water. Webster 2d.
detonating tube. A tube for making explosives. Webster 2d.
detergent. a. An explosive decomposition or explosive combustion reaction that moves through the reactant(s) at a greater than the speed of sound in the reactant(s) to produce (1) shock waves and (2) significant overpressure, regardless of confinement. Modern improvements for handling the sudden change of unstable substances from
detonation

a solid or liquid to a gaseous state with the evolution of great heat and accompanying explosion. This is sometimes called an explosion, but is used in connection with a coal-dust explosion, it refers to an extremely fast and violent stage, usually in a limited area. Rice, George S. A chemical reaction which propagates into the reacting medium at a supersonic rate. I.C. 8137, 1955.

detonation velocity. The speed of detonation is such that, when closed, a detonator or the leads produced during detonation in a high-explosive charge, and initiated by a safety fuse or by electricity. B.S. 3618, 1964, sec. 6. See also blasting cap; electric detonator.

developer. a. In photography, a processing solution which is vibrated by a safety fuse or by electricity. The action of converting the chemicals in an explosive charge to gases at a high pressure, by means of a self-propagating shock wave passing through the charge. B.S. 3618, 1964, sec. 6. g. The action or process of detonating; specifically: a chemical reaction producing violent evolution of heat and sparks or flame and moving through the material detonated, as a high explosive such as dynamite or TNT, at a speed of sound or slightly the time. Webster 3d. d.

deuterium. a. The processes involved in producing detrital sediments and in removing material produced by the accumulation of detritus and in removing material produced by the accumulation of detritus and in removing material from a land surface. A.G.I. In photography, a processing solution which is vibrated by a safety fuse or by electricity. The action of converting the chemicals in an explosive charge to gases at a high pressure, by means of a self-propagating shock wave passing through the charge. B.S. 3618, 1964, sec. 6. g. The action or process of detonating; specifically: a chemical reaction producing violent evolution of heat and sparks or flame and moving through the material detonated, as a high explosive such as dynamite or TNT, at a speed of sound or slightly the time. Webster 3d. d.

detrital. Descriptive of minerals occurring in sedimentary rocks that were derived from pre-existing rocks, geological processes, or mechanical breakdown of rock. C.T.D.

detrital deposits. Placer or detrital deposits are composed of minerals that have been released by weathering and later have been transported, sorted and collected by natural agencies into valuable deposits. Such minerals are often characterized by their specific gravity and are resistant to abrasion and weathering. Examples are gold, diamonds, platinum, tin (cassiterite), monazite, magnetite and ilmenite, these last two being the common constituents of black sand. Lewis, p. 276.

detrital limestone. A limestone formed from the debris of older limestones. A.G.I.


detrital mineral. Literally, any mineral, the granulation of which results from detritus; but Mineralogically, petrology, the term is restricted to the grains of heavy minerals found in sand and other sediments, and separated therewith by passing through a heavy liquid. See also heavy minerals. C.T.D.

detrital rock. A rock composed of particles or fragments eroded from pre-existing rocks. Stokes and Varnes, 1955.

detrition. a. Incoherent sediments produced by the erosion of rocks through the various geologic agencies. See also rock waste. Fay, b. Fragmental material, such as sand, silt, and clay, derived from older rocks by disintegration. The term is applied to consolidated deposits produced from accumulation of detritus. A.G.I. c. A mixture of minute vegetable debris which eventually becomes converted into coal. Tomkeeff, 1954. d. Accumulation on the sea bottom of particles worn from rocks by mechanical means and broken organic material. Hy.

detritus chamber. A tank through which sewage passes, allowing suspended solids to settle on the bottom from where they can be removed. Ham.

detritus slide. A slow downhill movement of detritus, with clays and shales acting as slipage surfaces. See also soil creep. Nelson.

Detroit furnace. See Detroit rocking furnace.

Detroit rocking furnace. An indirect arc furnace with graphite electrodes entering horizontally through the end of the furnace, rocks or coals continuously on supporting rollers. Bennett 2d, 1965.

desert. a. A lateral deformation in which particles of a body apparently slip past each other as a result of shearing force. B.S. 3618, 1964, sec. 6. See also shielding cap; electric detonator.

desertic. Alterations in an igneous rock produced during the later stages of the consolidation of the magma. Webster 3d. C.L. 1955.

desertification. A technique for reclaiming land which has become desertified. See also heavy mining. Nelson.

desertification. A technique for reclaiming land which has become desertified. See also heavy mining. Nelson.

desertion. A. To open a mine and ore; more or less, to search, prospect, explore. J. Bernoulli. b. To traverse a mineralized body horizontally by drives and vertically by adits or shafts, or both, to prove its extent. C.T.D. c. To open up ore bodies by shaft sinking, tunneling, or drifting. Truscott, p. 177.

develop. a. To open a mine and ore; more or less, to search, prospect, explore. J. Bernoulli. b. To traverse a mineralized body horizontally by drives and vertically by adits or shafts, or both, to prove its extent. C.T.D.

developed blank. A blank that requires little or no trimming when formed. ASM Gloss.

developed ore. Ore which is so completely exposed that its yield with respect to tonnage and tenor is essentially certain and which, in addition, is available to immediate and continuous recovery by the method being employed. Forrester, p. 553.

developed reserves. a. The tonnage of ore that is economically recoverable and which has been mined and blocked out, or exposed on at least three sides. In coal mining, the tonnage of coal known to exist within the limits of a mining block or a seam of coal, but not proven with assurance greater than 20% by shaft sinking, tunneling or drifting. B.S. 3618, 1964, sec. 6. See also shielding cap; electric detonator.

deviation. In photography, a processing solution that reduces the exposed grains of an emulsion to metallic silver, thus making the image visible. ASM Gloss. b. In xerography, a dry powder used to make the electrostatic image visible. ASM Gloss. c. In photography, a processing solution that reduces the exposed grains of an emulsion to metallic silver, thus making the image visible. ASM Gloss.
developer

development. a. To open up a coal seam or ore body as by sinking shafts and driving drifts, as well as installing the needed equipment. Nelson. b. Work of driving openings to and in a proved ore body to prepare it for mining and transporting the ore. Lewis, p. 20. c. The amount of ore in a mine developed or exposed on at least three sides. C.T.D. d. S. Afr. The work done in a mine to open up the paying ground or reef and, in particular, to form drives or haulages around blocks of ore which are then included under developed ore reserves. Beerman. e. A geologic term, applied to those progressive changes in fossil genera and species that have followed on another due to the deposition of the strata of the earth. Fay.

development drift. slant. A main tunnel driven from the surface, or from a point underground, to gain access to coal or ore for exploitation purposes. Nelson.

development gang. The shafts, tunnels, laterals, crosscuts, and staple pits to prove and render accessible the coal or ore to be extracted. See also productive development; unproductive development. Nelson.

development engineer. In bituminous coal mining, one who operates a hoist to raise and lower men, rock, and supplies for development work (sinking shafts and driving horizontal underground passages prior to the actual mining of coal from a seam). D.O.T. 1.

development gang. A team of men, working to a fixed time schedule, and responsible for having a new face, ready equipped with roof supports, pipe, drilling machines, etc., by the time the face in production is worked out. See also dismantling gang. Nelson.

development miner. See miner.

development plan. A plan showing the proposed development of the mine workings, and kept for operational purposes. B.S. 3618, 1963, sec. 1.

development rock. S. Afr. The rock broken during development work in payable ground, which contains both valuable and barren rock and is, therefore, included in the tonnage sent to the reduction plant of a mine. Beerman.

development sampling. Sampling for the establishment of reserves and conducted primarily upon the exposures along the development drivage. Nelson.

development work; developmental work. Work undertaken to open up or boost as much of the work of actual ore extraction as the situation permits. Sometimes development work is distinguished from exploratory work done from the surface and from stop preparation on the other. A.O.I.

devaurae agitator. An upthrust propeller, sometimes called a deauvian cylinder, used in leach agitation of minerals. Pyor, 3.

dewater. To change the course of a borehole. Compare deflect; walk; wander. Long.

dewatering. Synonym for deflecting. Long.

deviation. a. Turning or wandering from the proper bearing of a tunnel or shaft. b. The departure of a tunnel from its proper bearing. Nelson. c. The wandering of a borehole from its intended course. B.S. 3618, 1963, sec. 3.

d. S. Afr. The deviation of a borehole is the result of the presence of technical imperfections which prevent the drilling of a completely straight hole. Beerman.

e. Synonym for deflection. Long. 1. The distance, measured in a horizontal plane, between two surveyed points in a borehole or between the collar and any point below the collar in a borehole. Also called displacement; throw. Long. 2. In statistical appraisal of a series of observations two methods of measuring scatter are mean deviation and standard deviation. Pyor, 3. h. The difference between an experimental result and an accepted central value, usually the experimental mean value. B.S. 1017, 1960, pt. 1.

devisor stress. The difference between the major and minor principal stresses in a triaxial test. ASCE F1626.


devil-er. A hard, gray-white siliceous rock, consisting of minute grains of quartz and feldspar. Such devitrified glasses reveal their originally vitreous nature by traces of pellitic and spherulitic textures. C.M.D. b. The process by which glassy rocks break up into definite minerals, which are usually minute and are chiefly quartz and feldspar. c. The change from a vitreous state to a crystalline state after solidification. Fay. d. In ceramics, a surface defect manifested by loss of gloss as a result of crystallization. ASTM C286-65.

devitrification. a. Deferred crystallization, which, in glassy igneous rocks, converts obsidian and pumice into dull cryptocrystalline rocks (usually termed felsites) consisting of minute grains of quartz and feldspar. clinic. Dana. b. A type of ceramic material, formerly called herrengrundite; lyellite; devillette; uvroiguite. Hey 2d, 1935.

devil's bed. See topgallant rag. Compare old man. Arkell.


devil's eye. A type of ceramic material, formerly called herrengrundite; lyellite; devillette; uvroiguite. Hey 2d, 1935.


devil's muck. Bears' muck; cat dirt; pig's dirt. Arkell.

devil's muck. d. In ceramics, a surface defect manifested by loss of gloss as a result of crystallization. ASTM C286-65.

devil's hole. c. The wandering of a borehole from its intended course. B.S. 3618, 1963, sec. 3.

devil's hole. c. The wandering of a borehole from its intended course. B.S. 3618, 1963, sec. 3.

devil's hole. c. The wandering of a borehole from its intended course. B.S. 3618, 1963, sec. 3.

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devil's hole. c. The wandering of a borehole from its intended course. B.S. 3618, 1963, sec. 3.
dewatering. a. Removing water by pumping, drainage, or evaporation. Nicholas, 2, b. This pump delivers a dewatered shaft in waterlogged workings as a safety measure or as a preliminary step to resumption of dewatering. It is often used during draining of the mine. b. Similar to the continuous bucket dewatering elevator. c. See dewatering classifier. Nelson. d. The mechanical separation of a mixture of coal and water into two parts, one of which is relatively coal-free, the other relatively water-free, with respect to the original mixture. Coarser coals are dewatered by drainage hoppers and bins, shaking vibrating screens, conveyors and chutes fitted with slots or stationary screens of either wedge or round wire construction, and perforated bucket elevators. The same methods can be used for dewatering coal minus one-half inch in size, and in addition centrifuges, vacuum filters, and sludge tanks and other thickening devices in combination with centrifuges or filters are used. Mitchell, p. 649. See also Bird centrifuge; McNally-Carpenter centrifuge; CMI centrifuge; etc. The process is generally carried on only to the extent of producing a damped cake, in two steps: (1) in thickener, which removes most of the water, and (2) in filters, which receive the thickened pulp and yield the damped mineral cake. If further dewatering is desired, driers requiring fuel for evaporation of moisture are essential; Gaudin, p. 9.1. In mineral processing, removal of part of the liquid from a pulp. Performed in thickener, classifier, hydroclone, settling bed or cone, or filter, on screen (coal preparation.) Pryor, 3, g. The process in which solid material either submerged or containing liquid is conveyed or elevated in a manner which allows the liquid to drain off while the solid material is in transit. ASA MH4-1-1958, h. The removal of water from wet materials by means other than evaporation. BS 3552, 1962.

dewatering classifier. A settling tank for clarifying a suspension or sediment by removing and concentrating gold slimes before cyaniding.

dewatering screen. A screen used for the separation of water from solids. BS 3552, 1962.

dewatering elevator. Similar to the continuous bucket dewatering elevator, it is often used in sand and gravel plants where the dredge line discharges to a sump. The dewatering elevator digests the material from the sump, allowing the water to drain out through perforations in the backs of the buckets while being elevated, and discharges to the place of its permanent processing. The essential differences between this and the regular continuous bucket elevator are the perforated buckets, which also often have renewable manganese-steel lips to allow for the wear caused by excavating the gravel from the sump. The dewatering elevator resembles in many ways the dredging elevator used on suction dredges. Fitz and Quarry, 53rd, Sci. G. pp. 34-35.

dewatering screen. A screen used for the separation of water from solids. BS 3552, 1962.

dewatering. Removing the extendable wax pattern from an investment mold by heat or solvent. ASM Gloss.

dew bed; dew stone. Eng. A grayish, bluish, centered, hard, crystalline, shelly stone, used for road metal. It rests upon the Yeoville sands. Arkell.

dewellite. A discredited mineral term since it is a mixture of dixonite and stevensite. American J. mineralog. v. 47, No. 5-6, May-June 1964, pp. 811-812.

dewellite. A very rare, strongly radioactive, canary-yellow, orthorhombic mineral, PbU3(VO4)3(OH)10.8H2O, found associated with thorites and other secondary uranium minerals. Crosby, pp. 15-16.

dewpoint. The temperature to which air must be cooled, at constant pressure and constant water vapor content, in order for saturation to occur. Since the pressure of the water vapor content of the air becomes the saturation pressure, the dewpoint may also be defined as the temperature at which the saturation pressure is the same as the existing vapor pressure. A.G.I. Also called saturation point.

dewpoint hygrometer. An instrument for determining the dewpoint; a type of hygrometer. It operates in the following manner. A parcel of air is cooled at constant pressure, usually by passing it over a refrigerated polished metal surface. Condensation appears upon the metal surface at a temperature slightly below that of the condensation dewpoint or the saturation temperature. The observed dewpoint will differ from the thermodynamic dewpoint depending upon the nature of the condensing surface, the condensation nuclei, and the sensitivity of the condensation-detecting apparatus. Hay. dew point. A term used in connection with wet air. Hawkins, 4th ed., pp. 35, 36.


diabase-porphyrite. A porphyry, the ground-mass of which is finely crystalline diabase and the phenocrysts of which are primarily plagioclase. It is contrasted with augite porphyry, the phenocrysts of which are primarily augite. Fay.

diabase. Applied to a texture of igneous rocks in which the crystals or grains of pyroxene (usually augite) fill the interstices between lath-shaped feldspar (usually plagioclase) crystals. The opposite of diorite is a diabase dike. The transition is gradual. A.G.I. Also called diabase.

diabasic. Relating to the intergrowth of two or more minerals; the intergrowth can be parallel, radiate, or have some less regular arrangement. Synonym for sieve texture. A.G.I.

diabole. A sky-blue oxidechloride of copper and iron, Cu2OCl2, in a wide variety of forms, usually as prismatic crystals; tetragonal; resembles lizarite. From Mendip Hills, Somersetshire, England.

diabrochile. A metamorphic rock formed by wet recrystallization or by partial fusion but without any intimate penetration by vitreous granitic material as in magmatic. A.G.I.

diachronism. The transgression across time place through a geologic, climatic, or hydrologic change of sand and when traced over a wide area may occur in different time zones in different places because it was not long continued marine transgression. The bed becomes younger in the direction in which the sea advanced. Same as diachro-
diachronism

diachronous. Pertaining to or during the period of the earth's existence, but differing in geologic time from. A.G.I., 1956.
diachronous faults. A line of rectangular fracture; applied by Daubree to explain the fact that the lines of weakness in the earth's surface are perpendicular to one another. Standard, 1964.
diacritical. Crossing a fold; a. a diachronal river. Webster 3d.
diagnostic structure. The structure exhibited by varied clays and silts, in which each sedimentation unit is marked by a gradation upward from coarse-grain size to fine-grain size. Synonym for graded bedding.
diagnosis. a. Any change occurring within sediments subsequent to deposition and before complete lithification that alters the mineral content and physical properties of the sediments. Bureau of Mines Staff. b. Recombination or rearrangement resulting in a change of product, as in the formation of larger crystalline grains from smaller ones. Webster 3d.
diagnostic deposits. Deposits consisting dominantly of minerals crystallized out of sea water, such as manganese nodules. H.G.
diagnosis. A marking or hieroglyph formed during diagenesis. Pettijohn.
diagnostic mineral. A. Such a mineral as olivine, nepheline, quartz, etc., which indicates an igneous rock is undersaturated or oversaturated. There are also diagnostic minerals in sedimentary and metamorphic rocks. Synonym for syngenetic mineral. A.G.I. b. A mineral, the presence of which permits certain deductions pertaining to the geologic history of the rock or sediment. Bureau of Mines Staff.
diagnostic brane. A structural member in compres- sion or tension, or both, at different times. It is usually designed and used to stiffen a frame against wind loads. Ham.
diagnostic core. Core obtained due to the direction of the strike of the coastal formations. Schiefferdecker.
diagonal plane. The specially designed eyepiece for a prismatic telescope used in surveying high altitudes. Ham.
diagonal joints. a. Joints diagonal to the strike of the cleavage. Zerna. b. In igneous rocks, joints which occur at 45° to the flow lines and are caused by shear. Lewis, p. 603.
diagonal scour marks. Scour marks formed by concentration of smaller scour marks, generally longitudinal flows, in rows which alternate with areas where scour marks are less abundant or are absent altogether, in rows diagonal to the main direction of flow. Pettijohn.
diagonal-slip fault. A fault in which the net slip is diagonal down or up the fault plane; for example, a fault with movement perpendicular to a strike-slip fault or a dip-slip fault. Synonym for oblique-slip fault. Billings, 1954, p. 140.
diagonal staple Any deposit that is neither a dip-slip nor a strike-slip fault. Synonym for bedded mineral. A.G.I.; Webster 3d; Fey. diaglyp. A marking or hieroglyph formed during diagenesis. Pettijohn.
diagenesis. Same as false bedding; cemented bedding; crossbedding. Fay. diagonal tension. The principal tensive stress in reinforced and prestressed concrete. Ham.
diagram factor. The ratio between the actual mean effective pressure developed in a steam engine and the ideal pressure deduced from the hypothetical indicator diagram. C.T.D.
diagnostic stratification. Same as false bedding; cemented bedding; crossbedding. Fay.
diagram of chondrules. A diagram illustrating the difference between chondrules and olivines. Pettijohn.
dial. Giving, meaning, indicating. Fay.
dial gage. A sensitive instrument which measures deflections of one-thousandth of an inch or less by a needle moving on a graduated dial. Ham.
diall. A dark green or trquoise-colored monoclinic pyroxene, which in addition to the prismatic cleavages, has others parallel to the vertical pinacoids. Mohs' hardness, 4; specific gravity, 3.2 to 3.35. Used also in steel, concrete, or well casings. Sometimes has the advantage of lightness combined with strength. Ham.
diall. A compass used for surface and underground surveying. It is fitted with sights, spirit levels, and a vernier, and mounted on a tripod. Pryor, 3, b. Corn. a. To make a mine survey. Pryor, 3.
diall. a. A mineral, the presence of which permits certain deductions pertaining to the geologic history of the rock or sediment. Pettijohn.
diall. a. A pointed wooden or iron arrangement placed between rails, just before a curve or switch, where tram cars are liable to be derailed, to force them to remain on the rails. If the skips are traveling in one direction only, the diamond is pointed at one end; if traveling back and forward on the same rails, both ends are pointed. Fay. b. A diamond of industrial grade used as the cutting element in drill bits. Also called borite; bort; bortz; carbon; congo. B.S. 3610, 1963, Sec. 3. c. The hardest known substance composed of carbon crystallized in the isometric system, the more common crystal forms being the octahedron and rhombohedron. The cube and some complex and combination forms of the isometric system are found, as well as mounted, distorted, and cryptocrystalline forms. Although very hard, diamond has excellent cleavage and breaks readily under a blow yielding flat surfaces parallel to the octahedral planes. Diamonds usually are classified as either gems or industrials on the basis of color, shape, size, crystal form, and the size and location of inclusions or other imperfections. Diamonds sometimes also are classified on a geographical basis, such as Angolas, Brazilians, congo, Sierra Leones, or West Africans. This does not strictly mean that diamonds are classified in forms that specific geographical area but that they are similar to stones characteristically produced by mines in that locality. A method for synthesizing diamonds has been developed, and small industrial diamonds have been produced on a commercial scale. These are a synthetic diamond called manmade diamonds. Long. See also manmade diamond; natural diamond.
diamagnetic. Having a negative magnetic permeability in vacuum, therefore, diamagnetic particles are repelled by magnetic field. Opposite of paramagnetic. Pryor, 5.
diamagnetic material. A material whose specific susceptibility is less than unity and is therefore repelled weakly by a magnet. A.S.M. Guide, p. 59.
diamagnetism. a. The property of certain substances by virtue of which they are repelled from both poles of a magnet and tend to set with the longer axis across the lines of magnetic force. Opposite of paramagnetic. Standard, 1964.
diamantine. See glass frost. Dodd.
diams. A trade name for a magnesia spinel brick. Heitz.
diameter. The greatest distance across a circle or through a sphere, the line of distance necessarily passing through the center of the circle or sphere. Bravais, 2.
diagonal rectifier circuit. A circuit which employs a semiconductor capable of conducting a period of 180 electrical degrees, plus the commutating angle. Coal Age, 1.
diafiltrated. See hydrazine sulfate. C.C.D.
diaphragm. A material whose specific susceptibility is less than unity and is therefore repelled weakly by a magnet.
DIAMOND BALLAS

Diamond ballas was first applied to such stones from Brazil, diamonds of similar structure known as Cape and African ballas. In color, ballas ranges from white to varying shades of black. While Cape and African ballas are not as hard as the Brazilian, they include some fine and unusual stones. Production is small. Rarely, if ever, used for diamond drilling but very useful for diamond tools. Cumming.

Diamond bit. A rotary drilling bit studded with button-type diamonds. A.G.I. Also called button bit; button set; button bit; button-set bit; bit; bit set; bit facing; bit facing set; bit; button-bit; button-set bit. Long.

Diamond-bit setter. See diamond-drill setter. D.O.T.

Diamond boring. Precision boring with a shaped diamond (but not with other tool materials). ASM Glass.

Diamond breaker. A person who buys packets of diamonds from the marketing agency of the Diamond Syndicate or other source, sorts the diamonds, and acts as a retail agent selling directly to consumers. Compare diamond buyer; diamond dealer. Long.

Diamond donor. A person who buys diamonds directly from the producer at or near the site where the diamonds are found or mined. Not to be confused with diamond broker who is sometimes miscalled a diamond buyer. Long.

Diamond chip. A fragment of a diamond crystal. Also called chip; chip; diamond Long.

Diamond cleaver. A cutting chisel having a diamond or V-shaped point. Fay.

Diamond cleavage. The plane along which a diamond crystal can be split easily. The four planes paralleling the faces of an octahedron are those generally referred to as the cleavage planes, or diamond cleavages. All crystalline diamonds are more or less brittle and will be fractured by a sufficiently violent blow, but the irregular surface of a fracture cannot be mistaken for the brilliant flat surface produced by cleaving. The carbon has no cleavage, and in ballas cleavage is absent or very poorly defined. Long.

Diamond chipping. The act or process of splitting diamonds into smaller pieces, which may be a single diamond or a set tool points, gems, or drill diamonds. Long.

Diamond concentration. The ratio of the area of a single-layer bit face covered by the inset diamonds or, in an impregnated bit, the bulk proportion of the crown occupied by diamonds. Long.

Diamond contact. The number of carats of diamonds inset in the crown of a diamond bit. Also called stone content; stone weight. Long.

Diamond core drill. A rotary-type drill machine using equipment and tools designed to recover rock samples in the form of hollow cylindrical cores from rocks penetrated by boreholes. See also core drill; diamond drilling.

Diamond coring. The act or process of obtaining a core sample of rock material using a diamond-bit or annular bit as the cutting tool. Long. This tubular bit and attached core barrel are rotated at a speed under controlled pressure by means of a water or water-oil or water-air mixture, through which water is pumped to cool the bit and remove rock cuttings. With the advance of the core the rock is cut up into the core barrel, where it is held by a core lifter or other device. Cumming, p. 17.

Diamond count. a. The number of diamonds set in the crown of a specific diamond bit. Also called bit count; stone count. Long. b. Sometimes incorrectly used to indicate the average number of diamonds inset in a specific bit. See also carat count. Long.

Diamond crown. The cutting bit in diamond drilling. It consists of a steel shell containing in its face and edges small cavities into which black diamonds are set. In some types of crowns the diamonds can be removed and reset; for further use. Grooves, called waterways, are usually provided in the face of the crown to allow the passage of the drilling fluid. For surface-set bits in diamond drilling, it is recommended that 2 to 20 stones per carat should be inset in the ground (see coarse); 10 to 80 stones per carat in medium ground (such as sandstone); and 20 to 130 stones per carat in hard ground (such as granite). See also burned bit. Nelson.

Diamond cubic. With respect to atomic arrangements, similar to the diamond in having the face-centered cubic arrangement of atom centers either of which is displaced with respect to the other by one-fourth of the diagonal of the unit cube. Henderson.

Diamond cut. See pyramid cut. B.S. 3618, 1964, sec. 5.

Diamond cutter. a. An individual skilled in the art of shaping diamonds as gems. Long. b. A tool in which a single diamond, shaped as a cutting point, is inset. Long.

Diamond cutting. One of the three processes by which diamonds are prepared for use as ornaments or in the arts, the others being diamond cleaving and diamond polishing. Fay.


Diamond dies. Industrial stones that have been pierced to permit their use for drawing wire of a constant diameter. I.C. 8200, 1964, p. 13.

Diamond drill. A drilling machine with a rotating, hollow, diamond-studded bit that cuts a circular channel around a core, which can be used to provide a more or less continuous and complete columnar sample of the rock penetrated. Diamond drilling is a common method of prospecting for mineral deposits A.G.I. Supp. Also called adammantine drill; core drill; diamond core drill; rotary drill; Drilling, diamond core. Long.

Diamond drill core. Boreholes drilled with a diamond drill and bits into rock surrounding an underground opening for the purpose of detecting water-bearing fissure or structures. Compare cover. Long.

Diamond drill crew. The men needed to operate a diamond drill. Long.

Diamond driller. One who sets up and operates a diamond drill that is used to obtain solid cores of rock or is drilled through so that the character of the ground, the wealth of ore, or strength of material for foundations may be determined. He may be called a core-driller in the bit as they become worn or chipped, or are lost (diamond-drill setter). Also called core-drill operator; core-drill operator; core-drill runner; core-drill operator. Long.

Diamond drill-bit helper. One who assists in the erection and operation of a core drill that bores into rock, earth, and other minerals to obtain core samples. Also called core-drill helper; core-drill operator helper; core-drill operator helper; core-drill operator helper; shot-core-drill operator helper; test-core-drill operator helper; test-core-drill operator helper; test-core-drill operator helper. Long.


Diamond drilling. The act or process of drilling boreholes using bits inset with diamonds as the rock-cutting tool. The bits are set by various types and sizes of mechanisms motivated by steam, internal-combustion, hydraulic, compressed-air, or electric engines or motors. See also diamond drill. Long.

Diamond-drill mcln. Members of a diamond-drill crew or persons trained to perform one or more duties connected with the operation of a diamond drill. Long.


Diamond-drill rod. Synonym for drill rod. Long.


Diamond-drill sample. Ti core brought to the surface in the core barrel. The cuttings in the uprising drilling fluid will also provide sampling material. See also core recovery. Long.

Diamond-drill setter. One who sets recesses in head of diamond drilling bit, with hand or powered drill, for the fastening diamond points. I.C. 8200, 1964, p. 13.

Diamond dust. a. Finely fragmented and powdered diamonds used as a cutting, grinding, and polishing abrasive or medium. Long. b. A diamond powder produced in the cutting of gems. Pryor, 3.

Diamond exposure. The proportional mass of a diamond protruding beyond the surface of a matrix metal in which the diamond is inset. Compare bit clearance. Long.

Diamond grade. The worth of a diamond as based on an individual sorter's interpretation of such standards of quality as presence of flaws, roundness, and shape. Long.

Diamond grooves. A groove of V-section in a roll. Fay.

Diamondiferous. Any substance containing diamonds; generally applied to rock or alluvial material containing diamonds but also may be used in referring to other diamond-impregnated substances, such as the crown of a diamond-impregnated bit. Long.


Diamond life. The amount of cutting a diamond will accomplish before being completely worn away by abrasion. In bits, diamond life usually is expressed in the number of feet drilled in a specific rock before the inset diamonds become too dull to continue cutting or are lost by roll out or completely worn away by abrasion. Long.

Diamond loss. The difference between the amount of diamond set in a bit and the usable diamond salvaged from the same bit when worn is considered the diamond
diamond loss. The loss may be expressed in carat per bit, carat per foot drilled, or in carat per 100 feet of borehole drilled in a specific rock. Long.
diamond patterns. A metal or metal alloy forming the material in which the diamonds inset in a bit crown are embedded. Also called metal bit matrix; bit matrix; crown metal; matrix. Long. b. The rock material in which diamonds are formed naturally and occur, such as kimberlite. Long.
diamond needle. A small-diameter hollow metal tube attached to a flexible rubber tube through which air is pulled by a suction or vacuum pump. The suction created at the tip of the metal tube enables a bit setter to pick up and place a small diamond in a bit mold with greater facility than with tweezers. Called a needle because the metal tube generally is made by using a discarded hypodermic needle. Also called diamond pickup needle; diamond pickup tube; diamond pipe. Long.
diamond orientation. The act or process of purposely setting a diamond in a bit or cutting tool in such a manner that the facets of the cut diamonds are small fragments of diamonds. Long.
diamond pattern. Manner in which the inset diamonds are arranged or distributed about the crown of a bit with or without conforming to some predetermined geometric arrangement. Long.
diamond pickup needle. Synonym for diamond needle. Long.
diamond pipe. a. Term used for an occurrence of kimberlite in volcanoclastic pipes large enough and sufficiently diamondiferous to be mineable. The size and shape of these pipes are controlled by the planes of structural weakness in the country rock through which the molten kimberlite passed. The pipes may be round, tabular, or irregular in shape and where mining is deep enough the diamond pipe is found to decrease in diameter. A diamond pipe is considered to exist until the diamond fragments have become rounded and are 40 diamonds having a total weight of 1 carat. Long.
diamond salvager. The recovery of fine diamond fragments that are present in the swarf and sludge from diamond grinding operations, as well as material from diamond dressing tools, wheel dressers, diamond-drill bits, and broken or discarded diamond wire drawing dies and grinding wheels. BinMiner Bull. 630, 1963.
diamond saw. A circular metal disk having diamonds or diamond dust inset in its cutting or peripheral edge. Employed to cut rocks and other brittle substances. Long.
diamond saw splitter. Synonym for core saw. Long.
diamond sawyer. In the stone industry, one who uses a saw in which block diamonds are inset in the teeth. D.O.T. 1.
diamond scale. Instrument on which diamonds are weighed with weight units calibrated in carats; scales vary from a folding 50-carat-capacity type, small enough to fit in a coat pocket when closed, to those large enough to hold several thousand carats at one time. Long.
diamondscope. An especially designed illuminator employing a gemstone holder of special chip-bit type; can be used with a binocular microscope, and a combination baffle which affords elimination of stones by either transmitted light, or by reflected light incident to all facets of the glass. It is sized for measurements of the facets on the crown so that inclusions imperfects) may be easily observed and identified. Used for both the identification of colored stones and the grading of diamonds. Shipley.
diamond setter. a. A person in the diamond-drilling industry—broken diamonds and diamond fragments deemed unfit for reuse in a diamond bit. In other industries using diamond-pointed tools, any piece of diamond salvaged from a tool and deemed unfit for reuse in the same kind of tool. Long.
diamond screen. A perforated metal or wire-cloth sieve used to sort diamonds or diamond fragments according to size. Long.
diamond-set bit. a. A rock-boring or rock-cutting tool, the cutting points of which are inset diamonds. Long.
diamond-set inserts. Small, shaped metallic slugs inset in diamonds designed to be brazed or welded into slots or depressions machined in a metal bit or reaming-shell blank. Long.
diamond-set ring. A powdered metal-alloy band encircling a reaming shell in which diamonds are inset mechanically. Long.
diamond setter. Formerly, persons skilled in the art of hand setting a diamond bit; also, persons trained to set diamonds in a mold to produce a so-called mechanically set bit. A few are being trained currently to hand set, but the technique is rapidly becoming a lost art. Long.
diagram. According to the diamond-drilling and dressing tool industry, the size of a diamond is always expressed in the number of nearly equal size diamonds having a total weight of 1 carat; hence an 8-diameter size means that there are 40 diamonds having a total weight of 1 carat. Long.
diamond with same as corundum. Fay.
diamonds per carat. The number of relatively equal size diamonds having a total weight of 1 carat. Also called stones per carat. Long.
diamond system. Synonym for diamond drill; diamond drilling. Long.
diamond tip. Large bright crystals of kimberlite. Fay.
diamond tools. a. Tools and equipment used to drill a borehole with diamond-set bits. Long. b. Any tool, the cutting point of which is a diamond, sometimes an inset whole stone or a shaped fragment of a diamond. Long.
c. A diamond, shaped or formed to the contour of a single-pointed cutting tool, for use in the precision machining of nonferrous or nonmetallic materials. ASM Gloss.
diamond-tooth saw. A circular saw for cutting stone with points of the teeth of pieces of diamonds. Merriam, 4th, p. 301.
diamond tweezers. Shaped pointed tweezers used to pick up and manipulate single diamonds. Long.
diamond wafer. An apparatus used for washing diamondiferous gravel. It has a bottom discharge with three coarse screens above it and a removable metal mesh. The shaker works in two bobs, hallowed out to suit, and is embroidered in the ground. The screens are copper, 0.5 and 1-millimeter mesh, the 8-millimeter screen being on top and the 1-millimeter screen at the bottom. The shaker is worked by a man standing on it at each end, and rocking it from side to side by a peculiar motion of the legs, the rocking motion being indexed each time by a sudden sharp jerk to one side. In West Africa the washer is commonly referred to as the shaker. Grietsk, S. I., pp. 8-10.
diamond wheel. a. A grinding wheel in which crushed and sized industrial diamonds are held in a resinoid, metal, or vitrified bond. ASM Gloss. b. Synonym for diamond set. Long.
diagoniferous. See diamondiferous. Long.
diaphanometry. The quality or state of being diaphanous. Specifically, the ability of a mineral to transmit light. Webber 3d. Compare transmit; semitransparent; translucent; opalescent. Fay.
diaphragm. Allowing light to show or to shine through. Webber 3d.
diaphraperite. A mineral like freieslebenite in composition. (Pb,Ag)₅Sb₂O₄ or (Pb,Ag)₅Sb₂Sn₃, but orthorhombic in form. Fay. b. Synonym for allagite. Hay 2d, 1953.
diaphragm. a. A porous or permeable membrane separating anode and cathode compartments of an electrolytic cell from other or from an intermediate compartment. ASM Gloss. b. Universal die member made of rubber or similar material which contains hydraulic fluids within the forming cavity and transmit pressure to the part being formed. ASM Gloss. c. A fluid partition between the mushrooms of Nicholos, 2 d. The crossthroat ring or metal piece holding the crossthroat or slipper line in a core saw. Also called a crossthroat. Long.
e.. In photography, a device for controlling the amount of light passed by a lens and
diaphragm

for cutting out such rays as would tend
to mar the perfection of the image. Also
diaphragm jig. In the gravity concentration
of minerals, a jig with a flexible diaphragm
deposited to pulse water. E.g., A.G.J. depo-
sition, Denver, and Conaet are exam-
diaphragm pump. A positive displacement
pump used for lifting small quantities of
water and discharging them under low
heads. It has a plunger arm operating
either on an eccentric shaft or a rocket-
arm thrusting on a rubber diaphragm
stretched over a cylinder. As the dia-
aphragm is depressed, the water and air
in the cylinder is forced out through the
diaphragm inlet port to form a vacuum in
the cylinder and water is forced in. Car-
diaphragm washbox. A washbox in which
the pulsating motion is produced by the
reciprocating movement of a diaphragm.
diaphanous. Synonym for retrogressive
metamorphism; retrograde metamorphism.
See also diaphanous. A.G.J.
diaphanose. A cataclastic schist with car-
acteristic minerals of upper deep magmas
which have developed at the cost of proto-
igneous minerals of lower deep magmas. Refer
to the text for more details.
diastole. Derived from a larger, parent
mineral, diphosphonate. A natural hydrous aluminum oxide,
dispersed as a fine, white, pearly; specific gravity, 3.35 to 3.45; Mohs'
lowish, and greenish; hardness, 3; and 3,28, depending on allotropic form; and
Mohs' scale.
diastem. A diastem represents an intraforma-
tion, with the same formation value. 4.01. c. A depositional
diastrophism. The process of deformation
that produces in the crust its conti-
nents and ocean basins, plateaus and
mountains, folds of strata, and faults. Con-
temporary or proterozoic. Webster 3d.
diathermanous. a. Transmitting infrared
radiation. Webster 3d. b. Allowing the free
diathermic. a. Diathermanous. Webster 3d.
b. Of or relating to diathermy. Webster 3d.
diathermy. The generation of heat in tissue
for medical or surgical purposes by the
application of high-frequency electric cur-
rents of various wavelengths by means of
electrodes and other instruments. Webster 3d.
diastroph. An event characterized by a de-
diastrophism. The process of deformation
that produces in the crust its contain-
ents and ocean basins, plateaus and
mountains, folds of strata, and faults. Con-
temporary or proterozoic. Webster 3d.
diagram. A microscopic unicellular plant
which has an envelope (frustule) or outer
skelton of hydrated silica, close to opal in
composition, and usually in two parts,
though some have a ring-shaped frustule
and some in chains. They inhabit both
fresh water and salt water, and their
frustules form masses of diatomaceous earth or
shale containing a thickness of thousands of
feet. Hess.
diastoeae. Formed from the silicious skel-
tons of diatoms. Shipley.
diagram. The process of deformation
that produces in the crust its conti-
nents and ocean basins, plateaus and
mountains, folds of strata, and faults. Con-
temporary or proterozoic. Webster 3d.
diastostaphic. A term describing a rock which breaks
simply, with faces and cleavage; applied to certain crystals. Stand-
dard, 1964.
diastrom. A volcanic vent or pipe drilled
through enclosing country rocks (usually
flat-lying sedimentary rocks) by the explo-
diastrophism. A volcanic vent or pipe drilled
through enclosing country rocks (usually
flat-lying sedimentary rocks) by the explo-
diastrophism. A volcanic vent or pipe drilled
through enclosing country rocks (usually
flat-lying sedimentary rocks) by the explo-
die lubrication

dielectric. a. A material which offers relatively high resistance to the passage of an electric current but may be made to conduct the electric lines of force may pass. Most insulating materials, for example, air, porcelain, mica, and glass are dielectrics and a perfect vacuum would constitute a perfect dielectric. NCB. b. An insulator. A term applied to the insulating material between the plates of a capacitor. HRC.

dielectric constant. The numerical expressions of the resistance to the passage of an electric current between two charged poles. It is the ratio of the attraction of two oppositely charged poles as measured in a vacuum to their attraction in a substance. Hess. The dielectric constant, which corresponds to permeability in magnetic materials, is a measure of the polarizability of a material in an electric field. This property determines the effective capacitance of a capacitor and consequently its static response to any applied electric field, either direct or alternating. The dielectric constant of a vacuum is unity. For most hard rocks it ranges from about 6 to 16 electrostatic units. For soft soils and clays it is somewhat greater than 1.0, extending up to 40 or 50 electrostatic units. Dobrin, pp. 341-342.

dielectric constant, Method of a high frequency heating in which the object to be heated, which must be nonconducting, is placed in a high frequency alternating field in which it is heated by the continually reversed polarization of the molecules. It has found application in the foundry for the drying of sand cores. Osborne.

dielectrics. Nonconductors of electricity may, under the influence of neighboring electric bodies, become electrically polarized by induction. Such materials are known as dielectrics. Their electromagnetic force is called dielectric polarization or dielectric induction. The strength of the electromotive force is determined by the dielectric constant. Hess.

dielectric separation, Method of ore treatment based on differences between dielectric constants of minerals suspended in an intermediate conducting fluid, when subjected to electric fields. Of limited use in laboratory work. Pryor, 3.

die lubrication. a. A solution that is used to facilitate the flow of plastic clay through a die or to prevent sticking of clay compositions of dies used in molds during the forming process. See also lubricant; mold lubricant. Bureau of Mines Staff, b. In powder metallurgy applied to the walls of the die and punches to facilitate the pressing and ejection of the compact. ASM Gloss.

die lubrication, Machine oils of a light variety or soap solutions are used for the lubrication of dies used in stamping or extrusion metal shapes. The procedure causes the strain on the metal and die and may prevent hair- lining in the subsequent forming operations. Tin oxides must be used to lubricate enamel ware blanks, due to difficulty...
diesel-electric locomotives. Diesel-electric locomotives are powered by diesel engines typically designed to run on high-speed, low-compression diesel oil, such as gas oil. Unlike single units, these locomotives are not self-propelled; they are hauled by another locomotive. Diesel-electric systems have been designed for both freight and passenger service, with capacities ranging from 10 tons up to the heaviest classes. Diesel-electric locomotives provide wide flexibility of control. Pit and Quarry, 53rd, p. 101.

diesel engine. A type of internal-combustion engine in which air is compressed to a temperature sufficiently high to ignite fuel injected directly into the cylinder, where the combustion and expansion actuate a piston. Thermodynamically, its operation approximately follows the ideal diesel cycle. Diesel engines may be of either the four-stroke-cycle design or the two-stroke-cycle design. The efficiency of the diesel engine (32 to 38 percent) is higher than that for other engines. Also called after Rudolf Diesel, a German mechanical engineer, who patented this type of engine in 1892. Webster 24.

diesel hammer. A pile driving drzhopper operated by a type of diesel engine. Ham. Diesel index. An expression developed to correlate aniline point and API gravity with cetane number. Diesel index = 100 where G is the API gravity of an oil, and A is the aniline point of the oil. Franci, 1954, p. 249.

dieselization. In a compressor, explosions of mixtures of air and lubricating oil in "c" compression systems or other parts of the air system. Nichols.

diesel locomotive. A locomotive driven by a diesel engine. N.w. used on roads of the New York Central and other diesel locomotives where 15 tons can give good continuous service. See also locomotive haulage. Nelson.

diesel oil. Fuel for diesel engines obtained from the distillation of petroleum. Its efficiency is measured by the so-called cetane number. It is composed chiefly of aliphatic hydrocarbons. Its volatility is similar to that of gasoline or jet fuel. C.C.D. 64, 1961. Diesel rig. Any drill machine powered by a diesel engine.

diesel squeeze. Pumping dry cement mixed with diesel oil through casing perforations to recement water-bearing areas and leave oil-bearing area unaffected. Wheeler.

diesel truck. In opencast mining, a powerful and robust diesel-engined vehicle carrying from a few tons to over 100 cubic yards of earth or rock. Also used in trackage transport in tristrate mines. Pryor, 3.

die set. A standardized tool or tool holder consisting of a die base and punch plate for the attachment of a die and punch, respectively. L. See also die (2).

die sinking. Forming or machining a depressed pattern in a die. ASM Gloss.

die steels. Steels of the plan carbon or the alloy types, which must be 0.004" high quality which is usually attained by special methods of processing. Essentially, they are usual in making tools for cutting, machining, shearing, stamping, punching and shipping. Bu Mines Bull, 536, 1956, p. 815.


die tryer. A device used for the direct reading of a Brinnell hardness after impression without the aid of magnification or conversion tables. After the impression is made, the reading is taken by pressing gently against the part so that the depth pin guides itself into the center of the impression. Brinnell hardness is read directly from the dial. The needle can be put back to zero by means of an exterior control if it becomes bent after long usage or when it has been subjected to shock. Osborne.

diethyl glycol diglycol ether. Practically colorless; liquid; characteristic odor; C5H12(OH)2C5H12; slightly soluble in water; and specific gravity, 0.8853 (at 20°C, referred to water at 20°C). A high boiling point, inert solvent with applications in extraction processes and an extractant for uranium ores. C.C.D. 64, 1961.

differential. The unit which provides the main transmission of power from the engine to the road wheels and determines the distance traveled by each rear wheel. C.C.D. 64, 1961. See difference be gage of drill bits. The difference in diameter of the bit when passing from one length (change) of drill steel to the next. See also difference in gage of drill bits.

differential flotation. Separating a complex ore into two or more valuable minerals and gangue by flotation. Also called selective flotation. ASM Gloss. The separate concentrates are made possible by the use of suitable depressors and activators. Newman, 1959.

differential grinding. Application of comminution in such a way as to accentuate differential breakage, usually by using various mineral species in the ore. Therefore,
differential grinding

in suitable cases, the relatively tough mineral particles remain coarse, while the more friable ones are finely ground. Pryor, 3.

**differential heating.** Heating that produces a temperature distribution within an object in such a way that, after cooling, various parts have different properties as desired. ASM Gloss.

**differential pressure.** The difference between twod absolute pressures. Roberts, 1, p. 18.

**differential pressure flowmeter.** An instrument for measuring water and water-oil slurries in one draining and coal dressing processes. It works on the principle that the rate of flow changes as the difference in pressure between the upstream and downstream sides of a constriction in the line carrying the fluid to be measured. The constriction is usually an orifice plate, a Venturi tube, or a flow nozzle. Thomas, 4.

**differential pressure sticking.** A problem occurring when the string comes in contact with the wall of the borehole in the presence of a high differential pressure into the tubing. The severity of sticking depends upon the magnitude of this pressure differential, the area of contact between drill pipe or filter cake, and the friction which must be overcome to move the pipe. American Petroleum Institute and Production Practice, 1963, p. 80.

**differential policy block.** A lifting tackle used by builders which comprises an endless loop of wire rope over two wheels, with a different diameter on each side, turning on the same shaft. As the diameters become closer to one another, the lifting power increases. The block prevents the chain from running back and permits one man to lift 1,000 pounds or more in suitable cases. Ham.

**differential pumping engine.** A compound direct-acting pumping engine, generally of the double acting type. Pryor, 3.

**differential relays.** These relays operate on current induction and are used to protect against certain kinds of currents that are reflected in the horizontal class. Fay.

**differential system or equipment.** When the rated percentage of unbalance is reached the relay operates a breaker and interrupts service to the system or equipment. When the rated percentage of unbalance is reached the relay operates a breaker and interrupts service to the system or equipment. Pryor, 3.

**differential weathering.** When rocks are not uniform in character but are softer or more soluble in some places than in others, an uneven surface may be developed in deserts by the action of the wind and in humid regions by solution. Columns of rock. This ratio is known as any way show the effect of differential weathering. A.C.I.

**differentiate.** One of the different kinds of igneous rocks formed as the result of magmatic differentiation. Bateam.

**differentiation.** A process in which two kinds of substances, such as dikes, laccoliths, batholiths, etc., that are made up of two or more rock types, are produced by the splitting of a parent magma. Hess.

**differentiated dike.** A dike that consists of more than one kind of rock because of magmatic differentiation of an originally homogeneous magma into two or more fractions. Billsing, 1954, p. 307.

**differentiated sill.** A sill that consists of more than one kind of rock because of magmatic differentiation of an originally homogeneous magma into two or more fractions. Billsing, 1954, pp. 295-296.

**differentiation.** A process by which two or more rocks of different composition are derived from a single body of magma. Bateam. b. In mineral processing, separation of successions of mineral species from mixture in ore by flotation. Pryor, 3.

**dissolved water** has been changed in direct by an obstacle or other nonhomogeneity in the medium by a mean other than reflection or refraction. Pryor, 3.

**diffraction.** a. A modification which light undergoes in passing through opaque bodies, or through narrow slits, or in being reflected from ruled surfaces, in which the rays appear to be deflected producing fringe patterns in transparent, liquid, or solid states. HBG, c. When seismic waves strike the corner, reflection takes place, this corner will in itself serve as a point source for radiating waves back to the surface. Dobrin, p. 27.

**diffraction grating.** An optical device used to analyze a beam of light or electromagnetic wave into constituent wavelengths. In one form, a pattern of equidistant fine lines is ruled on a glass plate (reflection) or on a metal (reflection) surface. Pryor, 3.

**diffraction meeting.** A diffuse diffraction pattern of light waves or X-rays. A method of analyzing a variety of minerals, especially clayey and other aluminiferous minerals. The method is based upon the fact that the application of heat to many minerals causes certain chemical changes, which are reflected in endothermic and exothermic reactions. By comparing the changes in temperature in test heats at definite rate with that of a thermally inert substance (alumina, for example) heated under the same conditions, a curve or pattern is obtained that is characteristic of the particular material under examination. Billsing, 1954, p. 307.

**diffuser chamber.** A chamber in a turbine pump consisting of a number of fixed blades. The water on leaving the impeller is guided outwards by these blades with the minimum of eddying and whirling. Nelson.

**diffusion.** a. The permeation of one substance through another, such as gas through gas, liquid, or solid; solute through solvent; liquid through liquid or solid; and finally solid through solid. The pressure corresponding to that exerted by dissolved material in its diffusion from a more concentrated to a less concentrated part of a solution is called osmotic pressure. Holmes, 1926. b. Spreading of a constituent in a gas, liquid, or solid, tending to make the composition of all parts uniform. ASM Gloss. c. The spontaneous movement of atoms or molecules from one phase to another. Nelson. d. Migration due to motion of particles of a given phase tending to increase volume of one material and to penetrate adjacent phases. Usually mutual across interfaces. Unlikem ossions which only affect one component of solvent molecules. Pryor, 3. e. Flow relative to each other of the constituents of a single-phase mixture. Such relative flow may occur when the different parts of the mixture are in disequilibrium. NRC-ASA N1.1-1957.

**diffusion coating.** a. An alloy coating produced at high temperatures by the inward diffusion of the coating material into the base metal. ASM Gloss. b. Composite electrodeposited coatings which are subsequently interdiffused by thermal treatment. ASM Gloss.

**diffusion coefficient.** A factor of proportionality representing the amount of substance in grams diffusing across an area of one square centimeter through a unit concentration gradient in one second of time. NRC-ASA N1.1-1957.

**diffusion discharge.** A flame whose rate is controlled by a diffusive mixing process. I.C. 1937, 1953, p. 76.

**diffusion of gases.** The property that all gases possess of diffusing or spreading one into the other. See also Graham's law. Nelson.

**diffusion pattern.** A dispersion pattern resulting from upward movement of ions in vadose water. Nelson.

**diffusion sticking.** Terms used for true solid state sintering by those who allow a wider meaning than this to the word sintering itself, when used without qualification. See also sintering. Dodd.

**diffusivity.** The relative rate of flow per unit area. In the particular constituent of a mixture divided by the gradient of composition, temperature, etc., used to study the diffusion. NRC-ASA N1.1-1957.

**dig.** a. To mine coal, applied to bituminous mining. See also gouge, c. Fay, b. To excavate; make a passage into or through, or remove by taking away material. Fay. c. Crushed strata. Nelson.
dig-down pit - smeken pit. A pit that is below the surrounding area on all sides. Nichols, 1933.

diglycol. A blue to black mineral associated with the buckwheat. Arkansas, 1956.


digger. a. One that digs in the ground; as, a digger for digging purposes. Webster 2d. b. A man who is paid by the ton for coal produced; a miner in the strict sense. Originally the digger mined or undermined the coal; now the term is applied to the man who merely shoots out the coal. Fay. c. A machine for removing coal from the bed of streams, the coal having washed down from cofferdams of culm banks above. Zern. d. In Butte, Mont., means the clothing miners wear underground; a pair of denim bib overalls and a denim jacket. Booth. See also miner. D.O.T. 1.

digger edges. The formed serrated edges of the buckets used for digging purposes on a buck? loader. SA Mine 1-1935.

digger tools. The formed tools, interchanged with the buckets of a bucket loader to aid in digging. ASD MHJ 1-1938.


digging residance. The resistance which must be overcome to dig a formation. This resistance may be caused by unstable conditions in the surrounding area on all sides. Nichols.

D.O.T. 1.

digging cycle. Complete set of operations a machine performs before repeating them. Nichols.


digging line. On a shovel, the cable which forms the bottom into the soil. Called crowd in a dipper shovel, drag in a pull shovel, and dragline and closing line in a clamshell. Nichols.

digging resistance. The resistance which must be overcome to dig a formation. This resistance may be caused by unstable conditions, or by coal, or by water underground or at the surface. Nichols, 3, 3-4.

digging. a. Applicable to all mineral deposits and mining camps, but as used in the United States applied to placer mining only. See also bar diggings. Fay. b. Superficial mining work. Pryor, 3.

digital computer. Machine which makes mathematical computations by methods in which digits are added or subtracted in accordance with the coding signals to which the machine is sensitive. Pryor, 3.

digital indicator. A device that indicates the magnitude of a measured quantity in digital numbers, usually in decimal or binary form. ASM.

diglycol monoesterate; diethylene glycol monoesterate. Small, white flakes; available in a diamond-shaped, spade-like dispenser. Gras COO C.H.C.H.OH. Used as a temporary binder for ceramics and grinding wheels. See also dielectric lubricant for die casting. CCD 6d, 1961.

diglycol stearate; diethylene glycol distearate. A white, waxy solid; faint fatty odor; 188° C, referred to water at 20° C, and specific gravity, 0.9333 (at 20° C, 55° C). Used as an emulsifying agent for oils, solvents, and waxes; as a temporary binder for abrasive and grinding wheels; and also as a binder for clays for ceramic insulation. CCD 6d, 1961.

dihedral. Having two sides, as a figure; having two facets, as a crystal. Fay.

dihedral angle. The angle of penetration of one phase or grain between two adjacent grains. V.V. See also angle, a.

dihydric alcohol; glycol. Alcohol containing two hydroxy groups; for example, GLH.OH.CH.OH. Bennett 2d, 1962.

dike. dikes. a. A discordant tabular body of igneous rock that was injected into a fissure when molten, that cuts across the structure of the adjacent country rocks, and which usually has a high angle of dip. It should not be confused with a vein. Bureau of Mines Staff. b. An embankment of earth constructed to prevent flooding by the sea or by a stream; a levee. Webster 2d. c. An embankment of earth around a drill sump or tailrace. d. An embankment to impound a body of water or mill tailing. Long.

dike bench; dike swale; polder. A tract of low land reclaimed from the sea or other body of water by dikes. Schiferdecker.

diked marsh. See diked land. Schiferdecker.

dike. dikes. a small colloidal or amorphous deposit. From a dike. Standard, 1964.

dike ridge. A wall-like ridge created when erosion removes softer material from along the sides of a dike. Stakes and Varnes, 1933.

dike truck. The solidified igneous rock, which, while molten, was injected into a fissure in older rocks. Not to be confused with rock, clod, or rashings. Arkell. c. A band of rock, clod, or rashings. Arkell. d. A self-acting incline handling light ore. Fay.


diking. a. Diking. To separate a tract of land or marsh with dikes. Schiferdecker.

diking. b. A depocentre with a netlike structure. Schiferdecker.

diking. a. Property of granular masses of expanding in bulk with change of shape. It is caused by the increase of space between the individually rigid particles as they change their relative positions. Fay. b. The expansion of cohesions soils when subject to shearing deformation. ASCE P1626. c. The property of a cill which, when a part is shaken vigorously in the palm of the hand, moisture will appear on the surface but can be worked back by pressing and squeezing. A clay does not exhibit this property. Nelson. d. Property of certain suspensions in which resistance to flow increases at a greater rate than the increase in rate of flow; for example, as in quick mud. Bennett 2d, 1962 Add. c. Behavior whereby there is an apparent decrease in the liquid content of a colloidal structure during mechanical agitation (increase increases). V.V.

dilation. See dilatation, a.C.G.I.

dilatation. a. An expansion of ice from the freezing of water in fractures. V.V. b. The widening process of an initial fissure concomitant with the injection of magma. V.V.

dilation value. One of the fat lenses in schists and thought to have been caused by the holding of the schistose rocks under pressure transmitted by the mineralizing solutions. Bateman, 1950, p. 111.

dilatometer. An instrument for measuring the expansion or contraction in a metal resulting from changes in such factors as temperature or allotropy. ASM Gloss.

diligence. To prosecute drilling with due diligence to succeed or abandonment means, that there must be a product capable of division between the parties in the proportions mentioned in the lease. Unless this is done, drilling is not prosecuted to success. The rule is that whatever, under the circumstances, would be reasonably expected of operators of ordinary prudence, having regard to the interest of both lessor and lessee, is what is required. Ricketts.

diluvial. An impure chrysoallata containing copper carbonate. Wedel, 1918.

diluvial. Corn. To separate (tin ore) by washing in a pan sieve. Webster 3d.

diluvial. The washing of small ore in a fine sieve. Nelson.

diluvial. Corn. A fine hair sieve for tin ore.

diluvial. Upgrading fine cassiterite by pan- ning it in water in a close-meshed sieve. Pryor, 3.


diluvial. One who rides a dilly or attends it. Fay. See also inhaler. Pryor, 3.


diluvial. hole. a. A small-diametercased hole along the borehole. A proper. The dilly hole is as deep as the kelly or grip stem is long and acts as receptacle in which the Kelly may be stored during round trips, casing, or other operations in which it is not used. Long. b. A small sludge-catchment basin placed between the collar of the borehole and the main drill sump. Long.

diluvial. rider. In bituminous coal mining a laborer who rides and attends a dilly (light wagon, truck, or water cart) used to haul coal or coal underground or at the surface of a mine, loading, unloading, and cleaning it. D.O.T. 1.


diluvial. a. That which dilutes or makes more fluid; a fluid that weakens the strength or consistency of another fluid upon mixing. Fay. b. Waste rock in a mull. Hoc. c. In solvent extraction, the inert liquid used to dissolve the extractant. This is usually practically immiscible with water; and the one that is almost universally used is kerosene. Nevins, p. 440. d. See carrier solvent.
diluent

Pryor, J. Diluent. Relatively weak in concentration; to lessen the strength of by adding more solvent.

dilute medium. Medium of specific gravity below that in the separating batch and usually occurring as a result of spraying the bath products for the removal of adhering medium solids. B.S. 2552, 1962.

dilution. The contamination of ore with barren wall rock in stopping. The assay of the ore after mining is frequently 10 percent lower than when sampled in place. Nelson.

Synonym for contamination. Long.

diluvial. a. Pertaining to floods. Fay. b. Related to or containing diluvium. Fay.

diluvium. a. Sand, gravel, clay, etc., in surficial deposits. See also drift. Formerly, according to density, the effect of the ordinary, and diluvium was the effect of the extraordinary action of water. Fay. Forming a part of the unsorted and sorted deposits of the Glacial period, as contrasted with the later sorted alluvium. Compare alluvium. Fay.

dimensional analysis. In scale model analysis of the properties of water, the effects of flow of liquids, the principle of dynamic similarity applied to determine the relationship between variables, such as speed and density of fluid and the length of a scale model compared with that of its full size prototype. Ham.

Fey.

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Fey.
**diorite-porphryrite**

blende porphyrite, the phenocrysts of which are primarily hornblende. Fay.

**diorite.** An igneous rock consisting of diorite-porphryrite, V. 3, 1937, p. 61.

**diorite ore.** A term which has been used somewhat casually in the western United States for porphyrite. Fay.

dip. a. The angle at which a bed, stratum, or vein is inclined to a horizontal plane. Lawes, p. 26. b. The angle of a slope, vein, rock stratum, or borehole as measured from the horizontal plane downward to the line of dip. Fay. c. W. A word not found in the mining act. The term there used is 'downward course', which is synonymous with dip. The direction of the vein or lode as it goes downward into the earth is called the dip. It may vary from a perpendicular to an angle perhaps only a few degrees below the horizon. The same vein or lode may have different dips. Rich.
dip angle. 137. p. 200. Air. The inclination of the reef or strata below the earth's surface to an angle downward into the earth is of the reef or strata below the gold lode may also be dip angle. An instrument to determine the dip. Fay. d. The slope of layers driven to the full rise underground way driven to slope. Fay. e. To slope or dip. Fay. f. Reflected dip. Mason.
dip coil. A joint that is dip-sloped. Mason.
dip compass. A dipping needle, dipping silt, or a dipping needle, dipping compass. Fay. 1. Eng. A. A downthrow, or a fault. Fay. 2. A device which unlashes the door of a shovel bucket to dump the load. Nichols. 2. dip core. Same as dip. Fay. b. In Scotland it is called a dook. Fay. c. The process of coating a metal shape by immersion in molten zinc or tin. Pryor. 3. dip core. Sonar equipment used by beluga and hydrofoils. Hr. dip core. See pick-up. ASTM C286-65.
dip core. Eng. Same as dip. 1. Fay. dip core. A device used to measure a dip. A heading taken in an inclined borehole by using one of several types of borehole-surveying devices or techniques.
dip curve. The distance between two parts of a disrupted bedding plane, measured in the fault plane parallel to its dip. Schieferdecker.
dip dip. The component of the shift (or slip) parallel to the strike. Mason. 2. Schieferdecker.
dip dip. Any system of seismic surveying where the primary concern, both instrumental and computational, is the registration and interpretation of reflections for dip values, with minor emphasis on correlation of records from shot point to shot point. Mason. 2. Schieferdecker.
dip dip. The lowest side of a room or wall. Also called ledge. Fay. b. The side dipping downhill away from the point of reference. Mason.
dip dip. The component of the dip in the direction of the true dip of the fault plane. Schieferdecker.
dip dip. A fault in which the net slip is practically in the line of the fault dip. A fault in which the dip is vertical. See also oblique slip fault. Nelson.
dip dip. A landform developed in regions of gently inclined strata, particularly hard and soft strata are interbedded. A long, gentle sloping surface which parallels the dip of the bedding planes of the strata below ground. C.T.D.
dip dip. A current of intake air directed into or down a dip. Fay.
dip dip. A. A fault in which the slip is practically in the line of the fault dip. A fault in which the relative movement is vertical. See also oblique slip fault. Nelson.
dip dip. A map that shows stratified formations in their original position before movement. Biddle.
dip cut. In cutting out blocks of stone, the cut is made at right angles to the strike and dip of the strike. Fay.
dip entry. An entry driven downhill so that water will not accumulate on the strike face. If it is driven directly down a steep dip it becomes a slope. See also entry; slope.
dip entry. A face proceeding towards the dip of the seam Briggs. p. 25.
dip face. A. A face proceeding towards the dip of the seam Briggs. p. 25.
dip fault. A fault that strikes approximately perpendicular to the strike of the bed or stratum. Billings, 1954, p. 141.
dip heading. In tunneling, a dip heading is one driven downward to the deep. Pryor. 3. dip heading. Leveling. In tunneling, a dip heading is one driven downward to the deep. Pryor. 3.
dip meter. a. An instrument used to record the magnitude and direction of tilt in strata. Mason. 3. A dip meter is a dip indicator. Mason. b. A detector of the dip of strata. Mason. 3.
dip switch

330
direct current. See also alternating-current generator. Nelson.
direct-cycle power system; single-cycle re-actor system. A nuclear power plant system in which the heat-transfer fluid circulates through the reactor and then passes directly to the turbine in a continuous cycle. L.B.I.
direct-dip-reading chart. See direct-reading capillarity chart. Long.
directed practical training. The scheme introduced by the National Coal Board of Great Britain to train miners for managerial and other responsible positions in the coal industry. See also ladder plan. Nelson.
direct expansion. An arrangement of a refrigerant evaporator where the refrigerant itself expands in an evaporator in the airstream. Stock, 10.
direct extraction. See extraction. ASM Gloss.
direct fire. A method of maturing porcelain, enamel or ceramic ware wherein the products of combustion come in contact with the ware. Stock, 10.
direct-fired kiln. A fuel-burning device in which the heat from the fuel is transferred through metal to air which is then introduced to the space to be heated. Stock, 10.
direct-fired unit. A heater in which the flame's heat is transferred to metal plates and thence directly to the air to be heated. A warm air furnace is direct fired; a boiler is indirect. Stock, 10.
direct firing. a. The combustion of coal effected by burning directly on a grate. Stock, 2. A method of firing wherein the products of combustion come in contact with the ware. ACBG, 3.
direct leveling. The system in which an engine with a single drum and rope draws loaded trucks up an incline. The empties run downhill dragging the rope after them. C.T.D.
direct-blast drier. A drier in which heat is received by radiation from floors, walls, and roof. ACBG, 1963.
direct initiation. The placing of the detonator in the last cartridge to be inserted in the shothole with the active end of the detonator pointing inwards. This position tends to minimize the risk of gas ignition. See also inverse initiation. Nelson.
direction. Angle to the right (clockwise) from an arbitrary zero direction. Used chiefly in triangulation. Sext. 2.
directions. a. The art of drilling a borehole wherein the course of the hole is planned before drilling. Stock, 2. b. Holes are usually drilled with standard equipment, and are useful in drilling divergent tests from one location, tests which otherwise might be inaccessible, as controls for fire and wild wells, etc. ACBG, 2. b. Drilling in which the course of a borehole is controlled by deflection or other means. See also orientation. The technique of directional drilling is used: (1) to deflect a deviation hole back on course and (2) to deflect a borehole off course, either to bypass an obstruction in the hole or to take a second core. B.S. 3618, 1963, Sec. 3. c. Curving a rotary drill hole to avoid obstacles or to turn side areas. Also called offset drilling. Nichols.
directional drilling engineer. In petroleum production, one who directs use of special oil well drilling techniques and tools to control direction of drilling and thereby overcome certain production problems. D.O.T. 1.
directional hearing aid. A device which is worn on the head or is built into a hearing aid and operates by a directional microphone. See direct sound field. Stock, 9.
directional hoist. A hoisting device which is used for the production and delivery of direct current. See also alternating-current generator. Nelson.
directional overcorrection relays. The difference between straight overcurrent relays in that they are primarily used for ground protection. They are designed to pick up current in one or two sections. Whether faults will cause flow in one or two directions is determined by system conditions. These relays provide directional as well as nonrecurrent protection. Other directional relays provide phase protection. Coal Age, v. 71, No. 8, 1966, p. 341.
directional properties. Properties whose magnitude varies depending on the relative phase angle between two alternating currents. ASM Gloss.
directional solidification. The solidification of molten metal in a casting in such a manner that feed metal is always available for that portion that is just solidifying. ASM Gloss.
directional work. See directional drilling. Stock.
directional drilling methods. Electromagnetic exploration methods in which one determines the direction of the magnetic field associated with the currents. Schiefer.
directional indicator. Any one of a number of geophysical devices used to determine the deviation of a borehole from vertical. A.C.B.
direction of irrigation. Direction of flow of irrigation water from the point of intake to the point of distribution. See also irrigation. Stock, 10.
direction of tilt. The azimuth of the normal to the axis of tilt. Sext. 2.
directions. See interference figure. C.T.D.
directionality. Sound energy which is confined to a beam by mechanical and/or electronic means. Stock.
directional properties. A measure of the directional properties of a transducer. It is the ratio in decibels of the average intensity of the specific condition of the transducer to the intensity of the free field in the same direction. Stock, 10.
directional properties. A measure of the directional properties of a transducer. It is the ratio in decibels of the average intensity of the specific condition of the transducer to the intensity of the free field in the same direction. Stock, 10.
direct labor

Nelson, M. 1957. Direct labor costs in coal mining, Part I. Mining Engineering, 10, 2, pp. 93-100.

direct labor. The labor required for the execution of work in the mine, excluding those services which are not a part of the direct process of mining. Diese. 331

direct controlled variable. In computer control, a variable whose value is sensed to originate a signal to correct the control loop. Fassett, p. 543.

direct method. A mouth-to-mouth method of artificial respiration in which the rescuer places his nose and mouth over the patient's nose and mouth and his air passages are cleared. A handheld device that is available to be placed over the patient's mouth and nose is also shown. New England Journal of Medicine, 24, 1937, pp. 322-323.


direct coal. A coal seam with thick partings of shale or slate; thin stringers; not a true fault. Fay, 242.


dirty finish. A finish with thick partings of shale or slate; not a true fault. Fay, 242.


dirty work. Inactitious term for work that may be gray-skinned or limegreen. Pettijohn, 24, 1937, pp. 222-223.


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discharge chute

direct material or objects from a conveyor. 

AS A MH1-1938.

discharge curve. A curve which relates the 
water flow of flowing water to its dis- 
charge. Ham.

discharge head. The sum of static and dy- 
namical frictional losses and the head 
intake and fire disposal of pump is static 
head. Allowance for friction, power loss, 
proportional slip, and main-lining is in- 
flected for calculating the overall discharge head. 

Pryor. 3.

discharge station. A place where bulk mate-
rials or objects are removed from a con-
veyor. AS A MH1-1938.

discharge valve. A valve used to retard or 
accelerate flow through a pipe, as distinct 
from a stop valve. Ham.

discharge velocity. The rate of discharge of a 
liquid (usually water) through a porous 
medium per unit of total area perpendicular 
to the direction of flow. ASCE P1896.

discharging arch. See relieving arch. ACSG.

discipline. Employee discipline implies sub-
pjection to authority or instructions given 
by a mine official. For management, it 
connotes the right to direct and control 
employees in an orderly, safe, and 
efficient way. Nelson.

discussion. space of. See space of discussion.

disc. Of, like, or producing a disk. Webster 
3d.

discoid. A diskoidal coccolith. Webster 3d.

discoid fracture. A fracture in which the 
planes of fracture are parallel to the 
surface of a solid and not to any other plane with which it may be dis- 
connected. A curve which relates the 
statics. 

discoidal. Of, like, or producing a disk. Web-


discorannous. a. An abrupt change in the 
head. Allowance for friction, power loss, 
water level of swings water to 
direct material or elements from a conveyor. 

ASA M114.1-1938.

discord. a. A fold in which abrupt changes in 
vertical distance from one bed to another, especially where alternat-
ions of plastic and rigid beds occur. A.G.I.

discordant folding. Folding in which 
individual beds are foreshortened and 
normal to a plane of foliation and 
with depth. Such changes may occur gradu-
ally or abruptly. Billings, 1554, p. 38.

discordant injection. An igneous mass injected 
across bedding planes. Fay.

discontinuity. An unconformable strati-
fication. See also discordance. Fay.

discovery. a. The term has a technical mean-
ing in mining which may be defined as knowl-
edge of the presence of the valuable min-
erals within the lines of the location or 
such proximity to them as to justify a rea-
sonable belief in their existence. But in 
all cases there must be a discovery of min-
eral, in both lode and placer claims, as 
distinguished from mere indications of 
mineral. In other words, in a lode location 
there must be such a discovery of mineral 
as gives to the miner an ownership of the 
fact either that there is a vein or lode of rock 
in place carrying the valuable mineral; 
or, if it be claimed as placer ground, that 
it is valuable for such mining. Ricketts, 
p. 346-347. b. Fac. The first finding of the 
mineral deposit in place upon a 
mining claim. A discovery is necessary be-
fore the location can be held by a valid 
claim. The opening in which it is made is 
called discovery, shaft; discovery, tunnel; 
etc. The finding of mineral in place as 
distinguished from float rock constitutes a 
discovery. See also mine, m, for discovery 
of a mine. Fay.

discovery claim. The first claim in which a 
mineral deposit is found, and when this 
is within a gulch or on a stream the claims 
are simply marked or numbered from the 
discovery claim either by letters or figures 
up or down the gulch or stream. Fay.

discovery vein. The mineral vein on which 
a mining claim is based. See also secondary 
vein. Nelson.

discovery well. The well that discovered oil 
or gas in a pool hitherto unknown. A.G.I.

discrepancy. The difference between results 
of duplicate measurements. Seelye, 2.

disintegration index. A measure of the dura-
bility of a hydraulic cement proposed by T. Merrimen. The test involves shaking 
with a line-sugar solution followed by 
titration of one aliquot against HCl with 
phenolphthalein as indicator and another 
with methyl orange as indicator. The dis-
integration index is the difference between 
the two titrations. The test was supervised 
by the test now known as the Merrimen 
test but gave slightly lower results. See also 
Merrimen test.

dispersant. A mill for comminuting or 
to a fine dry powder such as by impact 
breaker. Nelson. b. A machine for reducing 
the area being lane compared to the 
length. ASM Gloss.

distributing. One that forms oval dishes or 
other revolving tool with a forming tool (jigger) 
and an eccentric (a device causing the 
ominate to move back and forth in the pres-
to rotate, so an oval shape will be 

disch plate. Eng. A plate or rail conceived 


to receive the front wheels of a tub to 
secure it while teeming. Webster 2d.

dish wheel. A grinding wheel shaped like a 


dishwater. A gas, liquid, or solid used to 
destroy disease germs. Griswold.

disintegration. a. To break up the action of 
chemical and/or mechanical forces. A.G.I. 
b. To separate or decompose a material 
and an eccentric to destroy the 
wholeness, union, or identity of, Bellard.

distributing mill. A mill that reduces mate-

s in place carrying the valuable mineral; 
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to rotate, so an oval shape will be 

disch plate. Eng. A plate or rail conceived 


to receive the front wheels of a tub to 
secure it while teeming. Webster 2d.
disk. S. tappet. Pay.
disk grizzly. disk grinding. Grinding with the flat side of
disk filter; American disk filter. A continuous
fan. An axial-flow fan with a series of
disk main cutter. A coal cutter whose cutting
disk clutch. A coupling that can be engaged
didactic 333

disintegrator

disintegrator

disintegrator

which one is fixed while the other rotates.
One led centrally between the plates in
a vertical position in the direction of
the material being ground. Compare
hammer mill, a. D. odd

dishwasher. A machine for crushing
wet materials which consists of a large,
smooth face operated at a low speed and
at its periphery with cutters. The first disk
machine, with detachable pickets was pat-
ented in 1861. The disk coal cutter is

disk coupling. Consists of driving and driving
flanged hubs with projecting fingers or
lugs which mesh from alternate flanges
with holes in the disk. In some cases, the disk is replaced by a spider
which meshes between the jaws of
the driving and driven hubs. Pit and
Quarry, 53rd, See, D. p. 66.
disk fan. A fan for circulating a fluid with a series of
blades formed by cutting and bending flat
sheets or plates. When rotated the disk imparts to the air a motion along the axis
of the fan shaft. Sirocco, 10.
disk feeder. A feeder consisting of a rotat-
ing horizontal metal disk under the open-
ing of a bin such that the rate of turning
or opening of the gate governs the quan-
tity delivered. ACGS, 1963. b. See rotary
de-feeder. ASM MH4-1.1958.
disk filter; American disk filter. A continuous
dewatering filter in which the membrane
(filter cloth) is stretched over segments of a
disk. These disks rotate through a tank of
slurry. The vacuum inside the disk sucks
the liquid through the filter medium and
a dispersed phase, increases the dewatering
ability without appreciably changing
other properties. Encyclopedia Britannica.
dispersion-strengthened metal

*Dispersion* Book of the Year, 1961, p. 350.

dispersible. The power of a transparent medium to separate different colors; as, the power of a glass as measured by the difference in refractivity for two specified widely differing wavelengths divided by the length of the some specified intermediate wavelength. Webster 3d.

dispersed. A body that has been dispersed in a liquid state. Dodd.

dispersed ore body. An ore body which has suffered a disruption or displacement after initial deposition, such as folding, faulting, or igneous intrusion normally causes displacement. In some cases, secondary enriched ore deposits formed later at some distance from the zone of leaching of the primary ore zone and are often referred to as dispersed ore bodies. The direction of flow of the ground waters leaching the ore body are the displacing mechanisms in this instant. Bureau of Mines Staff.

dispersed outcrop. An outcrop that has moved downhill during a landslide or soil creep. Nelson.

dispersed seam. A coal seam which has been displaced by a fault. Nelson.

displacement. A sudden movement of a point, usually at the surface, during subsidence. Nelson. b. A general term for the closed-in position of any point on one side of a fault plane relative to any corresponding point on the opposite side of the fault plane. Ballard, c. The word displacement should receive no technical meaning, but is reserved for general use; it may be applied to a relative movement of the two sides of the fault, measured in any direction, when that direction is specified; for instance, the displacement of a stream along a drift in a mine would be the distance between the two sections of the stratum measured along the drift. The word "offset" will also be most useful in a general sense. Fay. d. For air compressors, the volume displaced by the net area of the piston of the compressor multiplied by the length of the stroke in feet and by the number of strokes made per minute. For multistage compressors, the displacement refers to the low-pressure cylinder only. Lewis, p. 653, e. The volume of liquid delivered by a single stroke of a pump piston. Long. f. Sometimes used as a synonym for offset deflection; deviation; dislocation; throw. Long. g. The capacity of an air compressor, usually expressed in cubic feet of air per minute (c.f.m.). Long.

dispacement pump. One in which compressed air or steam, applied in pulses, drives out water entering the pump chamber. If the pulses, a nonreturn valve preventing reverse flow. Pryor, 3. See also air displacement theory.

dispacement theory. In geology, continents originally formed one large land mass, which fractured and drifted to present day positions. Pryor, 3.

displacement-type float. A device for measuring the liquid level in sumps or vessels. It consists of a float, whose vertical height is greater than the level range being measured and whose weight is such that it would sink in the fluid if not supported. It is placed in the liquid and supported in such a way that as the liquid level rises, the float tends to sink in the liquid. The weight of the displaced liquid. This force is measured and since it is proportional to the area of the displaced liquid, the force and since it is proportional to the area of the displaced liquid, the force measurement becomes a level measurement. The device is used on sumps containing high gravity slurries. See also automation. Nixon.

displacement. stone in concrete, c. Then referred to as a plum. Ham.

displaceable. A large stone in concrete, often referred to as a displacement. Fay.

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displaceable. A large stone in concrete, often referred to as a displacement. Fay.

displacement. A coal seam intersected by a fault or whose continuity is essentially broken, Nixon.

displacement. Applied to that kind of force exerted by an explosive that tends to shatter the rock into fragments. Fay.

displacement. The failure stress under hydrostatic tension. ASM Gold.

dissected. Cut up into hills and valleys or into flat upland areas separated by valleys. Especially applicable to plains or peninsulas in the process of erosion after uplift. Fay.

dissection. The effect of erosion in destroying the continuity of a relatively even surface by cutting ravines or valleys into it. Fay.

dissector. A person employed to classify de- creased. Corn. To break the rock from the surface of the fault. Dodd.

dissemintated. a. Fragments of mineral dispersed in a rock. Statistical Research Bureau. b. To be scattered or diffused through; to be permeated with. Fay.

dissemintated crystals. Crystals which are found not attached to the mother rock. Long. c. With some well-developed faces and doubly terminated crystals. Fay.

dissemintated deposit. A type of ore deposit in which the ore minerals occur as small particles or aggregates of regular size. Pryor, 4.

dissemintated sulfide. Sulfide scattered as specks and veinlets through rocks and constituting less than 20 percent of the total rock volume. A.G.I.

dissolution. a. In ores, values fairly regularly scattered as minute particles through the gangue or other matrix. Pryor, 3.

dissolution. Applied to dispersed crystallization of early formed crystals of ore minerals in deep-seated magmas and to dispersed foreign minerals in a more general sense. Schieflerdecker.

dissociate. a. To resolve (a complex) into elements; to separate. Standard, 1964, b. To decompose gradually by the action of heat in a confined space (a substance, the constituents of which, when the temperature is lowered, separate to form the original body). Standard, 1964 c. To break to pieces, to decompose, fall apart. str. Mississippi, 4th, p. 2.

dissociation constant of dissociating or the state of being dissociated; as, the process by which a chemical combination breaks up into simpler constitut- ions usually capable of recombining under other conditions. Especially the action of heat or other forms of energy on gases and the action of solvents upon dissolved substances. Webster 3d.

dissociation constant. Equilibrium constant for a reaction proceeding in both directions, showing for stated conditions a state of balance between dissociation and reassociation. With great respect to ionization, ionization constant. Of very low solu- bility compounds, solubility product. In Ostwald's dilution law, dissociation K is m°

where a molar weight has been dissolved in V liters and m is the degree of ionization. C.T.D.

dissociation tension. A property associated with every oxide which measures the sta- bility of the oxide; for example, when equilibrium has been established at a given temperature, the dissociation tension of the oxide is numerically equal to the partial pressure of the surrounding oxygen. Newton, p. 148.

dissolution. a. The act or process of dissolving or breaking up; as, a separation into component parts. Webster 3d. b. The taking up of a substance by a liquid with the for- mation of a homogeneous solution. C.T.D.

dissolution, space of. See space of dissolution.

dissolution tank. A small tank used for dis- solving solid cyanide and preparing a con- centrated solution. Fay.

dissolute. Corn. To break the rock from the walls of a rich lode in order to move the ore without taking with it much gangue. Standard, 1964.

dissuing. Corn. Cutting out the selvage or gougé of a lode to facilitate the extraction of ore. See also cut; reserving. Fay.

distance blocks. Wooden blocks placed in the main sprints and the side pump rods by which the proper distance between them is adjusted. Fay.

distance lag. Velocity lag. In flotation, a de- lay attributable to the transport of materi- al or the finite rate of propagation of a signal or condition. Fuerstenau, p. 545.

distant admixture. Given by Udden to the grade or grades, in a sediment containing several size grades, most different in size from the dominant (maximum) grade. A.G.I.


disthene. Synonym for kyanite. Fay.
disthene. A rock composed almost entirely of kyanite (diasthene) associated with quartzite and amphibolite. Hess.
distillate. The liquid obtained by condensing a vapor. Nelson.
distillate oil. Gasworks coal tar or coke-oven coal-tar distillate, for example, creosote.
distillation furnace. A reverberatory heating furnace in which the charge is contained in a closed vessel and does not come in contact with the flame. It has a combustion chamber in which the gases are burned around the retorts containing zinc ore, the retorts resting on shelves inside the chamber. Fay.

distillation, of petroleum. The process by which heat is applied to the crude oil in order that its constituents may pass off in various liquid fractions according to their boiling points or boiloff ranges. A.G.J.

distilled, a. A process of decomposition whereby a combustible material of certain fossils has lost its nitrogen, oxygen, and hydrogen, and is now represented by a very dense, yellow, waxy mass. Synonymous with carbonization. A.G.J.

distilled. b. See diamond pattern. Long.
distillation loss. The mine-type distribution curve showing cumulative frequency as ordinate against variate value at various points of sample. ASTM C182-66.
distillation plant. A means for converting waste or lead into useful products. A.G.J.
distillation process. A process of evaporation and recondensation used for separating liquids into various fractions according to their boiling points or boiloff ranges. C.T.D. d.

In pyrometallurgy, distillation involves the vaporization of metals or metallic compounds, and the subsequent recovery of the vapor in condensers as a liquid or solid. Distillation processes are used only for metals or metallic compounds which have relatively low boiling points, such as mercury, cadmium, and zinc. E.C.T., v. 8.
distillation residue. A. A. The residue remaining at the point where control must be exercised. Pryor, j.
distilled water. A. A. Any water that is free of all dissolved or suspended matter, as distinguished from water which is geologically abnormal. Pryor, 3. c.
distilled working. Workings which are no longer in operation but which are not classified as abandoned. B. 3618, 1963, sec. 1.
distillate, a. A drainage course in a mine, generally following a natural contour. E.C.T. b. An artificial watercourse, flume, or canal, to convey water for mining. A flume is usually of wood; a ditch, of earth. Fay. c. See flat. Fay. d.
The drainage gutter along gangways and openings in anthracite mines. Hudson. e. A water channel to carry mining water into control. Pryor. f. A slot cut in the earth's surface and left open. Comare trench. Carson, p. 146. g. An artificial channel, usually distinguished from a canal by its smaller size. Seeley, 1. h. Generally, a long narrow excavation. Nichols. 1. i. In rotary drilling, a trough carrying mud to a screen. Nichols. j. The artificial course or trough in which the drill circulation fluid is conducted from the collar of the borehole to the sump; also, a discharge pipe or waste contents of a bailer, without taking a sample, into a ditch leading away from the collar of a borehole. Also called canal; chute. Long. k. To throw away or discard. Long.
ditchdragger. A laborer who shovels dirt, rock, and rubbish from underground drainage ditches into mine cars to keep ditches open for flow of underground water. Also called dicht; ditchman; drainman. D.O.T. 1.
ditch drain. A gutter excavated in the floor of a gangway or airway to carry the water that drains into it. Fay.
ditched top. See sticky coal, b.
ditcher. A. A. A mobile tracked machine fitted with an endless chain of buckets used for shallow vertically sided trenching. Nelson. b. A drill mounted on a frame that rotates about a central axis. It is used to cut circular trenches for the production of large grinding stones. Also called circle cutting drill. Fay. c. See ditchdragger. D.O.T. 1.
ditching. A. The making of ditches. Standard, 1964. b. The digging or making of a ditch by the use of explosives. See also propagated blast. Fay.
ditching car. A car provided with derricks and scoops to excavate ditches, as in a railway cut. Standard, 1964.
ditch powder. A mixture of coal, sodium nitrate, sulfur, rosin, and about 10 percent nitroglycerin. Used as a low-grade dynamite for loosening of earth in farm ditch.
ditch powder

A flotation collector agent

Dillman et al. In mineral processing, a frother is used to reduce the surface tension of water and aid in the separation of minerals. The frothing agent is added to the flotation cell where the minerals attach to the bubbles produced and rise to the surface for collection.

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divilization

A structure dividing the flow between two or more fluids. This is important in the design of pipelines and in the study of fluid dynamics.

diversity

The state or condition of being diverse. It is the quality of being different or varied. Diversity can refer to the diversity of species in an ecosystem, the diversity of opinions in a group, or the diversity of experiences in an individual.

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A. To separate into parts, sections, or portions. B. To distribute or allocate among two or more people. C. To perform the mathematical operation of division.

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dividend

The amount to be divided. It is the number or quantity that is to be divided by another number or quantity in a division problem.

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diversity factor

The ratio of the sum of the maximum and minimum values to the range of values. It is used to calculate the ratio of the sum of the maximum and minimum values to the range of values.

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diversity ratio

The relationship between the number of species in a community and the number of individuals in each species.

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diving bell

A watertight, bell-shaped steel device used in underwater exploration. It is equipped with air supply and communication equipment and is used to explore the ocean floor.

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diving board

A horizontal platform from which a person can jump into the water. Dive boards are usually located near the edge of a pool or other body of water and are used for swimming and diving.

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dog iron

A short bar of iron with both ends driven into a log, the other end may be placed in a mine. Fay. h. Can. Slang. dog iron. A term used to haul on. Zern.

dog belt. A round iron band fitted into the reel of a head. Melton. i. A heavy duty latch. Nichols. j. To hold, grip, or fasten. Long. k. A non-standard or poorly made tool or piece of drilling equipment. Long. l. A round iron rod, with the pointed ends bent at right angles. Stauffer. m. A kind of nail with the top bent at right angles instead of having a head. Mason. n. A device attached to the workpiece by means of which the work is revolved. ASCG, 1963. o. A trigger which limits the advance of a traversing table. ASCG, 1963.

dog clip. Aust. Same as clip. Fay.
doghole. A small opening from one place in the ground to another; smaller than a breakthrough. Fay.
doghole mine. Name applied to small coal mines that employ fewer than 15 miners. The so-called dogholes are most numerous in Kentucky, but there are many in Virginia and West Virginia. Bureau of Mines Staff 1962-65.
dogholes. See doghole mine.
doghouse. a. A term used in Joplin, Mo., for a box or platform on which a can or bucket rests at the bottom of a shaft. Fay. b. A term used in Joplin, Mo., for a box or platform on which a can or bucket rests at the bottom of a shaft. Fay. c. The structure enclosing the drill platform and machinery. Long. d. A small shelter in which members of a drill crew change clothing. Long. e. See forechamber. Fay. f. A small boxlike vestibule on a glass furnace into which the batch is fed, or which facilitates the introduction and removal of floaters. ASTM C182-66.
dog iron. A short bar of iron with both ends pointed and bent down so as to hold together two pieces of working points are driven; or one end may be bent down and pointed, while the other is formed into an eye, so that if the point be driven into a log, the other end may be used to haul on. Zern.
dogleg

dogleg. a. An abrupt, angular change in the course of a borehole; also, the deviation from a straight line caused by boring through a feature that causes the borehole to deviate from a straight path. Long. b. An abrupt bend in a pipe or a cable. See also curvature. Long.
c. An abrupt bend in a path, piping system, or road. Long.
dogleg severity. Same as deflection angle; hole curvature. Long.
dog-leg. Scot. To put the hutch or cage on end. This term probably had its origin in the hooking of the bucket to the rope by means of a hook. Fay.
dog spike. A spike generally used to fasten rails to the sleepers when laying track. Their length should be one-half inch less than the depth of the sleeper into which they are being pounded. Sinclair, p. 263.
dog's teeth. A fault sometimes referred to as a dogleg severity. Same as deflection angle; dog's teeth; dragon's teeth. A fault sometimes referred to as a dogleg severity. Same as deflection angle; dog's tooth. Brick so laid that their corners are deflected. Long. 
dogstone. A rough or shaped stone used for dressing. Fay. d. A tool used to sharpen drills. Stauffer.
dohyaline. Suggested by Cross, Iddings, Firschein.
dogtooth spar. A variety of calcite that occurs as a variety of dish in the usual way. New South Wales, p. 19, 1939.
dogtooth. See dolly, b. Long.
dolly. a. Aust. An instrument used for breaking and mixing clay in the puddling tub. Fay. b. A heavy timber shod with iron, and hung from a tree or other support so that it may be used for crushing quartz. Fay. c. To break up quartz with a piece of wood shod with iron, in order to be able to wash out the gold. Fay. d. A trucklike platform, with a single roller attached, used in shifting beams, lumber, etc., and sometimes used in a hoisting shaft. Nelson.
dollar. A unit of reactivity in a reactor due to delayed neutron absorption. A.G.I.
dollie. See dolly, b. Long.
dollied. a. Called by English writers swallow-dole, dumblepole, or dumblepole. b. A rounded hollow ranging from 3 to 30,000 feet in diameter and from 6 to 330 feet in depth. Fay. c. An additional intersection of a vein or reef material that is expressed physically by the appearance of pores, cavities, and the MgCO3 content of the rock approximates the maximum percentage, the 45.7 weight-percent of MgCO3 in the mineral dolomite, considerable shrinkage occurs that is expressed physically by the appearance of pores, cavities, and fissures that may amount to as much as 11 percent by volume of the original rock. Bureau of Mines Staff.
dolomitic. Composed of or similar to dolomite. Long.
dolomitic limestone. A limestone containing 30 to 50 percent magnesium and 70 to 50 percent calcium oxide as contrasted with a lime containing less than 10 percent calcium oxide. ASTM STP No. 148-D.
dolomite. a. A fixed mooring in the open sea consisting of a number of piles, or a trucklike structure. Fay. b. A heavy timber shod with iron, and formerly used for crushing quartz. Fay. c. A tool used to sharpen drills. Stauffer.
dolomites. A variety of calcite or dolomite. New South Wales, p. 20, 1939.
dolomite, fused. A mixture of cubic crystals of calcium and magnesium oxide, MgO, fused in the electric furnace. CCD 6d, 1961.
dolomite marble. A crystalline variety of limestone, containing in excess of 65 percent MgCO3, fused in the electric furnace. A.G.I.
dolomite marble. A crystalline variety of limestone, containing in excess of 45 percent MgCO3, fused in the electric furnace. A.G.I.
dolomite, proposed by Struve for a sedimentary rock composed of fragmented, concretionary, or precipitated dolomite of organic or inorganic origin, a dolomite, fixed mooring in the open sea formed of a number of piles, or a guide for ships entering a narrow harbor mouth. Ham.
dolomite. b. See dolomite. An instrument used for breaking and mixing clay in the puddling tub. Fay. b. A heavy timber shod with iron, and hung from a tree or other support so that it may be used for crushing quartz. Fay. c. To break up quartz with a piece of wood shod with iron, in order to be able to wash out the gold. Fay. d. A trucklike platform, with a single roller attached, used in shifting beams, lumber, etc., and sometimes used in a hoisting shaft. Nelson.
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domain

A substructure in a ferromagnetic material within which all of the elementary magnets (electron spins) are held aligned in one direction by interatomic forces; it isolated, a domain would be a saturated permanent magnet. ASM Clon.

dome plug. Reel to a dome, a horizontal prism. Shipley.

dome. a. A symmetrical structural uplift having an approximately circular outline in a plan view, and in which the uplifted beds dip outwards more or less equally in all directions from the center, which is both the highest point of the structure and locally of the uplifted beds. Bureau of Mines Staff. b. A mountain having a smoothly rounded summit of rock that resembles the cupola or dome on a building. A.G.I. c. An open crystal form of two parallel faces that truncate the intersections of two sets of pinacoids and are astride a symmetry plane. Formerly, considered to be an open crystal form which parallels either one of the lateral axes, a or b, and cuts the other lateral axis, b or a, and the vertical axis. 3. Bureau of Mines Staff. See also salt dome.

dome theory. Fayol, a Frenchman, in 1885 stated that strata movements caused by underground workings are limited by a kind of dome which had for its base the area of excavation, and that the movements disturbed are extended upwards from the center of the area. This is known as the dome theory. See also harmattan depth theory; normal theory. Nelson.
domembrane. A refractory shape, usually made dome brick. A brick in which both the large domestic coke. Domestic coke is normally a dome. a. A mountain having a smoothly rounded summit of rock that resembles the cupola or dome on a building. A.G.I. c. An open crystal form of two parallel faces that truncate the intersections of two sets of pinacoids and are astride a symmetry plane. Formerly, considered to be an open crystal form which parallels either one of the lateral axes, a or b, and cuts the other lateral axis, b or a, and the vertical axis. 3. Bureau of Mines Staff. See also salt dome.

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door steer

Fay
door tender. One whose duty is to open
closed doors before and after the
journey of a train of mine cars, a
trapper. Zero.
door traps. See door tender. Fay
doors. A tube or barrel equipped with
an auger-type cutting
shoe and made to be rotated to obtain
samples of sand, gravel, and other
depolar material. The body of the sampler is
effectively a tube in which a small opening
is a trapper.

Doppler effect. A shift in the measured fre-
quency of a wave pattern caused by move-
ment of the receiving device or the wave
source. The moving receiver will intercept
more or fewer waves per unit time, de-
dpending on whether it is moving toward
or away from the source of the waves. By
analog, in a reactor, since fission cross
sections depend on the relative velocity of
the neutrons and the uranium atoms (neu-
trons move at nearly the speed of light), the
frequencies are compared in order to obtain
the true
ground speed. The heading is
obtained from a special magnetic compass
and is maintained by a directional gyro
used as an integrating device. The distance
thus
determined has a precision better
than one part in a thousand, which is
sufficient for most geophysical surveys.

Dobrin, p. 323.

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Dobrin, p. 323.
dosing tank

double-bevel groove weld. A groove weld in which the joint edge of one member is beveled from both sides. *ASM Gloss.*
double-blade tool. a. A pair of multiple-sheave blocks reeved with rope or lines; a block and tackle. *Long.* b. Two pulleys or small sheaves mounted on a single shaft within a frame or shell. *Long.*
double bond. In organic chemistry, a double bond between two atoms of the same element; for example, ethylene, H₂C=CH₂. One link is frequently stronger than the other. *Cross.*
double-branch elbow. A fitting that, in a manner, looks like a tee, or as if two elbows had been shaven and then placed together, forming a shape something like the letter Y or a crotch. *Strock.*
double-brushed. Burned at a high temperature. This does not mean two firings. *AISI, No. 24.*
double cavity process. Any glass-forming process that uses two charges of glass and forms them simultaneously. *AISI C162-66.*
double clamping. Diagonally engaged and engaging the clutch twice during a single gear shift in order to synchronize gear speeds. *Nichols.*
double center bit. A roller-type bit having two serrated, cone-shaped cutting members. *See also roller bit.*
double core barrel. a. A core barrel with an inner tube to hold the core. The inner tube does not rotate during drilling, thereby giving a better core recovery. *Nelson.* b. Synonym for double-tube core barrel. *Long.*
double core-drill bit. A bit of specially-designed form to be used in a single bit. *Cross.*
double core-drill drill. A drill having an inner tube that is suspended on ball bearings and thus may remain still while the outer tube revolves. It is designed to bring out core material in a manner that will have a minimum of breaking or other damage. *Fay.*
double coupler. A fishing tool having a double set of sheaves mounted on a single shaft within a frame given to a chemical reaction in which two compounds take part, both are decomposed and two new substances formed by an interchange of radicals. Also called double replacement. *Cooper.*
double space. A space given to two articles of glass. *ASTM CI 62-66.*
double drum. Hoisting device having two cable spouts or drums rotating in opposite directions. *Long.*
double drum hoist. A hoist with two drums which can be driven separately or together by a clutch. *See also multi- and total haulage.*
double-duo. A pair of rolls, mounted in one stand, one pair of rolls being higher than, and in advance of the other. *Osburn, p. 337.*
double-ended. A term applied to any cutter loader which can cut both ways on a longwall face without turning at each end. It does not require cutting both ends of the machine and duplication of other essential parts. *Nelson.*
double-ended pick; reversible pick. A diamond-shaped coal-cutter pick which is held in a special holder and chain. Both ends of the pick are used and then discarded. The type is used widely in the United States. *See also coal-cutter picks.*
double-engine plane. Loads are raised or lowered on a slope by a stationary engine and wire rope, as in an inclined shaft. There is a single track, or three rails and turnout; the descending trip assists the engine to raise ascending trips, thus eliminating dead load, except rope. *Felt, p. 14, Sec. 11, p. 42.*
double entry. a. A pair of entries—left and gently dipping coal seam; such that only those rooms can be driven from both entries; twin entries. *See also entry, b. Fay.* b. A system of ventilation by which the air current is brought into the rooms through one entry and out through a parallel entry or air room. *See also thin entry, c. Fay.*
double Entry zone test. A test in which coal dust is paced in each of two connected parallel entries. *Rice, George S.*
double extra heavy. Synonym of double extra strong. Long.

double extra strong. A certain class of very thin, inexpensive dinnerware, which sometimes is used as a drivepipe; often incorrectly called double extra heavy or extra heavy pipe. Long.

double-face ware. Ware which has a finish cost on both surfaces. ASTM C286-65.

double-fogted iron. See spotted iron. C.T.D.

double-frit glaze. A glaze containing two frits of different compositions. As an example, a glaze may contain a lead frit and a leadless frit; the glaze is therefore rendered highly insoluble by the inclusion in the second frit of those constituents liable to release lead solubility. Dodd.

double glazing. A Glazing with two panes separated by spaces filled with a layer of unexpanded air other than a layer of a material that prevents molding. C.T. D. Supp. b. Two coats of glaze applied over the other. ACSG, 1963.

double-gob process. See double-cavity process. ASTM C162-66.

double hammer; duplex hammer. A forging device consisting of two hammers striking on opposite sides, as in a bloom. Standard, 1964.

doublehand drilling. Manual rock drilling with a long-handled drill rod requiring both hands. A second man holds the drill and turns it between strokes. Two or even three strikers may work together. Pryor, 3.

doubleheaded gear. Kec.w. Heavy drilling tools which require two men to use them. Fay.

doubleheader. Applied to quarry equipment consisting of two machines on a single truck, operated by one man. Fay.

double headings. The driving of two coal headings, parallel and side by side, for development purposes. Usually a pillar 10 to 20 yards wide is left between them. former was the practice at many coal mines to drive only one heading from which the stalls were turned off right and left. Two headings aid ventilation and prevent part of the charge blowing out at a seam or fissure, in which case the inert material is placed so as to include the seam. Fay.

double mast. See A-frame. Long.

double-men. See double-axes. Fay.

double meridian distance. The sum of the perpendicular distances from the two ends of any line of a map of the initial, or reference, meridian. Seeley, 2.

double packing. A form of strip packing which removes the localized high roof pressure from the vicinity of a roadway into a region in the goaf. It consists of two parallel packs adjacent to, and on each side of, the roadway, with the packs immediately at the roadsides built of such a width as to offer less resistance than wider and stronger packs (called buttress packs) more remote from the roadway. The principle of double packing was developed by Dr. D. W. Phillips in Great Britain. Compare single packing. Nelson.

double parting. A bypass for mine cars. See also junction. Fay. 1936.

double pearl. A pearl formed of two distinct pearls united under a nacreous coating. Shipley.

double-pick; double-men. Corn. Two men who use one pick, one during the day, and one at night, so that the pick is kept constantly at work. Fay.

double-pitch roller chain. A roller chain having double pitch on one side and standard roller chain, otherwise having standard pins, bushes, and rollers. J.G.M.

double-pulley-drive conveyor. A conveyor in which power is transmitted to the belt by two pulleys. Examples are (1) tandem-drive conveyor and (2) dual-drive conveyor. NEA MIB 1961.

double-reading theodolite. A theodolite with which it is possible to observe, from one position, the readings of the diametrically opposite points of both horizontal and vertical circles. C.T.D.

double reduction. Two sets of gears in series that both reduce speed and increase power. Nichols.

double-refracting spar. Same as Iceland spar. Fay.

double refraction. Refraction shown by certain crystals that split the incident ray into two refracted rays, polarized in perpendicular planes. See also birefringence. Standard, 1964.

double-roll breaker. A coal breaker which, in the main, relies on the impact of special teeth for the bulk of reducing, rather than on the compression of the rolls. An important feature is adjustment, which may be made during operation. The machine is flexible enough to produce top size ranging from 6 to 14 inches. Mitchell, pp. 200-205.

double-roll crusher. A machine for breaking hard ore, rock, or coal and to discharge the crushed material below. It consists of heavy iron or steel cylinders revolving toward each other, the surfaces of which may be smooth or toothed—usually the latter. The smallest type can deal with lumps up to 6 inches in diameter, and the largest will take 20 inches. The crushed material varies from about 6 to 1½ inches and under. It is often used for crushing coal for mechanical stokers or as a first step in preparing pulverized coal for firing boilers. See also spring-roll crusher. Nelson.

double-rolled roofing. Belgian press. A press in which pressure is applied by the mating of one or more pairs of indented rolls of equal diameters, revolving in opposite directions. B.S. 3552, 1962.

double-roll verge file. A single lap roofing tile having a roll on both edges so that verges on the two sides are similar. Dodd.

double-room system. See room-and-пillar. Fay.

double rose cut. Form of cutting consisting of two rose-cut forms joined along their bases. See also rose cut. Shipley.

double-screw cone. The cross-sectional view of the cutting face portion of a coring bit when its profile is in a full half circle, the radius of which is one-half the wall thickness or kerf of the bit face. Long.

double-round nose bit. See double-round nose. Shipley.

doubles. Som. The repeated folds or overlaps of the coal strata in the Radstock district. Fay.

doubly-ground refractory material. A refractory material that contains in its original gradation of particle sizes resulting from crushing, grading, or both, and from which particles coarser and finer than two specified sizes have been removed by screening. ASTM C71-64.

double-seal manhole cover. A manhole cover cast with two parallel flanges around its edges which fit into corresponding recesses in the supporting frame and into which they are bedded in green or similar sealing compound. Fay.

double setting. A leveling procedure whereby observations are duplicated by resetting the instrument to detect errors of measurement immediately. Also called dual setting. BS 3618, 1965, sec. 1.

double-shear steel. Steel that has been twice welded and drawn out. Standard, 1964.


double shift. a. Two sets of men at work, one set relieving the other. Fay. b. To employ two shifts of men, or to work double shift. Fay.

double-shift places. At collieries where there has only one recognized coal-winning shift in the 24 hours, it is a general practice to have double shifts (and sometimes treble) of workmen in development headings which require a speedy advance. Nelson.

double-sighting. The method of double-sighting consists in reading off the distance on the telescope normal and once with it inverted, and taking the mean of the two values thus obtained. It eliminates the effect of certain instrumental errors and reduces the personal error of observation. Ogurahiti, sec. 1, p. 27.
double sintering. A process of roasting rich ore in which the ore is sintered at a rapid rate to partially reduce the sulfur content, followed by further raising the temperature of the resultant mass and sintering again at a slower rate. Bennett et al. 1962.

double-thread method. A procedure for detecting the core material in a horizontal well which is the resultant material and sintering again at a slower rate. Bennett et al. 1962.

double-space neutron log. A technique for determining the coefficient of thermal expansion of the material being measured. Dodd, p. 149.


double-tube core barrel. A core barrel consisting of two nested tubes. The inner tube is threaded to connect to the drill rod, and the outer tube is rigidly coupled to a common headpiece. Long.

double-tube core barrel, rigid-type. A double-tube core barrel having the upper end of the inner tube coupled to the core barrel head by means of an antifriction device, such as a roller or ball bearing; hence, the inner tube tends to remain stationary when the outer tube is rotated. Long.

double-tube rigid barrel. Synonym of double-tube core barrel, rigid-type. Long.

double-U groove weld. A groove weld in which each joint is in the form of two T's or two half-U's, one from either side of the member. ASM Gloss.

double-unit conveyor. A longwall conveyor layout from 200 to 280 yards long, developed between two tailgates with a main gate in the center of the face. The main gate conveyor is served by two face conveyors and may act at an intake or a return airway. The tailgates may serve as supply roads. This form of layout is favored as it enables the maximum tonnage of coal being obtained with the minimum of roadway excavation and maintenance. See also double-double-unit conveyor. Nelson.

double-unit longwall face, N. of Eng. Two adjacent longwall faces, each of the same length, on either side of a main or mother gate. In northeast Durham, each face is usually about 30 yards making 100 to 100 yards in all. Trut.

double-V groove weld. A groove weld in which each joint is beveled from both sides. ASM Gloss.

double-wall cofferdam. A cofferdam consisting of two parallel lines of steel sheeting, in which the ore is sintered at a rapid rate to partially reduce the sulfur content, followed by further raising the temperature of the resultant mass and sintering again at a slower rate. Bennett et al. 1962.

double-working. N. of Eng. Two hewers (miners) working together in the same heading. Fay.

doubling. A Scot. Thickening of a seam sometimes due to its being folded over or doubled. See also doubles. Fay. b. A process for the treatment of antimony saldite or crude antimony containing the sulfide by fusing it with iron or other antimony containing iron so as to form a centron sulfide, the removal of which eliminates both iron and sulfur. Webster 3d.

double-wall cofferdam. A system of electric rails, a second insulated contact wire is used for the return or negative current. L&L.

doubles. Same as doubler. Long.

doubling. Same as doubling. Long.

doubling rod. Same as doubling rod. Long.

doubling. Same as doucing rod. Long.

doucesh. Same as dousher. Long.

doucesh. Same as doucer. Long.

douces. Same as douse. Long.

doucer. Same as douser. Long.

doucing rod. Same as dousing rod. Long.

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douces. Same as douse. Long.
douse

bearing water, oil, or mineral by use of a dowsing rod or other nonscientific contraption. Also called dowsing. Dow, e. a. To put out or extinguish a fire or jet of firewood. Also spelled douse; dow. Fay. f. To search for deposits of ore, for lodes, or by water, by use of a dowsing rod. Dow. f. To plunge into a liquid, as in quenching a piece of hot metal during a hardening process. See also douse.

douser. a. Synonym for douse. See also douse, a. Long. b. Commonly used by drillers as a name for a person skilled in the use of geophysical devices. Also called doddlebugger; douser; dowser. Compare douse, a. and b. Long. c. Commonly used by drillers as a name for a person supposedly having the ability to locate formations in which water, oil, or minerals occur by the use of "dining" rod or other nonscientific contraption. Also called doddlebugger; douser; dowser. Compare douse, b and c. Long.

dousing rod. Commonly used by drillers as a name applied to a wooden ward, rod, fountain, "umbrella," or twig (usually with hazel) supposedly useful in locating formations bearing water, oil, or minerals. Also called doddle rod; doddlebugger; dowser rod. Compare douser, a. and b. Long.


dow cell. The Dow electrolytic cell is a steel shell about 16 feet long, 5 feet wide, and 6 feet deep. The electrolyte contains about 60 percent NaCl, 15 percent CaCl₂, and 25 percent MgCl₂; it is maintained at a temperature of 700° to 750°C by controlled firing of the cell. Newton, p. 481.

dowels. a. Round, headless iron pins, inserted halfway into each of two abutting timbers to prevent slipping. Stauffer, b. Short rods, extending approximately equally into two abutting pieces of concrete, to increase the strength of the joint. Taylor.

dowex. Proprietary name (Dow Chemical Company) of ion-exchange resins, notably Dowex 50, an acid polystyrene cation exchanger, and Dowex -5, a basic anion exchanger. Pryor, b.


dow metal. Magnesium alloys (electron containing aluminum, magnesium, silicon, and possibly zinc. Pryor, b.

down. dowl. See dowk.

downcast. dowl. See dowk.

downbucking. A downbucking by lateral compression of the entire thickness of the crust, which causes the formation of a major growth joint. Dow, a. A downbuckle in a surfacing and the immersion of large masses of silicic matter into the substratum. Schriever, p. 531.

downcast. a. The shaft through which the fresh air is drawn or forced into the mine; the intake. b. That side of a fault on which the strata have been displaced downward in relation to the upthrow or upcast side. C.T.D. e. Ang. A fault, which allows a coal seam downcast. See also downcast.

downdraft. A downdraft of air or other gas (as in a mine shaft, kiln, or carburizer). Dow, c. A vertical drop, usually downward; such as (1) a pipe for leading the hot gases from the top of a blast furnace downward to the dust collectors and flue system, and (2) a tube larger in diameter than the water tubes in some water-tube boilers to conduct water from each too drum to a bottom drum under the influence of the gravity circulation. Webster 3d.

downdrafting. See climbing cut. Dow, a. Parallel to or in general direction of the dip of a bed, rock stratum, or vein. Dow, b.

downdrift. In a mine drift, the direction of predominant water movement. Bureau of Mines Staff.

downer. a. From r. a. To seek or search for substances bearing water, oil, or minerals. Also called dowser; dowser. Compare douse, b and c. Long.

downdrift. In a mine drift, the direction of predominant water movement. Bureau of Mines Staff.

downdrift. A downthrow in a fault, a. The wall of a fault that has moved relatively downward. Dow, f. The fault wall that has moved downward. Dow, g. Also called downdrift; downdrift. A downthrow in a fault, downward enrichment. A term which has displaced the strata downward relative to the workings approaching it. It would be an upthrow fault to workings on the opposite side. Nelson.

downthrow side. The lower side of a fault after displacement has occurred. B. S. 3618, 1964, sec. 5.

down-draw. a. Drilling time lost in repair, fishing, centering operations, or moving rig from one hole to another. Long. b. Applies to any piece of mining equipment which is nonoperative for any reason. Bureau of Mines Staff. Production time lost through mechanical breakdown, adjustment, maintenance, lack of power or fuel. Dow.


downdraft. Interpretation method in which the values of a component of the magnetic field at lower levels are computed from the values at the surface. Schrödereker.

downdraft course; course downward. In mining, the course of the vein from surface downward. Bureau of Mines Staff.

downdraft. A term which is synonymous with secondary enrichment, as the latter has applied to enrichment of ore bodies by the downthrow percolation of waters. Fay.

downdraft percolation. See sand leaching, downdraft. Opposite of upwarp. A.G.I.


downdrafting. See climbing cut. Dow, b. Dow.

downer. A person using a divining rod. See dowser.

dowser. A person using a divining rod. See dowser.

dowse. a. To search for deposits of ore, for lodes, or by water, by use of a dowsing rod. Dow. f. To plunge into a liquid, as in quenching a piece of hot metal during a hardening process. See also douse.

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dowser. A person using a divining rod. See dowser.


Dowty hydraulic tub retarder

with attached rubber strips which operate on the face of the wheels above center. The action is controlled by a hydraulic cylinder opposing the movement of the section. The hydraulic pressure is supplied from an accumulator, in which pressure is maintained between the right angle upper valve and the lower diaphragm. The hydraulic unit is driven by a belt which is activated when the accelerator is pulled on the back of the retarding unit. Mason, p. 529.

Dowty prop. A propeller which, in effect, is a_small_ partially submerged hydraulic jack of tubular steel construction and consisting of two tubes, the upper one telescoping into the lower. The upper (or inner) tube acts both as a reservoir for the oil and as a container for the pump, yield valve, and other accessories. Nelson.

Dowty roofmaster. A self-contained, oil-operated steel support for use on a medium-size longwall face. It has support frames constructed of rigid roof and floor members supported by yielding hydraulic props. Two and three props are connected alternately to the armored conveyor by means of racks mounted in the floor members and short conveying roof beams respectively. See also self-advancing supports. Nelson.

dozer Abbreviation for bulldozer; shovel. Nichols, 2. See also bulldozer.
doz. shovel. A shovel equipped with a front-mounted bucket that can be used for pushing, digging, and truck loading. N. Apa.
dozle. See core. Dodd.


Draconels trachyte. A trachyte containing phenocrysts of sandstone and oligoclase in a groundmass of lath-shaped microlites of orthoclase with spangled biotite, hornblende, and magnetite. Holmes, 1928.

drudge. Corn. The inferior portions of ore separated from the best ore by cobbing. Fay.

drayly lode. Eng. A lode through which the mineral is so thinly disseminated as to be scarcely worth the expense of dressing. Such lode, ore stuff, or stone is called drayly Fay.

Drager breathing apparatus. A long-service, self-contained, oxygen-breathing apparatus with an entirely lung-governed oxygen feed. It will enable a man to do hard work for a period of 5 hours; in doing normal work, the apparatus will last for 7 hours. Also, in the event of a rescue being trapped, it will sustain the men for 18 hours if they were to sit and do no work. The apparatus proves more efficient than the wearer, because it is doubtful if rescue brigades could work for 5 hours under the conditions which exist after underground explosions or fires. It weighs 40 pounds, and is carried on the wearer's back; it is a light metal protective case with hinged doors. Medam, pp. 29-30.

Drager escape apparatus. A self-contained, oxygen-breathing apparatus that weighs 245 pounds and is carried on the back of the wearer. It provides protection for 1 hour against all poisonous gases or short term of the wearer. If it weighs more than 1 pound above the required 35 ounces, it is discarded. Medam, pp. 55-57.

draeger self-rescue. A German made apparatus that is well protected against mechanical damage by an elaborate covering of protection layers. The entire apparatus is enclosed by an outer steel case of two parts and secured by a steel band. When the red end of this band is pulled sharply, the two parts of the case fall apart and pull open the top of a rubber bag covered with layers of paraffin wax and aluminum foil. The wearer is then pulled out of this bag and is ready for use. Because of this protective covering, the respirator can be stored for several years without undergoing deterioration. Each month the filter is cleaned and its condition is checked by weight. If it weighs more than 1 pound above the required 35 ounces, it is discarded. Medam, pp. 69-70.

draft. a term used in Weights for allowance coal; about 300 pounds per week to every household. Fay, b. In general, the act of drawing, or the thing drawn. Webster 2d. c. A quantity of ore or drawn forward, up, or out, especially at one time. Webster 2d. d. A current of air in a closed-in space (as a room, ventilator, furnace, or chimney. Webster 3d. e. The area of an opening or group of openings for discharge of water; as, the draft of a turbine wheel. Webster 2d. f. A survey line in a traverse. Also called leg. B.S. 3616, sec. 1, 1963. g. The pressure of a moving fluid, usually applied to convection flow, such as chimneys, and usually measured in inches of water. Stock, J. h. Resistance to movement of a towed load. Nichols, 2. i. The angle or taper on the surface of a punch or die or the parts made with them which facilitates the removal of the work. ASM Gloss. j. The change in cross section in rolling or wire-drawing. ASM Gloss. k. Taper put on the surfaces of a pattern so that it can be withdrawn successfully from the mold. ASM Gloss.

draftage. A term used from the gross weight of mineral when transported, to allow for loss. Zern.


draft gate. An instrument used to measure the small pressure differentials below atmospheres; for example, an inclined manometer to measure the pressure difference between a flue and the atmosphere for combustion control. ACSG, 1963.

draft hole. An opening through which air is supplied to a furnace. Fay.

drafting. The act of consisting of drawing or attenuating slivers, reducing them to finer sizes. Phillips.

draftsmen. A term used in Petroleum production, one who performs the duties of a
draftsman but specializes in making maps, diagrams, profiles, and cross sections to represent geological stratigraphy and location of oil and gas deposits. He collates and interpreting data obtained from topographical surveys, from well logs, and from geophysical and geologic studies, compiling, and preparing maps and charts for exploration correspondent. D.O.T. 1.

draft stabilizer. A device to maintain a constant draft in a fuel-burning device. Stock, 10.

draft tube. The steel casing through which water leaves a turbine after having given up its energy. Ham.
drag. a A wooden or iron bar placed between the spokes of the wheels of trucks to check their speed upon an inclined way. A brake or sprag. Fay. b. An appliance to be attached to the rear of a loaded train of cars to prevent the cars from rolling down the incline or grade in the case the cable should break. Fay. c. The frictional resistance offered to a current of air to prevent the footfall from being obscured by an21. pounds, and is carried on the back of a miner. Fay. d. Fragments of ore torn from a lode by a fault. Such fragments are scattered along the line of the fault and are usually inclosed within crushed or brecciated pieces of the rock traversed by that fault. Secondary mineralization along these faults may obscure the true character of the drag in which case the difference in associated minerals may prove suggestive. Fay. e. A heavy blasthole cleaner; drag twist. Standard, 1946. f. A runnerless sled for drawing rough heavy stone, etc; a stoneboat. Standard, 1946. g. A heavy iron bar attached behind a trip of mine cars when ascending a grade to prevent them from running away in the event of an accident causing cars to become uncoupled. Hudson, h. Backstay; trailer; devil. Mason. i. A heavy bar hinged to a take off trucks, which fouls the track and derails the last one if they begin to run backward. Pryor, 3. j. The flexure of a strand associated with faults. In a normal fault, the coal seam often bends upwards on the downthrow side and downwards on the upthrow side. Thus, drag is an indication of direction of displacement of the beds. Also called terminal curvature. See also coal leads. Nelson, k. A haulage drag. See also backstay. Nelson, 1. Pulling a bucket into the digging, or the mechanism by which the pulling is done or controlled. Nicholas, 2. m. Resistance created by friction. Long. n. The uplifted or downfitted curve in rock beds or strata adjacent to a fault. Long. o. Distortion of beds adjacent to a fault. Ballard. p. Which part of a shall. The mold having been separated in the two parts of the flask, the cope is put upon the drag before casting. After casting, the flask is disassembled by removing the cope from the drag. If an inclined stope, the weight of the arch block is resolved into two components, one at right angles to the dip and one parallel to the dip, which tends to close the opening, and one parallel to the dip, which tends to produce movement of the hanging wall. Higham, p. 104. v. The re-
sistance to shrinkage during the firing proc-


drag; backstay. Aust. An iron bar fas-
dragade. See drag ladle. ASTM C162-66.
drag angle. The angle at which the leading


drag breccia. Fragments of rock in the brec-
drag classifier. Inclined trough which receives

drag classification. Device consisting of a bottom-
drag chain. a. A chain used to make fast


drag bucket. A bucket widely used in sam-
drag brake. On a revolving shovel, the brake


drag breccia. Fragments of rock in the brec-
drag classifier. Inclined trough which receives

drag chain. a. A chain used to make fast


drag classifir. Inclined trough which receives

drag coefficient. A factor representing the


drag cut. a. A cut on which groups of holes


drag cut. a. A cut on which groups of holes


drag deflection. A method in which the bucket


drag digging. Local changes of attitude brought


drag drips. a. A noncoring or full-hole boring


drag dredging. A method in which the bucket


drag dredging. A method in which the bucket


drag fault. In the stationary block, caused


drag fold. In a narrow sense, minor folds


drag folds. In a narrow sense, minor folds


drag faults. a. A surface texture on clay facing


drag fault. In the stationary block, caused


drag feldspar. A part of a fossil stem (genera


drag feldspar. A part of a fossil stem (genera


drag fault. In the stationary block, caused


drag fault. In the stationary block, caused


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drag fault. In the stationary block, caused
drain. a. A conduit or open ditch for carrying

drag technique. A method used in manual

drainage area. a. A term applied to that area

drainage level. See water level. Nelson.

drainage hole. Synonym for drain hole. Long.

drainage head. a. The furthest or highest

drainage divide. A drainage divide is the rim

ess of removing surplus ground or surface

from mining operation. See also drain tun-

b. See basin, c. Fay.

drain casting; hollow casting. Forming ce-

ramic ware by introducing a body slip into

a machine through which oil or liquids

are hauled by


drain hole. a. A borehole drilled into a water-

bearing formation or mine workings through which water can be with-

drawn or drained. Long. b. Any hole pro-

vided in the base covering or housing on a machine through which oil or liquids

can be withdrawn. Long.

drain, drilling. a. The part of the dipping or flow-

coating process in which the excess slip

flows from suitably positioned ware. ASTM C286-65. b. The process of removing excess

slip from plaster molds in forming slip-coated ware; also the removal of excessive

glaze from bisque ware after dipping. Bu-

reau of Mines Staff.

drain line. A nonuniform thickness of coating

appearing as a line or streak in dipped or flow-coated ware. ASTM C286-65.

drainman. a. In metal mining, a laborer who

regulates flow of tailings, through flumes

and thus prevent it seeping down to ac-

tive workings at lower levels. A central

drainage tunnel may serve several mines

and thus prevent water from entering the soil and

cutting to it. Staff.

drainage tunnel. A tunnel constructed mainly

for drainage purposes. It may collect sur-

face water and water from old workings and

tissue of the fan blades, or by

variations in the pitch of the fan blades, or by

a chimney, while artificial

draught is produced by a chimney, while artificial draught is produced by fans and is con-


duced by the speed of the fan, variation

in the pitch of the fan blades, or by

mist. Staff.

drawbar. a. A bar that is used to connect a

metal subject to a drawing process.

drawability. A measure of the workability of

metal to which it is applied. See also angle of draw. Nelson. h. To wind

drawbar. Vertical. current

drawings. Pryor, 3. o. In metallurgy, to

remove broken ore by gravity from stopes, chambers, or ore bins by aid of chutes or conve-
yors. Pryor, 3. o. In metallurgy, to

remove pattern from foundry mold (flask).

An internal fissure in a casting, caused by

inadequate feeding during its solidification. Pryor, 3. p. To pull bit-blank metal toward

a common center-line, when hand-setting a diamond bit, Long. a. A small valley or a gulley. Nicholls. t. See pull. Long. b. By the term "troughlike" part of the land surface leading up from a stream valley to a gap between hills. Legrand.

drawability. A measure of the workability of a metal subject to a drawing process. This term is usually expressed to indicate the metal's ability to be deep-drawn. ASM Gloss.


b. Removing the coke from an oven. Zern.

drawbar. a. A bar that is used to connect a

steam locomotive and tender and is secured

by a drawbar.

Maynard Davies and developed at the Central Engineering Establishments of the National Coal Board of Great Britain. A shearer drum is carried on a vertical shaft in contrast to the horizontal shaft in the Anderson shearer. Nelson.

draper washer. Vertical. current separator

(obsolete) used to separate shale from coal. Pryor.
drawbar

In the drawhead of the locomotive by a pin. Webster, 3d. b. A bar or heavy beam upon which a railway car and projecting at the end for coupling cars. Some arrangement for coupling is placed at the outer end, to lessen recoil in starting, coupling, etc. Standard, 1964. c. In a tractor, a fixed or hinged bar extending to the rear, used as a fastening for lines and towed machines or loads. Nichols. d. In a grader, the connection between the circle and the front of the frame. Nichols. e. A submersed clay block used to define the position of sheet glass during drawing. ASTM C162-66.

drawbar power. The power available at the tractor drawbar for moving the tractor and its towed vehicles forward. It is generally between 80 and 85 percent of the power developed by the engine. Carson,

drawbar pull. a. The pull a tractor can exert on a load attached to the drawbar. Depends on pounds per ton of tractor weight and traction. Nichols. b. The effort exerted by the locomotive on the train; it is the tractive effort less the force required to move the train from its own resistance. The track resistance of the locomotive is ordinarily taken as 20 pounds per ton of locomotive weight. Consequently, the drawbar pull would be 500 — 20 = 480 pounds per ton weight for a locomotive with steel wheels. Lewis, p. 213.

draw bead. a. A bead or offset used for controlling metal flow. ASM Gloss. b. Riblike projections on draw rings or mold-drawn surfaces for controlling metal flow. ASM Gloss.

draw bench. The stand that holds the die and drawhead used in the drawing of wire, rod, and tubing. ASM Gloss.


drawer. a. Scot. A man or boy who takes ore or rock from the working face to the shift, or terminus of the horse or haulage road. One who puts trams or drives a horse underground. Fay. b. Dunr. A man who bulls ore or rock by means of a windlass, or otherwise, from a shaft. Fay. c. Putter; trammer; wagoner; a person who moves tubs either manually or with a machine. Mason.

draw firing. Removal of the load from the furnace for a short time prior to the completion of burning to equalize heating of all areas. Also called draw burning. Fry.

draw gang. A group of men employed to cut and handle glass as it comes from the lehr. ASTM C162-66.

drawglass. The term includes drawbars, chains, shackles, detaching hooks, etc., used in haulage, winding, and hoisting. Nelson.

drawhead. Set of rolls or dies mounted on a carriage or vertical bar for forming a section from strip, tubing, or solid stock. See also Turk’s-head rolls. ASM Gloss.

draw hole. An aperture in a battery through which the coal or ore is drawn. Fay.

drawing. a. Receiving the timber, chocks, etc., from the goaves. This work is commonly performed with the use of the dog and chain. The process of pulling away the sprags from beneath the coal after hoiling. Fay. c. Raising coal through a shaft or slope. Fay. d. In hydraulic mining, throwing the water beyond the dirt to be removed and causing it to flow toward the giant. Compare goosefoot. Fay. e. Removing or pulling out the crown bars in a tunnel. Stauffer, I. The term used in Lancashire, England, and Scotland for trawming, Nelson. g. The movement of tubs. Pryor, 3. h. Forming recessed parts by forcing the plastic flow of metal in dies. ASM Gloss. i. Reducing the cross section of wire or tubing by pulling it through a die. ASM Gloss. j. A misnomer for tempering. ASM Gloss. k. Continuous forming of sheet, tube, or forced glass from molten glass. VV.


drawing an entry. Removing the last of the coal from the face of the mine. Fay.

drawing chamber. The part of a tank furnace for flat glass from which the sheet of glass is drawn. Drawing compound. A substance applied to prevent pickup and scoring during drawing or pressing operations by preventing metal-to-metal contact of the work and die. ASM Gloss.


drawing lift. The lowest lift of a Cornish pump, or that lift in which the water rises by suction (atmospheric pressure to point where it is forced upward by the plunger). Fay.

drawing-machine operator. One who observes the progress of a continuous flat sheet of window glass from the glass-molding tank to the top of an automatic drawing machine (the sheet is in a continuous flow through a series of adjustable asbestos rolls), making adjustments to rolls to prevent warping and breakage of sheet. Also called flat-drawing-machine operator, window glass. D.O.T. 1.

drawing road. Scot. An underground passage along which ore is conveyed. Fay.

drawings. Diagrams made to a definite scale according to engineering principles of projection and so on. The drawings issued with the tender documents show the works to be carried out in accordance with the contract as accurately and in such detail as is possible. The drawings may be supplemented from time to time by the issue of general and detailed drawings. See also machine drawing. Nelson.

drawing small. When a winding rope, from a higher level is loaded into hauling units. Nichols. b. Heavy chisel cut across the face of a bit blank a short distance from a diamond to serve as a starting point for calking the metal toward and around a diamond being hawked. Long.

draw radius. The radius at the edge of a die or punch on which the work is drawn. ASM Gloss.

draw ring. A ring-shaped die part over the inner edge of which the metal is drawn by the punch. ASM Gloss.

draw sprocket. A small sprocket, or rock approximately 2 inches to 2 feet in thickness, above the coal, and which falls with the coal or soon after the coal is removed. Fay.

draw tongue. A bar hinged to a towed machine, fitted with some device for attaching it to a tractor. Nichols.

draw trials. Ceramic test pieces drawn from a kiln at various temperatures. Bureau of Mines Staff.

draw wood; draw trees. Scot. To extract and recover mine timbers Fay.

draw works. a. In rotary drilling, that part of the equipment functioning as a hoist to raise or lower drill pipe and in some types, to transmit power to the rotary table. A.G.I. b. In countershaft and driven sub- stituted in rotary drilling for the band wheel, cable, winch, bull wheel, and sand red used in the cable-tool method as a means of handling drill-string-equipment casing and drivepipe in the course of drilling a bore- hole. Hutton definitions provide gear for several speeds. Long.

dredge. a. Large floating contrivance utilized in underwater excavation for the purpose of developing and maintaining water depth in canals, rivers, and harbors; raising the level of lowland areas and improving drain-
dredge

age; constructing dams and dikes; removing
overburden from submerged ore bodies pro-
cessing of ores; mining; or to recover
subaqueous deposits, having commercial
value. Dredges exist in a variety of mod-
fications, from large clamshells, bucket
ladders, scrapers, and hydraulic systems as
means of excavation, and they may or may
not be self-propelled. Also called dredging
machine. Bureau of Mines Staff. Any
apparatus used for excavating underwater.
C.T.D. a large raft or barge on which
are mounted either a chain of buckets or
suction pumps and other appliances, to
elevate and wash alluvial deposits and
gavel for gold, tin, platinum, diamonds,
etc. C.T.D. a type of bag net
used to apply powdered porcelain enamel
to the application of dry, powdered frit
to ware, Fay. dredging. See dredge, a. Fay.
dredging claims. The bed of an unnaviga-
table stream. A heavy-duty-type pump with
impeller gravel sizes are being handled, casing
and impellers. In
a millstone face, Webster 2u. g.
dredging claims, The bed of an unnaviga-
table stream. A heavy-duty-type pump with
impeller gravel sizes are being handled, casing
and impellers. In
a millstone face, Webster 2u. g.
dredging conveyor. A scraper partially im-
mersed in a vessel containing liquid and
used for removing any solids which may
have left off work, Fay. d. The separation
of sulfides or other minerals distributed in
a coarse and irregular manner in the
vein. It may also be used in a gold or
silver mine if the seller is familiar enough
with the difference between high- and low-
grade ore. In a mine, it is a lack of straight lines which is in itself
suggestive. The back or top of a drive or stop is will have a billowy appearance,
which is the result of gouging out the low-
grade places. Hooe, p. 80.
dredging floor. The floor, place, or ya d where
dredge ore is removed continuously by
means of a scraper chain or scraper buck-
ets. Also called drag tank; smudge sum-
p. B.S. 3552; 1962.
dredging machine. See dredge, a. Fay.
dredging machine. See dredge, a. Fay.
dredging pump. A pump for drawing up silt,
dredging machine. See eredge, a. Fay.
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drier feeder. a. One who places wet ceramic ware under the sun, or dries it. b. One who lifts freshly enameled parts, to place them in a drier. c. One who wraps damp burlap around refractory blocks in drying operations. Bureau of Mines Stall.

drier man. In salt production, one who tends operations of rotary dryers through which crushed salt is run to drive off contained moisture prior to grinding, examining the salt discharged from the dryers to see that evaporation of moisture is complete. D.O.T. 1.

drier tender. One who wraps damp burlap sacks around refractory blocks in drying room to prevent drying of the block centers before the outside. D.O.T. 1.

drier white. A term given to superficial discoloration of clayware during drying; the most common cause is advance of soluble salts to the surface of the ware. See also) till white. ACSG, 1963.

dries. Seams in the rock, which are usually invisible in the freshly quarried material, but which may open up in cutting or on exposure to the weather. See also dry, b. Fay.

drift. a. A horizontal passage underground, usually driven from a crosscut, which intersects it, or a level or gallery, which may do either. Fay. b. In coal mining, a gangway or entry, at a given level and generally on the slope of a hill, driven horizontally into the coal seam. Pay. c. A horizontal opening driven through an ore body and parallel to the course of the vein or the long dimension of the ore body. Beerman, a. A passageway driven by compressed air, for driving down coalface. Fay. d. A horizontal passageway driven by compressed air, for the purpose of transporting miners through various glacial and fluvioglacial deposits, as the depth at which deviation occurs. Zern.

drift angle buildup. The rate of the increase in the drift angle which is generally expressed as the number of degrees increase in the drift angle which is generally expressed as the number of degrees increase in the drift angle as the number of degrees increase in which the airplane is heading. Seelye, 2.

drift angle; drift angle buildup. The rate of increase in the drift angle which is generally expressed as the number of degrees increase in the drift angle as the number of degrees increase in which the airplane is heading. Seelye, 2.

drift angle; drift line. Line of drifted material left on the strike of the coal seam. Fay.

drift bed. In geology, a layer of drift of relatively small cross section, larger sections of which may be designated as drift strata. Fay.

drift bed. In geology, a layer of drift of relatively small cross section, larger sections of which may be designated as drift strata. Fay.

drift bolt. A. A metal rod or pin used for securing timbers resembling a spike bolts or pins. Webster 3d. b. A metal rod or pin used for securing timbers resembling a spike bolts or pins. Webster 3d. c. A horizontal piece of drift timber, generally of an ore body and parallel to the course of the vein or related structure. Long. d. A horizontal piece of drift timber, generally of an ore body and parallel to the course of the vein or related structure. Long.

drift angle; drift angle buildup. The rate of increase in the drift angle which is generally expressed as the number of degrees increase in the drift angle as the number of degrees increase in which the airplane is heading. Seelye, 2.

drift bed; drift bedding. A term proposed to replace inclined bedding, Pettijohn.

drift drill. a. The coal mining term for the boring of a borehole; the course of which may be distinguished from the original seam. Beerman, a. A borehole from vertical and/or its intended course. Long. b. See also deflection angle. Long.

drift ice. Any ice that has drifted from its place of origin. Hy.


drift mine. a. A borehole, the course of which may be distinguished from the original seam. Beerman, a. A borehole from vertical and/or its intended course. Long. b. See also deflection angle. Long.

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drift mine. a. A borehole, the course of which may be distinguished from the original seam. Beerman, a. A borehole from vertical and/or its intended course. Long. b. See also deflection angle. Long.

drift mine. a. A borehole, the course of which may be distinguished from the original seam. Beerman, a. A borehole from vertical and/or its intended course. Long. b. See also deflection angle. Long.
drift mining, a. A term applied to working alluvial deposits by underground methods of mining. The paystreak, varying from 2 to 10 feet or more, is reached through an adit or a shallow shaft. Wheelbarrows or small cars may be used for transporting the gravel to a sluice on the surface. If relatively large, the deposit is removed in a system of regular cuts or slices taken across the paystreak, working generally in a retreating fashion from the inner limit of the gravel. Drift mining is more expensive than sluicing or hydraulic mining; consequently it is used only in rich ground. Lewis, p. 390. b. The working of relatively shallow coal seams by drifts from the surface. The drifts are generally inclined and may be driven in rock or in a seam. Drift mining may be viewed as intermediate between open-cast coal mining and shaft or deep mining. See also development drift, Nelson.

drift net. In oceangraphy, a form of gill net used for fishing at or near the surface; allowed to drift with the tide; used especially by beating boats or drifters. See also gill net. C.T.D.

drift peat. A peat deposit associated with or embedded in glacial drift. Fay.

drift salt. Fluffy, flaky salt particles due to wind and wave action which produce a mist over the surface of solar salt ponds. Tomkeieff, 1954.

drifts. a. A deposit of solid or gravelly material deposited between the ledges of rocks, supposed to have been produced by the grinding action of masses of soil, gravel, and rocks, during glacial movement. Fay.

drift set. A strong timber set in a drift which may form the anchorages for the timber sets of the stope above. Nelson.

drift sheet. A sheetlike body of glacial drift, composed of fine-grained, unstratified, continuous or discontinuous bodies, resulting from a single glaciation (for example, Carey drift sheet) or during a closely related succession of glaciations (for example, Wisconsin drift sheet). A.G.I.

drift slabs. Slabs of more than ordinary length, used especially for holding back dikes and water from a shaft. Fay.


drift stope. The excavation of the development drift together with the stope in overhand stoping. Employed in cases where the nailing wall is strong. Nelson.

drift stopping. See sublevel stoping. Fay.

drift theory. That theory of the origin of coal which holds that the plant matter constituting coal was washed from its original place of growth and deposited in armorial deposition where coalification then came about. See also allochthonous coal. A.G.I.

driller. See. a. A. C.T.D. Also called a drifter. See also drifter. C.T.D.


drilling. Coring. The lower pump in a tier or tier; the working piece. Also called drigger. Fay.

drilling or core (ice. Pryor, 3.

drill. a. Any cutting tool or form of apparatus using energy in any one of several forms to produce a hole in rock, metal, wood, or other material. See also calyx drill; churn drill; core drill; diamond drill; rock drill; rotary drill; shot drill. Long. b. To make a circular hole with a drill, or to cut a hole. Long. c. Types of drills include singlehead, double-hand (worked manually); percussion drills (jacket, or jacketed), which are operated using compressed air; and rotary drills (diamond, shot, calyx) powered by air or electricity. All the drills include Banks (hand) and churn (power). Pryor, 3.

drillability. a. The relative speed at which a material may be penetrated by a drill bit. High drillability denotes easy penetration at a fast rate. Long. b. The specific value of the drilling properties of a rock expressed in terms of the drilling rate under certain technical conditions. Freasekel.

drill area. Drilling area. To sink a borehole into solid or unconsolidated rock material, such as overburden or glacial till, to a considerable depth below the bottom of the casing or drivepipe. Long. b. To restart or resume drilling operation. Long. c. To drill boreholes in advance of mine workings to explore or locate old mine workings or a water-bearing formation. Long.

drill bar. A drill column that is set horizontally instead of vertically in an underground workplace. Long.

drill base. Metal or wood framework on which a drilling machine is mounted. Long.

drill bit. One of a number of different types of detachable cutting tools used to cut circular holes in rock, wood, metal, etc. Also called drill bit for use in iron and steel. Tomkeieff, 1954.

drill boom. An adjustable arm projecting from a drilling carriage to carry a drill and hold it in position. B. S. 3618, 1964, sec. 6.

drill bort; drilling bort. Synonym for drill bit, Long.

drill bortz; drilling bortz. Synonym for drill bort or bortz. Long.

drill bortz. A drill column that is set horizontally instead of vertically in an underground workplace. Long.

drill bortz; drilling bortz. Synonym for drill bortz. Long.

drill cradle. The metal channel on which a heavy drill is fed forward as drilling proceeds. B. S. 3618, 1964, sec. 6.

drill crew. Men needed to operate a drill machine properly. Long.

drill crow. A person who has acquired enough knowledge and skill to enable him to operate a drill machine properly. Long.

drill cutting. A. G. I. Supp. See also cuttings; fudge; drill slurry; drilling derrick. See derrick. Long.

drill derrick. See also derrick. Long.

drill diamonds. Long.

drill; drilling. Fay.

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driller. a. A person who has acquired enough knowledge and skill to enable him to operate and to assume the responsibility of operating a drilling machine. Also called drill operator, drill runner, and drill hand. B. S. 3618, 1964, sec. 6. b. The man in charge of the rig and crew during one tour and who handles the control of the drilling controls. Bronger, 12. c. A drilling machine. Standard, 1969, d. Can. Property being diamond drilled as compared to
driller

one underground underwater development. Hough, e. N. of Eng. Uses an electric or pneumatic twist drill to make shotholes in the ground. The points where the shotholes are usually put on the stone to be crushed are call holes. Trit. I. See cable driller. D.O.T. 1.

driller helper. See prospecting driller helper. D.C. I.

driller, machine, a. In anthracite and bituminous coal mining, one who operates a compressed-air or electric rotary drilling machine in working places in a mine to drill holes into the working face of coal so that the mass may be broken up by blasting with explosives that are inserted and set off in the holes. Also called drill engineer; drillman; power driller. D.O.T. 1. b. In the quarry industry, one who operates a heavy, mounted, compressed-air, percussion machine. See also cable driller. D.O.T. 1.

Compressed-air or electric rotary drilling machines are extensively used in large tunnels and for sinking shafts or openings in rock or rock in the working place to facilitate setting up and operating drill. Also called drill operator helper. D.O.T. 1.


drill hole; drill hole. See borehole. Compare borehole. Long.

drill-hole counter. A device for counting the number of holes drilled or holes that have to be drilled. Shell Oil Co. b. A device for counting the number of holes drilled or holes that have to be drilled. Shell Oil Co.

drill-hole pattern. A plan showing the location, direction, length, and firing sequence of the drill holes in a round. Frenkel. b. The overall rate of advance of the borehole. B.S. 3618, 1963, sec. 3.

drill drill; drilling drill. A linear-laden fluid used as a circulating medium when drilling a borehole with a diamond- or rotary-drilling machine. See also mud. Long.

drill fitting. Devices, parts, and pieces of equipment used downhole in drilling a borehole. Also called downhole equipment. Long.

drill floor; drilling floor. A planked-over work area around the collar of a borehole at the base of a drill tripod or derrick. Long.

drill fluid; drilling fluid. Usually water or water and salted water (sometimes applied to compressed air, natural gas, or oil) circulated through a drill string to keep it cool and to wash cuttings produced away from the bit face. Also called circulation fluid; fluid circulation. Long. See also circulation fluid.

drill footage. The number of linear feet of borehole drilled, usually expressed in number of feet per bit. Long.

drill frame. A drill frame is usually constructed of three or more arch girders strapped together to form a replica of the tunnel shape but smaller in size. The structure is mounted on wheels and provision is made for clamping the drills to various parts of the frame according to the drill-hole pattern in use. It contains a control system to allow the passage of the loading machine, cars, or conveyors. Nelson. b. The structure is mounted on wheels and provision is made for clamping the drills to various parts of the frame according to the drill-hole pattern in use. It contains a control system to allow the passage of the loading machine, cars, or conveyors. Nelson.

drill free; drilling free. A condition occurring when the bit is being suspended above the bottom of the borehole by the drill rods or by a blocking of cuttings at the bottom. Nelson. b. A condition occurring when the bit is being suspended above the bottom of the borehole by the drill rods or by a blocking of cuttings at the bottom. Nelson.

drill gear. The width across the cutting bit or bit tips of a rock drill. With tungsten-carbide bits it is possible to drill long holes without the loss of gage. Nelson. b. The width across the cutting bit or bit tips of a rock drill. With tungsten-carbide bits it is possible to drill long holes without the loss of gage. Nelson.

drill head. a. The assembly which applies the drilling pressure and rotation to the drill rods. Also called boring head. B.S. 3618, 1963, sec. 3. b. Obsolete synonym for drill bit. Long.

drill hole; drill hole. A hole in rock or coal made with an auger or a drill. Bureau of Mines Staff. b. Technically, a circular hole drilled for any practical purpose; loosely and commonly, the name applies to a circular hole drilled in any manner. Long. c. Used by diamond drilling operators to denote a borehole. Compare borehole. Long.

drill-hole pattern. The number, position, depth and angle of the shot holes forming the complete round in the face of a tunnel or sinking pit. A good drill-hole pattern will ensure the maximum possible pull and the fragmentation for any loading without excessive scatter of material. Nelson.


drill head; swivel head. A device very accurately made to fit the drill and clamped to the frame. The use of a jig makes it possible to obtain a reproducible hole. Nelson. b. A device very accurately made to fit the drill and clamped to the frame. The use of a jig makes it possible to obtain a reproducible hole. Nelson.

drill iron. a. The act or process of making a circular hole with a drill. See also drill a hole. Long. b. The overall rate of advance of the borehole. B.S. 3618, 1963, sec. 3.


drill log; drilling log. The record of the events and the type and characteristics of the formations penetrated during drilling a borehole. Also called boring log. Compare log. Long.

drilled machine, power. A machine operated, or power-driven machine for boring shot holes or boreholes in, or on, ore, mineral, or rock. See also auger drill; percussive drill; rotary drill; rotary-percussive drill. Nelson.

drilling machine operator helper. In metal mining, one who operates a rock drill or long-throw rock drill to assist the driller in operating the drill. Also called drill operator helper. D.O.T. 1.

drilling mud. A suspension, generally aqueous, used in rotary drilling and pumped down through the drill pipe to seal off porous zones and to counterbalance the pressure of oil and gas; consists of various substances in a finely divided state among which bentonite and barite are most common. Oil may be used as a base of water. A.G.I. Supp.

drilling mud weighting materials. Class name given to materials which are added to drilling mud to control gas, oil, water, or formation pressures and to aid in maintaining the walls of the open hole. C.D. 64, 1961.

drilling platform. Auxiliary equipment for drilling at heights above head level. The drilling platform is generally assembled and dismantled to suit each series of drilling operations. Frenkel.

drilling pressure; drill pressure. See bit load. Long.

drilling rate. a. The depth of penetration achieved per unit of time with a given type of rock drill, bit diameter, air pressure, etc. Also called penetration rate. Frenkel. b. The overall rate of advance of the borehole. B.S. 3618, 1963, sec. 3.

drilling tools. An assembly of tools including the bit, drill pipe, etc., used in well drilling. Shell Oil Co.

drilling tower; drill tower. Synonym for derrick. Long.

drilling up. Preliminary digging out the clay in the taphole of a furnace. This is done usually by hand, air, or electric drill. Fay. b. Incorrectly used as a synonym for derrick. Long. c. Incorrectly used as a synonym for derrick. Long. d. Incorrectly used as a synonym for derrick. Long.
drill machine; drilling machine

A portable mechanism used in drilling boreholes, drill holes, or wells. Also called drill; drill rig.

drill mounting; drilling rig. An arrangement to provide feed pressure and a support for the drilling machine usually in tunnels. Four main types of drill mountings are in use, namely, the post, the air leg, the drill frame, and the drill carriage. Nelson.

drill mud; drilling mud. Water mixed with clay (usually bentonite) and sometimes other material such as ground barite, oil, etc., used as a rotary and/or diamond-drill circuit. Compare circulation fluid; drill fluid. Long.
drill off; drilling off. Used by rotary and diamond drills as a synonym for drill free. See also drill free. Long.
drill operator, pneumatic. In stonework in- dust. a. One who drills holes in slabs or blocks of building stone for the insertion of wire or rods in mounting or fastening the stone. b. One who drives a compressed air driven drill. D.O.T. 1.
drill out; drilling out. a. To penetrate or drill through or completely empty; b. To bore or dig out; drilling out. a. The act or process of drilling. Long.
drill platform; drilling platform. Synonym for drill floor; drilling floor. Long.
drill press operator. In the stonework in- dust. b. one who drills holes in slabs or blocks of building stone for the insertion of wire or rods in mounting or fastening the stone. Also called drill press operator; Long.
drill press; drilling press. A portable machine complete with various controls and accessories for making hole holes, and used in a wide variety of work. Nelson. b. See drill rig. Long.
drill press. a. A machine consisting of a cast iron base, a table to work on, one or more spindles or spindles, a headstock and tailstock, and a driven belt; b. A machine tool for drilling, boring, reaming, and making other similar operations. Nelson. b. See drill rig. Long.
drill rig; drilling rig. A machine designed to drill holes in the earth or rock. The term "drill rig" is applied to the equipment used to perform this work. Long.
drill rig bits. a. A coring bit, usually designed to be coupled to a reaming shell and used to obtain a core sample. b. The term "drill rig bit" is generally used when the core bit is coupled to a reaming shell and used to obtain a core sample. Long.
drill rig floor. a. The top floor of a drill rig. b. See drill rig, d. See drill rig, b. Nelson. b. See drill rig. Long.
drill pipe; Diamond drill pipe; drilling pipe. a. In standard drilling, a cylindrical steel tube or pipe,-usually 2 1/2 inches in diameter, used to transport fluids and in the transport of drill cuttings. Also called steel pipe, drill pipe, Diamond drill pipe, etc. Nelson. b. See drill rig. Long.
drill pipe drive quill. Synonym for drive quill. Long.
drill rig steel. a. Steel made either by the crucible process or the Bessemer process. b. Steel used in the manufacture of drills. Nelson. b. Steel used in making drills. Long.
drill rig steel. a. Steel made by one of the crucible processes. b. Steel used in the manufacture of drills. Nelson. b. Steel used in making drills. Long.
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drip feeder

A device used to feed water or other liquid at a controlled rate into a borehole. It is often used in connection with a derrick or other lifting device to feed water or other liquid into a borehole at a controlled rate.

for boring in coal, ore, or rock. It consists of a pipe, a steel pipe, and a valve connected to a water supply. The pipe is inserted into the borehole and the valve is opened to allow water to flow into the borehole. The water is then circulated through the borehole using a pump or other device.

Drip feeders are used in a variety of applications, including mining, construction, and drilling. They are particularly useful in situations where water or other liquids need to be fed into a borehole at a controlled rate.

Drip feeders are available in a variety of sizes and configurations, depending on the specific application. They are typically made of steel or other strong, durable materials.

Drip feeders are an important tool in the mining and drilling industries, as they allow for precise control of the amount and rate of water or other liquids fed into a borehole. This ensures that the drilling process proceeds smoothly and efficiently, and reduces the risk of damage or other problems.
drip feeder

lubricant at steady rate in drops per minute. Pryor, 3. b. Reagent feeder sometimes used in flotation process to meter chemicals into the pulp. Henderson. c. Incorrectly used as a synonym for drive shoe; drive hammer. Long.
drive. A type of force fit. ASM Gloss.
drive gear; drive gears. a. The gear at the end of a diamond-drill motor drive shaft, which engages and rotates the diamond-drill swivel-head bevel gear; the latter in turn rotates the swivel-head drive rod. Long. b. Equipment used primarily in driving pipe or casing. Long. 
drive hammer. A heavy sleeve-shaped weight used as a hammer or pindlever for driving pipe or casing to overburden or other soft rock materials. Also called anvil; anvil block; drive block. Long. See also casing drive hammer.
drive hammer extension. An annular-shaped piece of heavy steel, which is made to be attached to the bottom end of a drive rod before installation of the drive block is needed. Also called drive-block extension. Long. 
drivehead. a. The driving mechanism for a conveyor. The expressions head-end drive, intermediate drive, and tail-end drive, indicate the position of the drivehead or heads. Nelson. b. A heavy iron cap or annular coupling fitted to top of pipe or casing to receive the casing from the blow delivered by a drive block when casing or pipe is driven through overburden or other material. Also called drive cap; driving cap. Long. c. The swivel head of a diamond- or rotary-drill machine. Long. 
drivehead yoke. A heavy steel ring fitted around a jar rod and resting on a drivehead attached to rods connected to a drive sampler used in soil-sampling operations. The ring is equipped with two links to which the pulldown lines can be attached and by means of which the sampler is forced slowly and steadily downward into the material being sampled. Long. 
drive jack. See drive head jack. Long. 
drive jack (pipe) head extension. See drive-hammer extension. 
drive cap; driving cap. See drive head, b. Long. 
drive casing. Heavy, thick-walled casing, which is stronger than standard casing. Long. 
drive chain. The chain used to convey power and motion between the speed reducer of the drive unit and the head shaft on a drive chain. Long. 
drive chuck. Mechanism at lower end of a diamond-drill rod for connecting the head shaft by means of which the movements of the drive rod can be imparted to the drill string. Also called chuck. Long. 
drive coupling. A heavy coupling fitted on a chuck drill string to enable it to be used as a hammer to drive casing pipe. Nichols. Long. 
drive drill. a. A heavy, thick-walled pipe or casing against which the blow of a drive block is delivered when driving or striking pipes or casings. An oversize rod or casing coupling on which the blows of a drive block are delivered when casing is being driven or an attempt is being made to jar loose stuck casing or a drill-rod block. Long. b. Incorrectly used as a synonym for drive shoe; drive hammer. Long.
drive fit. 
drive gear; drive gears. a. The gear at the end of a diamond-drill motor drive shaft, which engages and rotates the diamond-drill swivel-head bevel gear; the latter in turn rotates the swivel-head drive rod. Long. b. Equipment used primarily in driving pipe or casing. Long. 
drive pulley. Applied to the pulley or drum driven through gearing by some source of power and which, through contract friction, drives a conveyor belt. Drive pulleys are frequently placed in tandem to provide a greater surface contact with the belting. The term driving rolls is also used for such pulleys. Jones. 
drive quill. a. The sleeve fitting around and imparting rotational movement to the drive rod in the swivel head of a diamond-drill machine. Long. b. A term sometimes incorrectly used as a synonym for drive rod. Long. 
driver. a. A person who drives a horse or mule in a mine. Fay. b. One who controls the movements of a locomotive motor car, or the like. Webster 2d. c. Eng. A bit of iron for forcing the wood into a baling hole. A tamping iron. Fay. d. Eng. A bit man who breaks down the coal in the state with hammers and wedges, after the hoisting is finished. A miner. Fay. 
driver boom. A person in charge of the drivers in a mine. See driver, a. Long.
drive rod. a. Threaded hollow shaft in the swivel head of a diamond-drill machine through which the energy supplied by the drill motor is imparted to the drill string. Also called drive spindle; spindle rod. Long. b. Synonym for jar rod. Long. 
drive rod bushing. A metal sleeve used to fill the annular space between a drill rod and the inside of the upper end of a drive rod or feed screw on the swivel head of a diamond-drill machine. The sleeve steadies the drill rod and reduces its tendency to wobble or vibrate inside the drive rod. Long. 
drive sample. A dry sample of soft rock material, such as clay, soil, sand, etc., obtained by forcing, without rotation, a short, tubular device into the formation being sampled by hydraulic pressure or the pindlever action of a drive hammer. Long. 
drive sampler. A short tubelike device designed to be forced, without rotation, into soft rock or rock material such as clay, sand, or gravel, by hydraulic pressure or the pindlever action of a drive hammer to procure samples of material in as nearly an undisturbed state as possible. Long. 
drive sampling. The act or process of obtaining dry samples of soft rock material by forcing, without rotation, a tubular device into the material being sampled by pressure generated hydraulically, mechanically, or by the pindlever action of a drive hammer. Long. 
drivescrew. The threaded drive rod in a gear-feed swivel head on a diamond drill. Long. 
drive section. That section of a belt conveyor which transmits power to the drive pulleys. In the case of frac tanks, the driving pulleys or rolls, and the gearing necessary for driving the pulleys. Jones. 
drive shaft. A heavy steel rod on which the drive and conveyor sprocket wheels or pulleys are mounted. This shaft is connected to the elevator sprocket or auger sprocket, sprocket wheel, gear, or other form of mechanical power transmission. ASA
drive shaft

MH 4-I-1958. b. A shaft used to support the end of a conveyor screw in a trough end. All conveyor screws have this driving connection between a conveyor screw and the power transmitting mechanism. ASA MH 4-1958.

drive. The arrangement of a casing wall sleeve or coupling of rolled, cast, or forced steel, not set with diamonds, attached to bottom end of drive pipe or casing to act as a cutting edge and protector for pipe or casing being driven into overburden or other rock material. Long. b. Incorrectly used as a synonym for casing shoe bit and/or pipe-shoe bit. Also called casing shoe, pipe shoe. Long. See also casing drive shoe; drivepipe shoe.

drive sleeve; driving sleeve. Synonym for drive hammer. Long.

drive spindles. Synonym for drive rod; drive sampler. Long.

drive unit. The mechanism which imparts drive to the driving cap; drive shoe. a. A sharp-edged, heavy wall drive wedge. A metal wedge, driven into a borehole, that acts as a fixed point on which the means of a deflection wedge may be set and oriented. Long.


driving arch. An auxiliary arch brick projecting from the general inner surface of the arched roof of a furnace, brick conduit or like structure. Dodd.

driving bolt. A method of breaking oversize stones left after quarry blasting. The balls weigh from 30 hundredweight to 2 tons (many use old cones from gyratory breakers) and are dropped from a crane on to the oversize stone. The drop height varies from about 20 to 33 feet. The method is economical and adds secondary blasting. Nelson.

drop. No. of Eng. A chute down which coal is run into keels or boats. Fay. d. To allow the upper lift of a seam of coal to fall or drop down. Fay. e. Eng. The quantity of coal brought down at one cutting. Fay. f. Scot. The portion of a mineral deposit which can be dropped down a shaft to a lower level. Fay. g. Scot. To work the upper portion of a thick seam after the lower portion has been worked. Fay. h. Scot. To stop work. Fay. i. The vertical displacement in a downthrow fault; the amount by which the head of a timber pile to prevent brooming from the cope or other overhanging section of the mold. ASM Gloss.

drop arch. An auxiliary brick arch projecting below the general inner surface of the arched roof of a furnace, brick conduit or like structure. Dodd.

drop bottom bucket. A bottom-opening container used for placing concrete. Ham.

drop-bottom cage. A cage so designed that the middle section of the floor drops a few inches when the cage is lifted from the keels. The mine car is thus kept stationary and secure. Nelson.

drop bottom. The driving mechanism of a belt conveyor. It consists of an electric motor or compressed-air turbine connected through an efficient, smooth reduction gearing to the drum or drums. Motion is imparted to the belt by the frictional grip between it and the drums. The whole unit is mounted in strong covers. Sinclair, V. p. 286.

driving belt. See driving cap. Ham.

driving on line. The keeping of a heading or breast accurately on a given course by means of a compass or transit. In Arkansas, called driving on sights. Fay.

dravings. See clipper. Ham.

drop. a. Large, funnel-shaped masses of rock hanging from the roof down into a coal seam. They usually occur in numbers, and are often arranged in rows in some general direction. They often have a flange on one side suggesting they are casts of hollows connected by a large crack. Slight bedding parallel to the sides and horizontal in the center gives the appearance of the hinges. Bore holes are drilled from quicksand running in, as in the case of infilled sandblows in many earthquake areas. Raitzick & Diller, p. 94. b. To lower the cage to receive or discharge the car when a cage of more than one deck is used. Fay.

c. No. of Eng. A chute down which coal is run into keels or boats. Fay. d. To allow the upper lift of a seam of coal to fall or drop down. Fay. e. Eng. The quantity of coal brought down at one cutting. Fay. f. Scot. The portion of a mineral deposit which can be dropped down a shaft to a lower level. Fay. g. Scot. To work the upper portion of a thick seam after the lower portion has been worked. Fay. h. Scot. To stop work. Fay. i. The vertical displacement in a downthrow fault; the amount by which the head of a timber pile to prevent brooming from the cope or other overhanging section of the mold. ASM Gloss.

drop chark. See prepared calcium carbonate.

drop check. A valve made to drop into the lower end of a working barrel of a lifting pump when, from any cause, the lower valve ceases to act and the upper device is underwater. Standard, 1964.

drop cut. The initial cut made in the floor of an open pit, for the purpose of developing a bench at a level below the floor. Bureau of Mines Staff.

drop doors. Feet. For forcing the bottom of the cupola furnace which drop down to allow the furnace to be cleaned. Merceus, 8th, p. 479.

dropping. c. No. of Eng. A chute down which coal is run into keels or boats. Fay. d. To allow the upper lift of a seam of coal to fall or drop down. Fay. e. Eng. The quantity of coal brought down at one cutting. Fay. f. Scot. The portion of a mineral deposit which can be dropped down a shaft to a lower level. Fay. g. Scot. To work the upper portion of a thick seam after the lower portion has been worked. Fay. h. Scot. To stop work. Fay. i. The vertical displacement in a downthrow fault; the amount by which the head of a timber pile to prevent brooming from the cope or other overhanging section of the mold. ASM Gloss.

dropping stones. a. A forging hammer that depends on gravity for its force. ASM Gloss. b. A pile driving hammer that is lifted by a cable and that obtains striking power by falling freely. Nichols. c. Synonym for drive hammer. Long.

drop gate. A timber which in an emergency can be dropped by a remote control across a mine track at the top or bottom of an incline to derail cars. Bureau of Mines.

drop of water. A rounded (waterworn), colorless, and transparent pebble of topaz. Schaller.

drop doors. See car runner; car dropper. D.O.T. 1.

drop hammer. Brick formed by dropping a clot or plug of a prepared mix considerable distance (approximately 15 feet) into a mold after which the extra material is slacked off the top. AISI, No. 24.

drop mold brick. Brick formed by automatically dropping a quantity of a prepared mix a considerable vertical distance into a mold. A.R.I.

drop mold brick. See drop machine brick. AISI, No. 24.

drop molding. The process of forming brick by dropping a clot or plug of a prepared mix a considerable distance (approximately 15 feet) into a mold after which the extra material is slacked off the top. AISI, No. 24.

drop penetration test. See dynamic penetration test. Ham.


dropping. Molding by heating in a mold without the use of pressure. ASTM C162-66.

dropping bottle. Laboratory reagent bottle so constructed as to deliver contents one drop at a time. Funnels and pipettes can be similarly equipped. Pryor, 3.

dropping pillars and top coal. Aust. The second working, consisting of drawing the pillars, and in thick seams breaking down the upper portion of the seam that was left temporarily in position. Fay.

dropping point. A test made on greases which will show their heat resisting qualities. Also called melting point. AISI, No. 24.

droppings. Drops of water falling from the roof into a gangway or breast. Korsm.

drop pit. A shaft in a mine, in which coal is lowered by a brake wheel. Fay.

droop shot. A drop shaft of 12 inches or more in a line of sluices which are formed by allowing the discharge end of one box to rest on the floor of the succeeding sluice, instead of telescoping into it. This method insures a drop of 12 inches or more (depending on the depth of the sluice box) at the end of each sluice, which usually is sufficient to disintegrate fairly stiff clay. Griffith, S. F., p. 61.

drop shaft. A monkey shaft down which earth and other matter are lowered by means of a drop (that is, a kind of pulley with brake attached); the empty bucket is brought up as the full one is lowered. Zern.

drop shaft method. This sinking system consists in the use of a cutting shoe on the bottom of a shaft lining which is being continually augmented as the shoe descends, the material inside the lining being excavated. Sinclair, II, p. 299.

drop sheet. N. of Eng. A door made of canvas, by which the ventilating current is regulated and directed through the whole ventilation current. Fay.

drop shot. Shot made by dropping or pouring melted sulfur into water. Standard, 1964. c. The scum that forms on the surface of molten metals largely because of oxidation but sometimes because of its being admixed with too much water. Long. b. To flood or mix with an excessive amount of water. Long.

drowned; drowned out. Flooded; said of mines underwater. Fay.

drowned coast. See shoreline of submergence. Schieferdecker.

drowned level. A level that is underwater. Hess. See also blind level, c. Fay. b. Part of a drainage drift which, being below both discharge and entry levels, is constantly full of water. Also called inverted siphon. B. S. 3618, 1963, sec. 4.

drowned valleys. Valleys of a dissected land surface, the lower parts of which have been inundated by the sea as a result of submergence of the land margin. A. G. I.

drowned waste. Old workings full of water. Fay.


druggon. 5. Staff. A square iron or wooden box, used for conveying fresh water for horses, etc., in a mine. Fay.

drudical stone. Synonym for graywether. A. G. C.

drud stones. Eng. Saren stones, so called because used in Stonehenge and other supposed Druid temples and circles. Arkell.

drum. a. The large cylinder or cone on which the rope is coiled when hoisting a load up a shaft. b. A cylindrical or polygonal rim of wheel around which cable, chain, belt, or other linkage may be wrapped. A drum may be driven or driving. The face may be smooth, grooved, fluted, or flanged. ASA MH4.1-1958. c. Eng. In the Lancashire coalfield, a brick, iron, or wooden cylinder, used when sinking a shaft through sand. Fay. d. See running the drum. Fay. e. A metal case for shipment of oil, gasoline, etc. Fay. f. The spool-like part of a hoisting mechanism on which the cable or wire line is wound. Long. g. A drum for holding a liquid capacity of 55 gallons. See also barrel. d. Long. h. In a conical mill, the cylindrical central projection. Pryor, 3, i. Winding drum used to hold cages and skips through mine shafts. Pryor, 3. j. A general term for a roller around which a belt or conveyor is lapped. It may be a driving, jib-, loop-, tension-, or a holding-down drum. Nelson. k. See haulage drum; winding drum. Nelson. l. Term sometimes applied to the mouth of a port in a glass-tank furnace. Dodd. m. A wooden former of the type that was used in making the side of a sagger by hand. Dodd.

drum curb. See curb, c. Hess.

drum counterweight rope. Balance rope direct from drum drive. Ham.


drum filter. Cylindrical drum, which rotates slowly through trough-shaped bath fed continuously, or intermittently at one or more purl. Segments of drums are successively connected to vacuum tank, low-pressure compressed air, etc., to consolidate and discharge of filter cake and removal of filtrate. Pryor, 3.

drum gate. Spillway gate, in the shape of a sector of a circle, which is opened or closed by means of valves arranged to admit or release water. Ham.

drum head. N. of Eng. A short heading formed by the rise of a level, or bank head, in which the working area is being driven in a direction parallel to the inclined plane is fixed. Fay.

drum-head process. A process used in Europe for the shaping of flattwars; it was developed on account of the shortness of the flatdaspeth porcelain body. A slice of the pugged body is placed on a detachable drum-head which fits on the battling-out machine. The drum-head, with the shaped disk lying on it, is then removed and inverted over the jigger-head, the bat then being allowed to fall on the mold for its final jiggering. Dodd.

drum horns. Wrought-iron arms or spokes projecting beyond the surface or periphery of stope drums, between which the rope coil or lap. Fay.

drumlin. Oval-shaped hill composed of glacial drift, with its long axis parallel to the direction of movement of a former ice sheet. Mather.

drumman. See slope engineer. D.0.T. 1.

drumming. The process of sounding the roof of a mine to discover whether rock is loose. Fay.

drummy. a. Loose coal or rock that produces a hollow, loose, open, weak, or dangerous sound when tapped with any hard substance to test condition of strata with especial care of a mine roof. Fay; B.C.I. b. The sound elicited when bad (loose) roof is capped. Fay.

drum or drop shaft. See caisson sinking. Nelson.

drum pulley. A pulley wheel used in place of a drum. See also Koepe system. Fay.

drum rings. Cast-iron wheels, with projections, to which are bolted the staves or laggings forming the surface for the hoisting cable to wind upon. The outside rings are flanged, to prevent the cable from slipping off the drum. Abel.

drum runner. See incline man. D.0.T. 1.

drum screen. A screen in the shape of a cylinder or truncated cone, turning on its own axis, used in sewage treatment. Ham.

drum separator. A slowly rotating cylindrical vessel which separates run-of-mine drums, between which the meat is wound.

drum separator. A slowly rotating cylindrical vessel which separates run-of-mine coal into clean coal, middlings, and refuse. It consists of different and adjustable specific gravities. The low gravity medium in one compartment separates a primary float product (clean coal), the sink material being lifted and sluiced into the second compartment where middlings and true sinks (stone) are separated. Nelson.

drum shaft; drop shaft. See caisson sinking. Nelson.


drum. a. A cavity lined with crystals, particularly if a rather small cavity; it may be in a vein or rock, such as a small solution cavity, a steam hole in lava, or a lithophysa in volcanic glass; in mining, it is known as a vug, especially the larger ones; it is not a gossan, which is a hollow nodular concretion that can be separated from the enclosing rock. Hess. b. The crust of crystals lining a small cavity in a rock. Hess.

drury. a. Cavities in mineralized veins or lodes. Nelson. b. Covered with minute crys-
dry

**dry castings.** A method of casting in which the mold is made of sand and afterwards dried. Fay.

**dry cell.** A primary cell which does away with the liquid electrolyte so that it may be used in any position. Crispin.

**dry cleaned coal.** Coal from which impurities have been removed, locally without the use of liquid media. B.S. 3323, 1960.

**dry cleaning.** The cleaning of coal or ore by air currents and agitation to a layer of feed of controlled depth on the table surface. B.S. 3352, 1962. See also Kirkup table. Nelson.

**dry cleaning table.** An apparatus in which drycleaning is achieved by the application of air currents and agitation to a layer of feed of controlled depth on the table surface. ASTM D121-62. See also Kirkup table.

**dry-coal.** Coal containing but little hydrogen. Fay.

**dry copper.** Undercooled copper from which oxygen has been insufficiently removed when refining, so that it is undextragil britle when worked cold or hot. Pryor, 3.

**dry coke.** A laboratory term applied to coke which has been dried to constant weight in accordance with definite prescriptive methods. In the case of lump coke, the temperature shall be not less than 104° C., nor more than 200° C; in the case of coke passing a 250-micron (No. 60) sieve, the temperature shall be not less than 104° C., nor more than 105° C. for a period of 1 hour. ASTM D121-62.

**dry criticality.** Reactor criticality achieved without a coolant. L&L.

**dry-cyaniding.** Same as carbonitriding. ASTM.

**dry density.** The weight of a unit volume of dry sample of soil, after the latter has been heated at a temperature of 105° C. ASTM.

**dry density/moisture ratio.** The relationship between the density of a sample of soil in a dry state and its moisture content for a given degree of compaction. Such relationship can be determined from a curve which will reveal the optimum moisture content. Fay.

**dry digging.** a. Placers not subject to overwashing, where water currents have been removed and which has been dried and its moisture content determined from a curve which will reveal the optimum moisture content. A.C.S.G., 1963.

**dry distillation.** See destructive distillation. Fay.

**dry dock.** A dock into which a ship is waterborne. After the dock gates have been closed, the water is pumped out of the dock, allowing the ship to rest on keel blocks in readiness for maintenance and repairs to hull and superstructure. See also graving dock. Ham.

**dry drilling.** Drilling operations in which the cuttings are lifted away from the bit and transported out of a borehole by a strong current of air or gas instead of a fluid. Long.

**dry drier.** Compressed-air drill which traps and removes drilling dust instead of sludging it with added water. Pryor, 3.


**dry evaporation.** A condition often appearing in wires and may be caused by shock loads in winding. These shock loads are produced by picking up the cage from the pit bottom with slack chains or by lifting heavy pithead gates or covers. Sinclair, V., pp. 12-13.

**dry fines.** The fineness of a sample of foundry sand from which the clay has not been removed and which has been dried at 105° to 110° C. Osborn.

**dry-ink.** Ware with no glaze on the foot. A.C.S.G., 1963.

**dry friction damping.** See cumboll damping. Fay.

**dry gage.** See drag ladle. ASTM C162-66.

**dry galvanizing.** A process in which steel is fluxed in hot ammonium chloride and subsequently dried by hot air before being passed through a bath of molten zinc. Ham.

**dry gas.** A natural gas consisting principally of methane (CH₄) and ethane (C₂H₆), and devoid of the heavier hydrocarbons. Usually produced from a natural gas field that does not contain petroleum or condensate. Also applied to gas that has been produced and from which liquid components have been removed. A.C.G.T.

**dry grinding.** Any process of particle size reduction carried on without the use of liquid media. Enamel frits for the dry process industry are ground dry, whereas water millings, containing clay and other additions, are used in the wet process. Enam. D.14.

**dry hole.** a. A drill hole in which no water is used for drilling, as a hole driven upward. Standard, 1964. b. A well in which no oil or gas is found. Fay. c. Blasting hole driven without use of dust-allaying water. Pryor, 3.

**dry hole contribution.** a. Payment, by someone not financially interested in an oil lease, to aid in the drilling of a test well, that is due whenever a specified depth is reached without the use of water in paying quantity. Benefit is derived from the geologic information so obtained. A.C.S.G., Supp. b. Cash contribution usually on a footage basis in support of a test well payable if venture is a dry hole. Wheeler.

**dry house.** An artificial room in which the sharpening crystals or grains are so blended with the bond that good results can be obtained without the use of lubricants. Fay.

**dry house.** See changehouse. b. Long.


**dry ice.** Solid carbon dioxide. Pryor, 3.

**dry ice test.** A test for the detection of glass inclusions. If a crystalline substance such as a gem mineral be placed in contact upon a piece of dry ice (solidified carbon dioxide, CO₂), a squeaking noise can be heard. This is not true of noncrystalline substances, such as glass and plastic. Ship.

**dry iced.** A. The removal of water from ores, concentrates, or fluxes and in some cases from air by heat. Drying of solid material is commonly accomplished by bringing the hot solids in direct contact with hot air or gases and exposing them to drying by heating. B.P. 5787. Removal by evaporation,

drying cream. A defect characterized by a film or a porcelain enamel bisque. ACSG, 1983.

drying-machine operator. One who dries new or remolded ware or greenware in the process of drying ware in drying machines. Also called dryer man; pot drier. D.O.T. I.

drying off. The process by which an amalgam of gold is evaporated, as in gilding. Fay.


drying shrinkage. a. The shrinkage of concrete caused by evaporation. More precisely, it is the difference between the length of a specimen cut from concrete, which has been matured and subsequently saturated, and its length when dried to constant length, the shrinkage being expressed as a percentage of the dry length. Taylor, b. Ceramic ware (and particularly clayware) that is shaped from a moist batch shrinks during drying; the drying shrinkage is usually expressed as a linear percentage, for example, the drying shrinkage of china clay is usually 6 to 10 percent, that of a plastic ball clay is 9 to 12 percent. To produce ware (for example, electroceramic or refractory bricks) of high dimensional accuracy, the drying and firing shrinkages must be low; this is achieved by varying the proportion of raw clay and increasing the proportion of nonplastic material in the batch, which is then shaped by dry molding, for example. Dodd.

drying-tunnel man. One who tends a number of drying tunnels in which moist brick and tile products are dried several hours or as much as 2 or 3 days prior to their being baked. Also called drying-room man; drying-pan operator. D.O.T. I.

dry joint. Positive separation at the plane of contact between adjacent structural components to allow relative movement resulting from differences in temperature or shrinkage. Ham. b. One made without gasket, packing, or smear of any kind, as a ground joint. Stock. 3.

dry kraft cooling power. A measure of the rate of heat loss from the bulb of the kraft thermometer. Although the cooling power as obtained by this instrument is not a measure of the capacity of an atmosphere to cool the human body, nevertheless, it is useful for comparing different atmospheres and provides a convenient index of the comfort condition of a working place in a mine. Experience indicates that a face will be relatively comfortable for working if the dry kraft cooling power is above 7 and the air velocity above 200 feet per minute. See also effective temperature. Nelson.

dry kiln. A kiln used to dry greenware at lowest possible heat. ACSG, 1963.

dry-kiln burner. See kiln burner. D.O.T. I.

dry-mill operator. See drying-tunnel man. D.O.T. I.

drymaw. A man in charge of the building in which the clay is dried before use. Fay. See also changehouse man. D.O.T. I.

dry-milled fire clay. Fire clay ground in a dry pan and passed over a screen. Bureau of Mines Staff.

dry mill man. See dry-pan operator. D.O.T. I.

dry mineral matter free basis. An analysis expressed on the basis of a coal sample from which the total moisture and the mineral matter have in theory been removed. B.S. 3322, 1960.

dry mixing. In dry mixing every effort is made to prevent the ventilating air picking up moisture, and throughout the ventilation circuit there is a wide range between wet- and dry-bulb temperatures. Dry-bulb temperatures are therefore comparatively high. Spalding.

dry mix. a. A mix containing little water in relation to its other components. Taylor, b. See dry process. ASTM C242-60T.

dry ores. A slime given at lead and copper smelters to ores which contain precious metals (gold and silver) but insufficient lead or copper to be smelted without the addition of richer lead or copper ores. Newton, Joseph. Introduction to Metallurgy, 1936. pp. 205-207. See also natural ore.

dry pack. Concrete or mortar which is just dry enough to be consolidated only by heavy ramming. Taylor.

dry pan. A pan-type grinding machine, equipped with heavy steel rollers or millstones which do the grinding, and having sloped plates in the bottom through which the ground material passes out. HW.

dry-pan charger. One who assists dry-pan operator by dumping dry shale, clay, or other dry material in the dry-pan mullers which do the grinding, and having the metal. See also wet process. Fay. b. A type of building brick (the moisture content for pressing is in this case 19 to 20 percent), and many articles in the electroceramic industry. The process is also sometimes referred to as semi-dry pressing. Dodd.


dry process; dry mix. a. A method of treating ores by heat as in smelting; used in opposition to wet process where the ore is brought into solution before extraction of the metal. See also wet process. Fay. b. The process of making Portland cement, in which the raw materials are ground and dried. Dry process cement contains less water (5 to 6 percent) or, with some materials, eliminated by the use of a plasticizer, for example, a stearate. Dry pressing is used in the shaping of wall and floor tiles (when it is often referred to as dust pressing), most high-grade refractories, abrasive wheels, the Fletton type of building brick (the moisture content for pressing is in this case 19 to 20 percent), and many articles in the electroceramic industry. The process is also sometimes referred to as semi-dry pressing. Dodd.

dry-pressing. The shaping of ceramic ware under high pressure (up to 14,000 pounds per square inch), the moisture addition being kept to a minimum (5 to 6 percent) or, with some materials, eliminated by the use of a plasticizer, for example, a stearate. Dry pressing is used in the shaping of wall and floor tiles (when it is often referred to as dust pressing), most high-grade refractories, abrasive wheels, the Fletton type of building brick (the moisture content for pressing is in this case 19 to 20 percent), and many articles in the electroceramic industry. The process is also sometimes referred to as semi-dry pressing. Dodd.

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dry-pressed brick. Brick formed in molds under high pressures from relatively dry clay (5 to 7 percent moisture content). ACSG, 1963.

dry-puddling. The shaping of ceramic ware under high pressure (up to 14,000 pounds per square inch), the moisture addition being kept to a minimum (5 to 6 percent). See also wet process. Fay. b. The process of making Portland cement, in which the raw materials are ground and dried. Dry process cement contains less water (5 to 6 percent) or, with some materials, eliminated by the use of a plasticizer, for example, a stearate. Dry pressing is used in the shaping of wall and floor tiles (when it is often referred to as dust pressing), most high-grade refractories, abrasive wheels, the Fletton type of building brick (the moisture content for pressing is in this case 19 to 20 percent), and many articles in the electroceramic industry. The process is also sometimes referred to as semi-dry pressing. Dodd.


dry press. A mechanical press for forming brick from slightly moistened granular material. A.R.I.

dry-pressed brick. Brick formed in molds under high pressure from relatively dry clay (5 to 7 percent moisture content). ACSG, 1963.

dry pressure. A pressure of 10 atmospheres.

dry return. A condensate line in a steam heating system carrying both water and air, usually located above the boiler water.
dry return

line. Strock, 10.
dry rods. Scots. Pump rods outside the de-

cylinder. Fay. dry rot. A rapid decay of timber which
causes its substance to be reduced to a fine
powder. Fay.
dry rotary drilling. See dry drilling. Long.
dry-rubbing test. A test to determine the
degree of attack of a vitreous enameled
sample by acid resistance test. Dodd.
dry rubble. Rough stone laid into a wall
without mortar. Crispin.
dry running. To unknowingly or knowingly
charge a machine. Fay.
dry-rubbing test. A test to determine the
weight of soil solids.

dry unit weight. The weight of soil solids
per unit of total volume of soil mass. Also
defined as density. ASCE PI
dry wall. A rock wall set up without ce-
mortar. Crispin.
dry sample. A sample obtained by drilling
procedures in which water or other fluid is
not circulated through the drill string and sampling device; hence the in situ charac-
teristics of the sample have not been altered by
being mixed with water or other fluid. C286-66.
dry-sample barrel. Short, tubular devices used
to obtain dry samples of soil and other
soft rock material. See also dry sample.
dry sampler. a. Various auger and/or tubu-
lar devices designed to obtain unwetted
samples of soft rock material, such as clay,
sand, soil, etc., by drilling procedures
wherein water or other fluid is not circu-
lated through the drill string and sampling
device. Compare dry sampler. Long. b. A person skilled in the
art of dry sampling. Long.
dry sample process. The process of obtain-
ing dry samples of soft rock material with
various auger or tubular devices utilizing
dry drilling techniques. See also dry sample;
dry sampler. Long.
dry sand. a. A stratum of dry sand or sand-
stone composed of wind-ripened sand. A non-
productive sandstone in oilfields. Fay. b. Green sand dried in an oven to remove
moisture and strengthen it (a dried-sand
mold is a mold of green sand which is
used as above). Freeman.
dry sand mold. A mold made of sand and
then dried. ASME Gloss.
dry screening. The screening of solid ma-
terials of different sizes without the aid of
water. B.S. 3532, 1962.
dry season. In tropics, period characterized
by low rainfall. Pryor, 3.
dry separation. The elimination of the small
pieces of shale, pyrite, etc., from coal by a
process of separation in which part of the
material is not important, but variations
thickness are not important, but variations
in the two determines the average thickness
of the shell. Local incidental variations in
accurate. Sand, treated with the bind-
er! by a transverse 'strength tc.i. Dodd.
dry strength. See dry strength. Fay.
ts of steel have no chance to fill the pores
of the stone. Sandstone and coarse gritted
stone are good examples. Fay.
dry spalling. A defect of a cast-iron piece
manufactured by itself in the fired porcelain
core. A rough, sandy texture. ASTM
C86-66.
dry steam coal. Coal of rank just below an-
dry steam coal. the core of stones not cementsed
with mortar, as a drystone wall. Fay.
dry strength. The mechanical strength of a
coal, which has been shaped and dried
but not fired. It is commonly mea-
sured by a transverse strength test. Dodd.
dry-stone masonry. Masonry in which the
blister copper is expected to long oxidizing
duck-nest tuyere

dual haulage. In strip mining, the use of two
haulage at the same mine for
transporting coal from the face to the prepara-
tion plant. Usually, coal is transported
from the loading shovel to a transfer sta-
tion at the motorized unit, and rail haulage
is used to haul the coal from this point to the
preparation plant. "Annu. R. I. 3416, 1938,
p. 19.
dualin. A variety of dynamite consisting of
4 to 5 parts nitroglycerin, 3 parts sawdust,
and 2 parts potassium nitrate. Webster 2d.
dual-purpose reactor. A nuclear reactor de-
signed to achieve two purposes; for ex-
ample, to produce both electricity and fission-
able material. LSL.
dual rope. York. A hemp capstan rope,
available in black, buff, or color.
dual setting. See double setting. B.S. 3618,
1963, sec. 1.
dubbers. Corn. In clay mining, men who
keep the strakes or guillres clear. Hess.
Dubb's asphalt. See sulfurized asphalt. Ben-
nett 24, 1962.
Duchчин's formula. The wind pressure per
square foot (N) on an inclined surface is
L

N = 2 sin a

wherein water or other fluid is not circu-
lated through the drill string and
procedures in which water or other fluid is
handled by normal core-blowing equip-
ment. Such a mixture can be
premixed by sand and a special oil which serves
to prevent clogging of the blow-
der. Hess.
duck. A fabric material, usually of woven

fiber, but of synthetic fibers also, used to
construct conveyor belts and filter clothes.
Pryor, 3. Duck is manufactured in several
strengths, expressed in terms of weight, as
28 oz. duck etc., which is the weight of a
linear yard of 42-inch-wide fabric. Gener-
ally increased longitudinal strength is pro-
voked by having a heavier yarn and greater
count in the longitudinal warp threads than
the transverse filler threads. ASA
M2-1928.
duckbill. The name given to a shaking-type
combination loading and conveying de-
vice, so named from the shape of its load-
ing end which generally receives its
motion from the shaking conveyor to which it is
attached. B.C.I.
duckbill loader. See shaker-shovel loader.
Nelson.
duckbill operator. In bituminous coal mining,
the man who operates a small power shovel
that has a round-nosed scoop, called a
duckbill, to load coal into cars in a mine.
D.O.T.
duckbill pick. A duckbill-shaped coal-cutter
pick which is forged by the roller type of
machine from dies and is the type largely
used today. The machine shaping the
pick ensures uniformity. It gives a constant
clearance as the point wears down and is
particularly suitable for fused-cartridge tip-
ning. Nelson.
duckfeet. A pipe bend at the bottom of a
shaft column or rising main fitted with a
horizontal base sufficiently strong for the
weight of the rising main to rest upon it.
Also called duckfoot bend. B.S. 3618, 1963,
sec. 4.
duckfoot bend. See duckfoot. B.S. 3618, 1963,
sec. 4.
duck machine. A. An arrangement of two boxes,
one working within the other, for forcing
air through mines. Zern.
duck’s-nest tuyere. One having a capping
ducktownite. A term used in Tennessee for ductile iron, which is a type of iron that is used as a substitute for cast iron. It is known for its ability to be easily cast and machined. Ducktown is the name of a town in Tennessee where this type of iron was produced.

Ductile iron. A type of iron that is used in the production of cast iron. It is known for its ability to be easily cast and machined, and is often used in the production of cast iron. Ductile iron is produced by adding graphite to the iron, which results in a more uniform structure and improved mechanical properties.

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duplex pump

side and geared so that the piston strokes in the cylinders alternate. Such a pump may be either single or double action, depending on the number and placement of intake and discharge valves on the cylinders, or designed so as to deliver a low volume of liquid at high pressures. Compare centrifugal pump; rotary pump; triple pump. Long.

dumping. A mass of ground left undisturbed until the final stages of excavation, when it is removed. In the intermediate stages it may be used as a support for timbering to the excavation. Ham.

dump moraine. A kind of terminal moraine consisting of material dropped either from the surface or from the interior of the glacier. Standard, 1964.

dump motor. In bituminous coal mining, one who operates a mine locomotive (motor) to haul cars of dirt, rock, slate, or other refuse to the dump at the surface of an underground mine. Also called dirt-dump engineer; refuse engineer. D.O.T. 1.

dump room. See available for disposing of waste from a mine. Bureau of Mines Staff.

dump skip. A skip with an attachment that dumps automatically. Fay.

dump truck. A truck or semitrailer that carries a box body with a mechanism for discharging its contents at its destination. Fay.

dump wagon. A large-capacity side-, bottom- or end-discharge wagon (or skip) on wheels, used by a crawler track; usually tractor towed. Nelson.

dumpy level. A surveyor's level with a short movement in a horizontal plane. Webster.

duns. Glouc. Argillaceous shale. See also clift, a; bind, a. Fay.


dunt; dunting. A crack, or the formation of cracks (with or without a fine dust in the interstices), in waste that has been cooled too rapidly after it has been fired. Dodd.

dunted. Said of ware which cracks after firing in the biscuit oven. C.T.D.

dunting. See dunt. Dodd.


duo mill. A mill used in the manufacture of seamless steel tubes. It consists of a number of stands, each containing one pair of rolls. The rolls have a semicircular groove cut in each; the size of these grooves diminishes as the tube passes from one stand to the next and thus gives the required reduction. Successive roll axes are set at 90° in order to roll out any fins which may be formed. The whole series of rolls is driven through gearing from one main motor. Osborne.

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Durain. The term was introduced by M. C. Duporthite. A fibrous, hydrous magnesium-durangite. An orange-red, duralumin. An aluminum-base alloy containing durite. In 1955, the Nomenclature Subcommit-tee of the International Committee for Coal Petrology resolved to use this term for the microlithotype consisting principally of the following groups of macerals: inertinite, exinite, semifusinite, and involutinite. Duritic contains at least 95 percent inertinite and exinite. The proportions of these two groups of macerals may vary widely, but each must be greater than the proportion of vitrinite and neither must exceed 95 percent. Durite E and durite I contain durite rich in exinite and inertinite, respectively. It is found in many coals in a fairly thick band or vertically in durains and the durtier type of clarodurain, generally common. IHCP, 1963, part I.

Durville process. A casting process that involves rigid attachment of the mold in an inverted position above the crucible. The mold is poured by tilting the entire assembly, causing the metal to flow along a connecting launder and down the side of the mold. ASTM. 

dusserite. A member of the jarosite group, BaFe$_2$(AlO$_4$)$_3$(OH)$_3$.  

Dust collecting buckets. Portable buckets are supported by the U.S. Bureau of Mines for overhead drilling operations using fluted augers. The unit consists of a collecting bucket, a hanger assembly, and a power hoist. The auger is placed through the bucket and the unit is held to the mine roof by the hanger assembly. The bucket, when full, provides a discharge line between the bucket and the mine roof. The bucket can be disassembled easily after each operation and the auger is returned to the auger hoist.  

Dust collection. Removal of atmosphere dust particles from the air by physical and chemical means.
dust collection

of mill or from transfer points where dust is thrown up. Partially closed ventilating systems are used, which incorporate bag filters, cyclones, dust collectors, and spray towers. Pryor, 3.

dust collector. An apparatus for separating solid particles from gas or dust laden air and accummulating them in a form convenient for handling. B.S. 3552, 1962. Used in conjunction with local-exhaust systems for auxiliary ventilation and for this purpose is occasionally mounted directly on loading and unloading machines. Also used for cleaning recirculated air in the main ventilation system. It removes contaminants of the particulate type from an air stream before discharge into the main atmosphere. It is designed to clean the air of dusts, smoke, mists, fumes, pollen, etc., but is employed in mining mainly for dusts. Hartman, p. 67. See also velocity reducing collector; fabric-type dust collector; dust catcher; dust trap. Nelson.

dust consolidation. The binding of coal dust on roadway surfaces to prevent it becoming airborne by any disturbance. One method is to spread calcium chloride over the dust so that it absorbs water and forms a paste which does not rise into suspension when men travel on the roadway. See also stone dust. Nelson.

dust counter. A portable apparatus (as the Kolotz luminiferous tube, etc.) used to measure dust concentration in a mine or mill, as a health precaution. Pryor, 3.

dust counting microscope. The microscope is especially equipped and adjusted for the quantitative analysis of dust samples. Typical models magnify 100 times and include a substage lamp for correct illumination and counting cells to hold samples. Also available are microscopes with sampling pumps and sample slides all combined in one assembly. Useful for quick, on-the-spot surveys or for tentative checking of exhaust removals. Bests, p. 570.

dust devil. A small whirlwind containing sand or dust seen especially in tropical deserts. Also dust whirl. Webster 3d. See also dust storm. Fay.

duster. a. In Wales, a man employed in cleaning tramways of dust and dirt in and about mining areas. An underground borehole drilled in the hope of discovering economically useful amounts of water, mineral, oil, or gas. Long d. A drill crew member who-drifts from job to job and stays at any one place for such a short period of time that the dust kicked up by his feet when he first started to work has hardly settled before he quits and drifts on to another Mining job. Compare boomer; drifter. Long d. See also dust storm. Brantly, 2.

dusting. An explosion which consists of a sudden pressure rise caused by the very rapid combustion of airborne dust. Ignition of suspensions of combustible dusts can occur in the following ways: (1) initiation by flame or spark, (2) propagation by a gas explosion or blasting, (3) transportation of hot dust. Little is known about the last-mentioned mechanism, which is relatively rare in mines. The most frequent causes of coal mine explosions in the United States today are electric arcs, open flames, and exothermic reactions. Bests, pp. 46-49. See also dust explosion.

dust extraction. The removal of solid particulates suspended in gas or ambient air. B.S. 3552, 1962.

dust extractor. An appliance to collect or precipitate dusts. Dust extraction is often necessary at coal-preparation plants, loading stations, and also underground. The appliance may be a cyclone, fabric filter, spray tower, scrubber, or an electrostatic separator. See also dust precipitator; dust trap. Nelson.

dust firing. The burning of coal dust in the laboratory of the furnace. Fay.

dust-free conditions. In Great Britain, the arbitrary standards laid down by the National Coal Board in 1949 as representing comparative dust-free conditions in coal mines. These are as follows: stone dust, 450 particles per cubic centimeter (size range, 0.5 to 5.0 microns); anthracite, 650 particles per cubic centimeter (size range, 1 to 5 microns); and coal, 850 particles per cubic centimeter (size range, 1 to 5 microns).

dust gold. Pieces of gold under 2 to 3 pennyweights; very fine gold. Fay.

dust hopped. Refers to the discomforts that may result from constant exposure to dust, particularly those of a siliceous nature. Enam. Dist.

dust hood. a. A cover for any receptacle (for example, bunker) or apparatus (for example, screens) designed to prevent the escape of dustaceous fall, 1962 b. The flared inlet end of a system of trunking erected to remove dust by air suction to a point where it can be collected. B.S. 3552, 1962.

dust hopper. A hopper placed underneath the scraper, tamping roller, or other belt cleaner, to collect the dust and dirt as it is removed from the belt; any tank or vessel to receive and retain dust. Nelson.

dusting. a. Spontaneous falling to a powder, so that a quantity of dust, an extender in the preparation of inorganic vitreous enamel slip after it has dried, prepared to firing. Dodd d. In dry-process vitreous enamelling, synonym for dredging. Dodd c. In wet-process vitreous enamelling, a defect occurring in the alpha crystal form. Sometimes erroneously called slaking. A.R.I.

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dust-sampling impinger

sampling fields by manual, compressed air, or electrical suction devices. Dust counts are made from the collected air at laboratory microscopes and counting cells. Best, p. 579.

dust sand. All grains from .025 to .04 millimeters in diameter which are carried by a stream having a velocity of 1.5 millimeters per second. A.G.I.

dust storm. Any wind which picks up and fills the air with dust. In the drier regions, such storms may pick up and carry sand (sand storms) and fine gravel. The loesses of China and the Missouri River region have been formed by dust storms that carried the dust long distances. Hess.

dust suppress. The prevention or reduction of the dispersion of dust into the air, for example, by water sprays. B.S. 3532, 1962.

dust suppressor jib. A coal-cutter jib designed to conduct water through ducts, or other arrangement, to the back of kerf, to wet dust and reduce the gas ignition hazard. See also whale-type jib. Nelson.

dust suppressor man. A man employed in coal mines to apply measures to allay coal dust. His tasks would become airborne. A series of nozzles discharge a chemical compound in a fine spray to materially reduce the amount of water or other liquids necessary to saturate fly ash and eliminate dust. The compound also aids in the diffusion of the liquid dust suppressant, allowing it to penetrate deeper into the material. This system can be used at any point in the handling of bulk materials, wherever dust is a hazard. Best, p. 579.

dustlight. A case so constructed that dust will not enter the enclosure. ASA MD1, 1963.

dust trap. An appliance for the dry collection of dust during drilling in rock. The rock chips, dust, and air are sucked from the borehole through a rubber hose to a dust trap and vacuum cleaner. The dust is discharged and the filters are renewed periodically. In the newer types, the dust is extracted through the hollow drill rods. See also G.P. Hemborn dust extractor; Holman dust extractor; wet drill, Nelson.

dust well. a. Perhaps the most interesting feature of the surface of the glacier (Igloolik, Nunavut, Canada) is its numerous dust wells, a phenomenon which has been reported from the skibold brought pointed to public attention some years since. They are cylindrical tubes, penetrating the ice to a depth of 6 to 8 inches, or occasionally a little more. They range in size from teabags which would scarcely more than admit a lead pencil up to wells a foot or more in diameter. A.G.I.
b. A pit in glacier or sea ice produced when small dark particles on the ice surface are heated by sunlight and sink down into the ice. A.G.I.

dust wetting agent. Chemical compounds which can be used on the surface of coal as coal and silica help prevent explosions and respiratory injury to workers. These compounds were developed to deal with the fire risk of coal and to control the dust. One is used in a dry state and controls dust by

absorb: moisture from the air. The second type is an agent for increasing the wetting effectiveness of water by breaking the surface tension and permitting the water compound mixture to thoroughly cover the treated area. Best, p. 597.

dust blanket. A blanket of dust from a gun so that it does not produce a wet film. Bryant.

dust plate. A plate from which the dust has been completely removed. Osborne.

dutch bond. The arrangement of brick forming a modification of Old English bond, made by introducing a header as the second brick in every alternate stretching course, with a three-quarter brick beginning the other stretching course. This gives alternate stretcher and header courses with alternately spaced vertical lintels. A.S.I., No. 24.

dutch drop. A haulage term used at Anaconda, Mont., for flying switch. Fay.

dutch kiln. A kiln with an updraft intermittent kiln for the firing of bricks; it had a number of small chimneys in the roof. Dit. 5.3.5.

dutch mattress. A mattress constructed of timber and red to protect a riverbed or the banks. Fay.

dutch metal. Low brass, especially in the form of foil; imitation gold leaf. Also called Dutch leaf; Dutch leaf. Webster 3d.

dutch wall. Walls or partitions which do not extend to the ceiling; also, interior walls between the uppermost ceiling level and the finished roof level. A.S.G.

dwarf Brinnell tester. A portable ball hardness tester in which the load is applied by means of a vice or lever. It can be used as a special tool for measuring the diameter of the impression and from which the Brinnell hardness value can be read directly. Os.

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dutch oven. A combustion chamber built outside and connected with a furnace. HW See also forehearth.


dutch twill. A type of wire cloth weave; a pattern used for the weaving of damask and holland. Hemborn, p. 15.

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Dy
duty of giants. It is usually stated that 1/2 cubic yards of gravel per 24 hours for every cubic foot of water per minute used, or in other words, 1 cubic foot of water per minute will treat 1/2 cubic yards of gravel per 24 hours. The duty of giants varies considerably under different conditions, such as the height of the gravel beds, the nature of the gravel bedrock, head of water available, size of jet, etc. Griffith, S. V., p. 95.

duty of the miner's inch. The number of cubic yards of gravel that can be broken down and sent through the sluice by 1 miner's inch of water for 24 hours. It depends upon the height of the bank, the character of the gravel and the bedrock, the grade of the bedrock, the type of sluice, and the pressure of the water. In well-rounded gravel without large stones, the duty of the miner's inch is from 1/4 to 6 cubic yards of gravel for 24 hours. Under less favorable conditions, the duty may range from 2.8 to 4.6 cubic yards for 24 hours. Lewis, p. 367.

duty of the corn. The landlord's share of the crop. Fay.

dustite. A dark brown, opaque resin from the lignite at Dux, Bohemia. Similar to mucilaginous, lacking in volatiles. A.G.I.

d-valve. A valve used to control the admission and exhaust of steam in the cylinders of locomotive engines. API Glossary.

d-Vm creep limit. Stress producing a creep rate not exceeding 10^-6 millimeters per minute per hour in the 25th to 35th hour. Osborne.

d-Vm test piece. An impact test piece designed for use at low temperatures. It is 55 millimeters times 10 millimeters times 10 millimeters and carries a rounded notch 3 millimeters deep and 2 millimeters in diameter. Osborne.

dwarf wall. Walls or partitions which do not extend to the ceiling; also, interior walls between the uppermost ceiling level and the finished roof level. A.S.G.

Dwight-Lloyd machine. Sintering machine in which feed moves continuously on articulated grates pulled along by chains in belt-conveyor fashion. Controlled combustion of these grates causes the minerals to sinter. Pryor, 3.

Dwight-Lloyd process. Blast roasting in which air currents are drawn downward through the ore mass. Resett 5d.

Dwight-Lloyd roaster. A multileathered circular furnace, through which horizontal rabbles move and the feed across each hearth, so that it falls peripherally to the one below and then works inward to the central discharge for next hearth below. Rising heat and air provide the roasting conditions. Pryor, 3.

DVM creep limit. Stress producing a creep rate not exceeding 10^-6 millimeters per minute per hour in the 25th to 35th hour. Osborne.

d-y. dyt. dytor. dytord. Swedish name for redish sprawling (organic oozes) formed by precipitation of iron compounds in situ from brown-colored water. It is characterized by a flocculent colloidal structure. Tom.

Dyers. The Permain series of strata in part of Texas and New Mexico, where it comprises two well-marked subdivisions. Fay.

dye absorption; dye penetration. A test for porosity in ceramic materials or nonporous metals. It is applied, for example, to porcelain insulators for which British Standard 137 stipulates that there shall be no sign of dye penetration after a fractured specimen has been immersed for 24 hours in a 0.5 percent solution of fuchsite in alcohol under a pressure of 2,000 lb per square inch. Dodd.

dyed stones. Minerals which are artificially dyed to improve their color or to imitate a more valuable stone. Usually fade or disolor. Shipley.

dye line print. A contact print which has largely replaced the blueprint. Pryor, 3.

dye penetrant. Penetranent with dye added to make it more readily visible under normal lighting conditions at night. ASM Glot.

dye penetrant inspection. Used for detecting surface porosity or cracks, more particularly in magnetic substances. The part to be examined is cleaned and coated with a dye which penetrates any small cracks or openings. The surface is then wiped clean and coated with a white powder. The dry powder soaks up the dye which is still held in the defects and thereby indicates their position. Ham.

dye penetration. See dye absorption. Dodd.


dyestone. See Clinton ore. Fay.

dyestone ranges. Applied to the outcrop of Clinton iron ores extending through Maryland, Virginia, West Virginia, and into Tennessee. Fay.

dying out. Applied to veins that gradually get narrower and narrower until they completely disappear, as called tailing out. Fay.

dying shift. The graveyard or night shift. Fay.

dyn. See Clinton ore. Fay.

dyne balance. A condition of rest created by equal strength of forces tending to move in opposite directions. Nichols.

dyne balance. A condition of rest created by equal strength of forces tending to move in opposite directions. Nichols.

dyne braking. A method of retarding an electric winder or haulage in which a direct current is injected into the alternating-current winder motor stator during the deceleration period; the motor then acts as an alternator and the negative load of the windling cycle is absorbed as electric power both as heat in the controller. Compared with reverse current braking, it saves power, but the energy dissipated in braking is again recovered in the form of electricity as heat in the controller. Compared with reverse current braking, it saves power, but the energy dissipated in braking is again recovered in the form of electricity as heat in the controller. Compared with reverse current braking, it saves power, but the energy dissipated in braking is again recovered in the form of electricity as heat in the controller. Compared with reverse current braking, it saves power, but the energy dissipated in braking is again recovered in the form of electricity as heat in the controller.

dyne creep. Creep that occurs under conditions of fluctuating load or fluctuating temperatures. Pryor, 3.

dyne damping. Usually found in seismographs or seismometers where damping of motion is desired that is in proportion to the velocity of the moving mass. A.G.I.

dyne electrode potential. The electrode potential measured when current is passing between the electrode and the electrolyte. Longton.

dyne geology. Dealing with the causes and processes of geological change. A.G.I.


dyne load. a. An alternating or variable load. Osborne. b. See live load. Long.

dyne loading. Loading from units (particularly machinery) which, by virtue of their movement or vibration, impose stresses in excess of those imposed by their dead load. Taylor.

dyne magnification. Factor indicating the magnification as a function of \( V \), the indicator magnification, \( T \), and the periods of vibration of the ground and the pendulum respectively, and a factor related to the damping. This factor is not constant as it depends on both periods of vibration (the resonance effect). Schiefferdecker.

dyne metamorphism. Metamorphism produced exclusively or largely by rock deformation, principally folding and faulting. Synonym for dynamometamorphism. A.G.I.

dyne method. See Young's modulus of elasticity. Lewis, p. 566.

dyne meter. The specific work unit, dyn, in the metric system. Bennett 2d, 1962.


dyne pile formula. A formula by which the safe load on a pile is calculated from the energy of the hammer blow and the penetration of the pile under each blow. Hiley's formula is of this type. Ham.

dyne positioning. A deep water drilling method. In this method, a series of outboard engines are mounted on opposite sides of the vessel to give it extreme maneuverability. Position is maintained by automatic centering in a circle of sonar reflectors placed ahead. Also called tailing out. Fay.

dyne strength. Resistance to impact or vibratory stress. Osborne.

dyne stress. Stress which is suddenly applied and thus tends to produce motion in the pile under test, as in the Izod test. Osborne.

Dynamite. a. An industrial explosive which is used for cutting rock caps. The principal explosive ingredient is nitroglycerin or specially sensitized ammonium nitrate. Diethylhydrazine dinitrate, which is also explosive, is often added as a freezing point depressant. A dope, such as good pulp, and an antacid, as calcium carbonate, are also essential. See also blasting gelatin. CCD 6d, 1961. b. A general term relating to explosives in which the principal constituent, nitroglycerin, is contained within an absorbent substance. B.S. 3618, 1964, sec. 6. c. Nitroglycerin absorbed in kieselguhr, a powerful blasting explosive. Originally contained 75 percent nitroglycerin. Pryor, 3. d. A composition of detonating character containing nitroglycerin. Detonating character is used with intention, because nitroglycerin enters into the composition of mixtures which are propellants, and which are not dynamite. There are other compositions of matter containing nitroglycerin which are not dynamite, but we cannot have a dynamite which does not contain nitroglycerin. The strength varies according to the percentage of nitroglycerin contained. At present the absorbents are fibrous organic materials; oxygenating compounds added to nitroglycerin also have some absorbive power. Frequently called giant powder. Fay. e. To charge with dynamite. Webster 3d, l. To blow up or shatter with dynamite. Webster 3d.

dynamite gelatin. Dynamite made by gelatinizing the nitroglycerin with colloidion cotton before the addition of the absorbent. Bennett 2d, 1962.

dynamite. One who uses, or is in favor of using, dynamite or similar explosives for unlawful purposes. Fay.

dynamometer. a. A machine for converting mechanical energy into electrical energy by magnetoelectric induction. A dynamo may also be used as a motor. Webster 3d.

dynamothermal. A powerful explosive usually operated by a vertical rack, which, on a downward movement, drives an armature into a pile. A rack bar an internal short-circuiting device opens and the current generated by the rapidly revolving armature passes into the shot-firing circuit. Two expanders in common use, Nobel's 30-shot and the Army Mk VII, operate in this way. See also exploder. Nelson.

dynamogrante. Augen gleise containing much mica, talc, and orthoclase. Fay.

dynamometamorphism. Same as dynamothermal metamorphism. Fay.

dynamometer. Appliance used in engineering for measuring power either as output, input, or transitional. Pryor, 3.

Dynamon. A permissible explosive of the ammonium nitrate and an antacid, as calcium carbonate, are also essential. See also blasting gelatin. CCD 6d, 1961. b. A general term relating to explosives in which the principal constituent, nitroglycerin, is contained within an absorbent substance. B.S. 3618, 1964, sec. 6. c. Nitroglycerin absorbed in kieselguhr, a powerful blasting explosive. Originally contained 75 percent nitroglycerin. Pryor, 3. d. A composition of detonating character containing nitroglycerin. Detonating character is used with intention, because nitroglycerin enters into the composition of mixtures which are propellants, and which are not dynamite. There are other compositions of matter containing nitroglycerin which are not dynamite, but we cannot have a dynamite which does not contain nitroglycerin. The strength varies according to the percentage of nitroglycerin contained. At present the absorbents are fibrous organic materials; oxygenating compounds added to nitroglycerin also have some absorbive power. Frequently called giant powder. Fay. e. To charge with dynamite. Webster 3d, l. To blow up or shatter with dynamite. Webster 3d.

dynamothermal metamorphism. Pertains to processes within the earth involving pressure and heat that bring about changes in rocks. Fay.

dynamothermal metamorphism. Metamorph-
dynamothermal metamorphism

phism resulting from combined effects of heat and directed pressure. A.G.I.

dynebel No. 2. A high strength, low density permitted explosive; no water resistance. It is used for coal blasting in a machine-cut seam of medium hardness in dry conditions. Nelson.
dyscrasite. A natural antinodite of silver, Ag2S; color and streak, silver-white; luster, metallic; usually tarnished; Mohs' hardness, 3.5 to 4; specific gravity, 7.97; found in Germany, France, and Canada. Arsenic, 654 C, 656, 1961.
dyscrystalline. Descriptive of igeous rocks whose mineral grains are too small to be seen without a microscope. A.G.I. Supp.
dysprosium. A rare earth element or lanthanide having atomic number 62, atomic weight 162.50; specific gravity, 3; density 17.33; centimeter-gram-second (cgs) system; the force exerted by 1 gram of matter when acted upon by an alternating voltage. Zimmerman, p. 145, 155, 169. b. Symbol for the base of the natural (Naperian) system of logarithms, being the xth root of the expression 1 + x, as x approaches the limit 0, and having the approximate numerical value 2.7182818+. Zimmerman, p. 155, 156, 157. i. Symbol for single electrode potential. Zimmerman, p. 171. f. Abbreviation for single electrode potential. Zimmerman, p. 171. g. Symbol for sound-energy density. Zimmerman, p. 187. d. Symbol for kinetic energy; Young's modulus; modulus of elasticity. Zimmerman, p. 165, 167, 366. e. Symbol for kinetic energy. Zimmerman, p. 171. h. Symbol for kinetic energy. Zimmerman, p. 165, 167, 366. f. Symbol for electric intensity; and with the subscript 2, as E2, the symbol for electric intensity. Zimmerman, p. 171.
dysprosium oxide; dysprosia. A rare earth oxide; white; D2O; isometric; specific gravity, 7.81 (at 27 C); and melting point, 2,340 °C. Used as a nuclear-reactor control rod component and a neutron-density indicator. Lee; Handbook of Chemistry and Physics, 5th ed., 1964, p. B-108, B-174.


dynobel No. 2. A high strength, low density permitted explosive; no water resistance. It is used for coal blasting in a machine-cut seam of medium hardness in dry conditions. Nelson.

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or by hand, or which can be loosened and removed with a power shovel. A.G.I. d. See soil. e. Soft shaly or clayey ground which can be loosened through the use of the coal measures. Fay. f. See ground.

earth amber. A term rarely used to distinguish amber from sea amber. Also to describe amber, the outer portion of which has deteriorated in luster, transparency, and color. Shiplay.

earth anchor. A. A hand-boring tool for testing clays, soils, or shallow deposits. See also auger. Nelson. b. A dry-sampling device consisting of a hollow-fluted rod encased by a cylindrical tube. The fluted rod is equipped with cutting edges, and the cuttings collect and are retained within the tube. Long.


earth borer. An auger for boring into the ground, working in a cylindrical box to retain the earth until the tool is withdrawn. Standard, 1964.


earth color. A pigment of mineral origin; for example, lead iron oxide. Bennett 2d, 1962.

earth current. A light electric current appearing partly traversing the earth's surface but which in reality exists in a wire grounded at both ends, due to small potential differences between the two points at which the wire is grounded. Standard, 1964.

earth dam. One built of gravel, earth, broken rock, etc., with impervious clay core or facing. Pryor, 3.


earth drill. A. An auger. Nichols.

earthed. Means connecting to the general mass of earth in such a manner as will ensure at all times an immediate discharge of electrical energy without danger. Nelson. See also grounded.

earthed system. Electrical, one with a neutral point or pole connected to earth. Pryor, 3.

earthenware clay. A plastic, fine-textured clay, nearly free from lime and gypsum (as they cause blathering); air shrinkage less than 8 percent; takes in a few minutes or remaining hard which is usually too expensive; no cracking in air; tensile strength, 125 pounds per square inch, or more; incipient vitrification reached between cones 10 and 05; vitrification at least two cones higher; color, burned usually, not important unless very bad; fire shrinkage, 8 percent maximum. Hess.

earthfill. A landside. Webster 3d.


earth fault latchout. A feature of an earth fault protective system which requires the circuit breaker to return to the base of the current passing through the earth and thereby encountering a low resistance. Earth fault relays. See also grounded.

earth fault tester. An apparatus used to prevent or reduce leakage of the ground when blasting in conducting ore bodies, in wet shale or clay, and in underwater blasting, especially in salt water. The apparatus has no battery and can be used when loading the hole to check if the conducting wires have become damaged during this operation. Langefors, pp. 143-146.

earth fax. An early name for asbestos. See also amiantus. Fay.

earthflow. A combination of slump and mudflow. Last.


earth fault protection. A system of protection for preventing a current passing through the earth and thereby encountering a low resistance. Earth fault relays. See also grounded.

earthed system. Electrically, one with one

earthplug. A. A landslide. Webster 3d.

earth pillar. Synonym for hoodoo; pillar. A.G.I.

earthquake. a. A local trembling, shaking, or undulation of the ground; a sudden disturbance of the earth's crust. The external part of the earth, sometimes accompanied by earthquakes. Fay.

earthquake period. The period during which a district is subjected to earthquake shock without any long pause. Earthquake proof constructions. Buildings of sufficiently strong construction to withstand even heavy shocks. Schlieder.

earthquake proof constructions. Buildings of sufficiently strong construction to withstand even heavy shocks. Schlieder.

earthquake region. A zone in which the earthquake is observed. Schlieder.

earthquake sounds. Sounds in air generated by earthquake waves of audible frequencies. Last.

earthquake waves. The wave motions, in the materials of the earth, originating at the seismic focus; seismic waves. Challinor.

earth return circuit. A telegraphic circuit using one transmission wire, the return current passing through the earth and thereby encountering a low resistance. Earth fault relays. See also grounded.

earth return circuit. A telegraphic circuit whereby a circuit is monitored to ensure that the neutral point or pole connected to earth. Earth fault relays. See also grounded.

earth sculptures. See land sculpture. Fay.

earth satellite. petre vert. Collective name for various pale bluish-green earths formed by the disintegration of minerals, principally those of the hornblende type. Used as pigments. They are somewhat deficient in body and intensity of hue and are now largely manufactured by chemical processes. CDC 6d, 1961.

earth slide. A. A term applied to the downslope movement of part of an earth embankment when the distance moved is sufficient to break up the blocks and pulverize them so that the major part of the moving mass moves in a somewhat fluid manner. Compare earth slump. Bureau of Mines Staff.

earth slope. The angle of superficial face of the earth, sometimes accompanied by earthquakes. Fay.

earth stone. A term sometimes applied to mineral to distinguish it from sea amber. Shiplay.

earth tide correction. There are two methods of correcting for the tidal effect. One is to construct daily charts of the tidal variation in gravity with time from readings on a stationary instrument and to correct all readings in the field by means of such charts. The other method is for the observer to return to the base station so often that earth-tide effects will be fully incorporated into the instrumental drift curve. Dobrin, pp. 234-235.

earth tilting. A slight movement or displacement of the surface of the ground as in some forms of earthquakes. Fay.


earth wave. Any elastic vibration of the earth, either from natural causes such as earthquakes, landslides, or storms, or created artificially by traffic, blasting, seismic exploration, etc. Seismologists recognize two main
groups of earth waves: (1) body waves which are propagated in all directions through the elastic body of the earth, and (2) surface waves, which require discontinuities such as the rock-air interface at the earth's surface for their propagation. Body waves are of two types, P (for primary) compressional or longitudinal waves, and S (for secondary) transverse or shear waves. Among the surface waves are a variety of transverse and rotational types, such as Rayleigh (R), Love (Q), hydrodynamical, and coupled waves. Stokes and Varnes, 1955.

Earth wax. See cerosite.

Earthwork. An excavation or an artificial banking of ground. Ham.


Earth yellow. A brown, friable mineral, sometimes forming layers in beds of lignite. In general, it is not a true coal, for a considerable part of it is soluble in ether and benzol, and often in alcohol. See also leucopetrite; bathvillite. Fay.

Earthy calamine. An early name for hydrozincite. Fay.

Easement. a. An incorporeal right existing in another's land and/or to allow borehole-drilling operations; a right-of-way. Fay. b. A legalized consent by the owner to allow another's land without profit or compensation; a right-of-way. Fay. c. Recognition, which affects ownership of land, for example, a right-of-way. Pryor, 3. d. In surveying, an easement curve is a transition curve. Pryor, 3.

Easement curve. Commonly known as a transition curve. Ham.

Easer. One of a number of holes surrounding the cut and fired immediately after it. 3618, 1964, sec. 6.

Easer holes. Holes drilled 'around the cut to enlarge the cut area so that the trimmers may realign the ground to the required dimensions. The positioning and number of the easer holes will depend upon the pattern of the cut shots. McAdam II, pp. 124-125.

Easing. In the air that is admitted through the feed holes of an annular kiln at one stage in the firing of fletfon bricks; the purpose is to check the rapid rise of temperature consequent on the ignition of the organic matter present in such bricks. Dodd.


Eastern method. See pick and dip.

Eastman survey instrument. Various models of a particular make of mechanical and photographic borehole-drafter indicators; the single-shot models are small enough to be used in EX diamond-drill holes. See also drill indicator. Lang.

easy fired. Clayware, particularly earthenware, is said to be easy fired if it has been fired at a low temperature and/or for too short a time. Dodd.


East. Out. a. N. of Eng. To turn a heading orholing to one side in order to mine the coal on the other side of a fault v.:diout altering the level course of the heading. Fay. b. Said of a seam when the drift or tunnel reaches a fault, or the boundary of old workings, or any other barrier part of a mine. C.T.D.

eaves courses. Waves file. A course of special size roofing tiles, eave tiles, for use at the eaves of a roof to obtain the correct lap. Dodd.

eaves tiles. See eaves course. Dodd.

Ebanho. Trade name for a residual pitch from Mexican petroleum. Fay.

Eb. Gr. Brit. Shallow; for example, a coal seam is ebb when near the surface; the shaft is ebb which is sunk to it. Webster 3d. Fav.

Ebb and flow. Movement of tidal current in which the ebb currents are stronger than the flood currents. Schieferdecker.

Ebb current. The movement of the tidal current away from shore or down a tidal stream. Schieferdecker.

Ebb tide. A nonsynchronous term referring to that period of tide between high water and the succeeding low water; falling tide. Compare flood tide. A.G.I.


Echelon. Fr. Adapted from the French for sudden rock falls and earth slips in mountainous regions. Fay.

Echeloscope. An instrument for observing the boiling point of liquids, especially for determining the alcoholic strength of a mixture by the temperature at which it boils. Obscura.

Echellon. The act, process, or state of boiling or bubbling up. Webster 3d.

Eating. The vaporizing and/or melting down an oblate size of casing. See also Mesabi E casing. Lang.

Eccentric. a. A device for converting continuous circular into reciprocating rectilinear motion, consisting of a disk mounted out of center on a driving shaft, and surrounded by a collar or strap connected to a rod. Rotation of the driving shaft gives the rod a back-and-forth motion. Standard, 1964. b. A device used on engines for changing the rotary motion of the crankshaft into a reciprocating motion on the slide valve.

Eccentric bit. A modified form of chisel used in drifting, in which one side of the cutting edge is extended further from the center of the bit than the other. The eccentric bit renders underdrilling unnecessary. It is very useful in hard rock. Fay.

Eccentric-bit load. A bit subjected to a load unevenly distributed and concentrated on one part of the perimeter of the bit face. Also called eccentric-bit pressure; eccentric load; eccentric thrust. Long.

Eccentric-bit pressure. See eccentric-bit load. Long.

Eccentricity. A load or component of a load normal to a given cross section; of a member is eccentric with respect to that section if it does not act through the centroid. The perpendicular distance from the line of action of the load to the principal central axis is the eccentricity with respect to that axis. Ro.

Eccentric load. A load imposed on a structural member at a point distant from the center of the member, whereby a bending moment is created equal to the load multiplied by the arm. Ham.

Eccentric pattern. A mode of arranging diamonds set in the face of a bit in such a manner as to have rows of diamonds forming eccentric circles so that the path cut by each diamond slightly overlaps that of the adjacent diamonds. Compare concentric pattern. Lang.

Eccentric press. A mechanical press in which the eccentric and strap are used to move the slide, rather than a crankshaft and connection. ASM Gloss.

Eccentric signal. Triangulation: Signal placed at some point other than directly over the triangulation station, and not in line with the station and the instrument. Seeley, 2.

Eccentric station. Triangulation: Point where an instrument is placed for the measurement of horizontal angles when it is not practicable to set up directly over the actual station. Seeley, 2.

Eccentric thrust. See eccentric-bit load. Long.

Ecevalne. A bright yellow to green lead chlorarsenite, perhaps PbAsO3:2PbCl6, occurring as a mineral in crystal or massive form and as an incrustation. Also called heliohylite. Fay.

ECE coal classification. This system utilizing approximate analysis was devised by the Coal Committee of the Economic Committee for Europe. It is based partly on the National Coal Board Code system and partly upon the ASTN coal classification. The parameters used are caking and coking properties, four-foams containing less than 33 percent of volatile matter, and calorific value on the moist, ash-free basis (30° C, 96 percent humidity) of 30 percent or more, more than 33 percent of volatile matter. Francis, 1965, v. 1, p. 36.

Echelon. Mex. Level place near a mine, where ore is cleaned, piled, weighed, and loaded. Also called patio of the mine. Fay.

Echar pinilla. Mex. Gobbing; packing; filling.

Echelon; en echelon. An arrangement of faults, veins, etc., in which the individuals are staggered like the treads of a staircase. Ballard.
echelon cell

Echelon cell. Wedge-shaped glass cell used in absorption spectroscopy. Fryer, J.

Echelon faults. Separate faults having parallel planes; the group having one more or less general direction but with the individuals parallel to each other and at an angle to that direction. The theory of the minimum economic grade varies according to quality and workability. Nelson.

Echinodermata. The echinoids, such as starfish, sea urchins, and sea urchins. These creatures have a nervous system as well as a sort of stomach. Mason, V., p. 26.

Echinodermata. One of a group of invertebrates (a class of echinodermata) which includes the sea urchins and their close allies. A.G.I.

Echo. An acoustic signal which has been reflected or otherwise returned with sufficient magnitude and time delay to be detected at a signal distinct from that directly transmitted. Hy.

Echogram. A graphic recording of various ranges. Pryor, 3.

Eclogite. A variety of soda-amphibole near arfvedsonite in its optical characters but containing Na2Fe(Al02)(OH,F)2; monoclinic. A variety of the mineral hornblende. Dana 17.

Edge bowl. A hollow bowl about 7 inches deep and containing the body of glass is drawn in the Pittsburgh process. See also Pittsburgh process. Dodd.


Edge Coal Group. A subdivision of the Lower Carboniferous rocks of the Midland Valley of Scotland. So named from their steep dip where they plunge underground, off the Pentland anticline, to form the East Lothian Field. Now frequently known as the Limestone Coal Group. C.T.D.


Edge joint. A joint between the edges of two or more parallel or nearly parallel members. A.S.M. Gloss.

Edge lining. The painting, by hand or machine, of a colored line around the edge of a potter's body. Hy.

Edge mill. An ore-grinding machine of the Chili mill type. Webster 3d. Also called edge runner and chaser. Fay.

Edgerunner. The trimming of plate edges by mechanical shearing or flame-cutting equipment in preparation for welding. Hy.

Edger. a. The long piece of timber in a wooden pillar or crib. See also crosspiece. Fay. b. In forging the portion of a die which generally distributes the metal in portions required for the shape to be forged, usually a gathering operation. A rougher shape shapes the stock into various solids of revolution; a ball edger forms a ball. A.S.M. Gloss.

Edge runner. Scot. Rails of rolled iron or steel on the upper edge of which the wheels run. Fay.

Edgerunner mill. A crushing and grinding unit depending for its action on heavy rollers, usually two in number, that rotate horizontally and press against the base; the pan bottom may be solid or perforated. Compare end-runner mill. Dodd.

Edge seam mining. Highly inclined coal seams, many features of which are comparable to metal mining. See also stope. Nelson.

Edger. Skew. A brick modified so that one side is inclined at an angle other than 90° to the ends. A.G.I.

Edgestones. A sandstone used for curbing, sills, caps, and coping. A.I.M.E., p. 333.

Edgewater. The water surrounding or bordering a pool. Edgewater usually encroaches on a field after much of the oil and gas has been recovered and the pressure has become greatly reduced. A.G.I.

Edge well. A well so located as to be at the edge of oil or gas accumulation or at the edge of a lensed reservoir; a well at or near the contact of oil and/or gas and water. A.G.I.

Edge wheel. See edge mill. Fay.
or less tabular pebbles set at varying and steep angles to the bedding; some such arrangements have been attributed to sliding.

edge. a. In forming, reducing the flange radius by retracting the forming punch a small amount after the stroke but prior to releasing the pressure. ASM Gloss. b. In forging, removing flash that is directed upward between dies, usually accomplished in a lathe. ASM Gloss. c. In rolling, working metal where the axis of the roll is parallel to the thickness dimension. ASM Gloss. d. Gridding the edge of flat glass to a desired shape or size. See also centering. ASTM C162-66. e. An operation in enamel work that improves the appearance and utility of edges of porcelain-enamel parts, such as brushing the edges or applying black overspray on edges. This operation is used for removing dried overcoat from the edge of a piece of ware to expose an underlaying enamel. Edging may also denote the application of colored enamel to the edge after brushing. Enam. Dict.

eductor. A device for utilizing the cavitation of water which is discharged by a sump, a pump that is able to pump air as well as water, using water as an operating medium. The eductor consists of a pipe ori-

Eddy, Howard. British. a. Titanic acid, rutile, occurring in sections of a hypothetical system which satisfies two requirements: (1) over its assigned frequency band it has a uni-}

eddy current. a. Effective breaking force. A product of the weight, strength and the degree of pack-}

eddy current loss. a. The effective size of an excavation is the size of that excavation within its stress ring; it includes not only the actual hole in the rock but the desiccated loose and semiloose rock which surrounds it. Spalding. b. Particle diameter corresponding to 10 percent finer on the grain-size curve. Also called effective size. ASCE P1826.

eddy eductor. A device for utilizing the cavitation produced at a pipe constriction. It is a pump that is able to pump air as well as water, using water as an operating me-}

eddy flow. a. The effective diameter of an excavation is the size of that excavation within its stress ring; it includes not only the actual hole in the rock but the desiccated loose and semiloose rock which surrounds it. Spalding. b. Particle diameter corresponding to 10 percent finer on the grain-size curve. Also called effective size. ASCE P1826.

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effective screen aperture

Effective size. See effective diameter. ASCE P1826.

effective sound pressure. The effective sound pressure at a point is the root-mean-square value of the instantaneous sound pressures over a time interval at the point under consideration. In the case of periodic sound pressures, the interval must be an integral number of periods or an interval which is long compared with the length of the beam or slab, the lesser value being taken. Taylor.

effective temperature. A measure of warmth in terms of effective throw of a jet should be 34 feet. Nelson.

effective throw. The distance between the nozzle and the point where the jet reaches a maximum height of 5 feet above the nozzle and begins to break up into drops. The effective throw of a jet should be 34 feet. Sinclair, I, pp. 278-279.

effective unit weight. That unit weight of a soil which, when multiplied by the height of the column of soil, yields the effective pressure due to the weight of the overburden. ASCE P1826.


effervescence. To bubble and hiss (as of fermenting liquors or carbonated water). Webster 3d.

efficiency. a. Mechanical efficiency is the ratio of work output to work input. Nelson. b. Labor efficiency is measured in terms of output per hour or per shift. Maximum efficiency is attained by a worker when he uses the least physical exertion. Nelson.


efficient at any size. For a given air quantity, the appearance of the ash above which further enlargement would not produce a significant reduction in pressure absorbed per unit of length. See also volumetric efficiency. Nelson.

efficient structure. A structure in which the load-bearing members are arranged in such a way that the applied forces are transmitted to the foundations by the cheapest means consistent with safety and permanence. Air.

efflorescence. To change on the surface, or throughout to a whitish, mealy, or crystalline powder from the surface of mineral deposits. See also scum; sintering. ACSG. d. To dry or crystallize into the dry state. Today tends to be absorbed into Work Study Group, doing operational research. Pryor, 3.

efficiency. a. Mechanical efficiency of a luminous source is the ratio of the total luminous flux emitted to the total power consumed. In the case of electric lamps, it is expressed in lumens per watt. Sinclair, I, p. 200.

efficiency engineer. A technical officer who examines processes, methods, and operations in a mine, mill, or smelter, and connecting entities with a view to their improvement in maintenance at an agreed operating standard. Today may be absorbed into Work Study Group, doing operational research. Pryor, 3.

efficiency miner. A term frequently applied to a boss miner, or a contract miner. Pay.

efficiency of a rectifier. The ratio of the power output to the total power input. Coal Age.

efficiency of screening. The ratio of the total weight of material below the reference size in the feed. B.S. 3552, 1962.

efficiency of separation. In coal washing this may be expressed as a percentage of the total yield of clean coal x 100. Theoretical yield at the ash content of the clean coal.

efficiency of sizing. The weight of material correctly spaced above or below the reference size, expressed as a percentage of the weight of corresponding material in the feed. B.S. 3552, 1962.

efficiency, organic; efficiency, recovery. The ratio (normally expressed as a percentage) between the actual yield of a desired product and the theoretically possible yield (based on the reconstituted feed), both actual and theoretical results having the same percentage of ash. B.S. 3552, 1962.

efficiency of crystallization from water solutions brought to the surface by capillarity. Efflorescence is of considerable importance in arid and semiarid regions where crystals of gypsum, calcite salt, mirabilite, natron, etc., form in cracks beneath surface of the ground and areas of the surface of ceramic ware after a period of exposure to the weather. Bureau of Mines Staff, C. This phenomenon sometimes is found on the surface of marble by deposition of soluble salts. See also scum; sintering. ACSG. d. To dry or crystallize into the dry state. Today tends to be absorbed into Work Study Group, doing operational research. Dodd.

effluent test. A test for the likelihood of the formation of efflorescence on a clay building brick. A cylinder, made by shaping and firing a clay known to be free of soluble salts, is allowed to absorb any soluble salts dissolved by distillate water from the crushed sample to be tested; the dry cylinder is then dried and examined for efflorescence. Dodd.

effluent. a. Applied by Dana to those igneous magmas which discharge from a volcano by way of a lateral fissure. See also superfluvial; interfissural. Pay. b. A liquid, solid, or gaseous product, frequently waste, discharged or emerging from a process. ASTM STP No. 148-D.

effluent cave. A cave to be entered at the lower end where a stream issues or is known to have issued. Schiffrederker.

effluent seepage. Seepage out of the lithosphere. A.G.I.

effluent stream. A stream or reach of a stream is effluent with respect to ground water if it receives water from the zone of saturation. A.G.I.

effusion. The goddess of one who uses a gaseous fluid which allows the water to flow through porous bodies, that is, the flow of gases through larger holes than those to which diffusion is strictly applicable. Osborne.

effusive. In petrology, poured out or erupted from a volcano and allowed to fall or to be blown away by the wind. Hess. b. White to gray, soluble salt deposits which have a crystalline appearance that resembles lichens or dried leaves; not uncommonly due to loss of water of crystallization. Pay.

effusive. In Volcanology, forming an incrustation or deposit of grays or powders that resemble lichens or dried leaves; not uncommonly due to loss of water of crystallization. Pay.

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extensive. Fay.


egg coal. a. In anthracite coal which passes through 3 3/4- to 3-inch round holes and over 2 3/4-inch round holes. See also anthracite coal sizes. Jones. b. In bituminous coal, pieces which pass through 4-inch round holes and over 1 1/2-inch round holes (sizes are not uniform but vary with the coalfield). Jones.

egglette. See briquette. Fay.


egg-shaped sewer. An ovoid-shaped sewer which placed with its smaller radius down, this shape and speed of flow when the sewer is nearly empty. Ham.


eggshell finish. A practical matte surface texture in glass or enamel surfaces. A desired feature in some ground coats. Shipley.

eggshell mottle. A practical method of matte surface texture in glass or enamel surfaces. A desired feature in some ground coats. Shipley.

eggshell texture. The texture of a fired glaze similar in appearance to the surface of an eggshell. ASTM C242-60T.


eggstone finish. A finish similar in appearance to eggshell finish for stone. ASTM C242-60T.

eggshell turquoisite. Turquoisite with a cracked appearance due to a fine, irregular arrangement of matrix, which appears like cracks in an eggshell. Shipley.


egg stone finish. A finish similar in appearance to eggshell finish for stone. ASTM C242-60T.


elephantine. A hexagonal mineral, Na8O4MgO·2CO3; from an oil well in Utah. Spencer Bibig, 1965.

ejecta. ejectamenta. Material thrown out by a volcano, such as ash, lapilli, and bombs.

ejecta. Synonym for ejecta. A.G.I.

ejected blocks. The larger fragments of a volcanic breccia, generally from the internal or subjacent rocks of a volcano, and often highly metamorphosed. Hess.

ejector. a. A device which is mounted in such a way that it removes or assists in removing a formed part from a die. ASM Gloss. b. A cleanout device, usually a sliding plate. Nichols. c. A device in which a high velocity jet acts to entrain mechanically a second fluid to withdraw it from some region of like pressure and to deliver with low turbulence the mixture to a region of higher pressure. Strack. 10.

ejector half. In die casting, the movable half of a die containing the ejector pins.

ejector rod. A rod used to push out a formed piece. ASM Gloss.

eka. A prefix denoting the element occupying the next lower position in the same group in the periodic system. Used in the naming of new elements and unstable radionuclides. C.T.D.


eklite. An arfvedsonite granite comparatively poor in quartz, containing soda microcline and microperthite, with arfvedsonite and aegirine. The rock is normally equigranular, but pautsa marginally into ekerite phrypophy. Hess.

eka. A Ceylonite term for a drain, as around a sem pit. Bureau of Mines Staff.
ekeleite. It is best known by the rock name ekleite syenite, a synonym for nepheline syenite, but the latter is preferable. See also nepheline syenite. Fay.

elephantine. A large mass of the most stable isotope known, 254. Discovered in 1952. Produced by the bombardment of uranium 238 by nitrogen nuclei. Symbol, Es; mass number of the most stable isotope known, 254. Discovered in 1952. Produced by the bombardment of uranium 238 by nitrogen nuclei. Symbol, Es; mass number of the most stable isotope known, 254. Discovered in 1952. Produced by the bombardment of uranium 238 by nitrogen nuclei. Symbol, Es; mass number of the most stable isotope known, 254. Discovered in 1952. Produced by the bombardment of uranium 238 by nitrogen nuclei. Symbol, Es; mass number
elastic axis

line, lengthwise of the beam, along which transverse loads must be applied in order to produce bending only, with no torsion of the beam at any section. Strictly speaking, no such line exists except for a few conditions of loading. Usually the elastic axis is assumed to be the line which passes through the elastic center of every section. The term is most often used with reference to an airplane wing of either the下单 or multiple-spar type. Compare torsional center; flexural center; elastic center.

elastic bimene. See elaterite.

elastic boundary. The boundary of an underground opening which requires no support. The material around this boundary may be considered to be in the elastic state and no pressure need be exerted against the boundary to prevent the material from fracturing and falling into the opening. Woodruft, v. 1, p. 38.

elastic center. The elastic center of a given section of a beam is that point in the plane of the section lying midway between the flexural center and center of twist of that section. These three points may be identical and are usually assumed to be so. Compare flexural center; torsional center; elastic axis.

elastic constants. a. Certain mathematical constants that serve to describe the elastic properties of a material. A.G.I. b. Modulus of elasticity, either in tension, compression, or shear, and Poisson's ratio. ASM Gloss.

elastic curve. The curve assumed by the axis of a normally straight beam or column when bent by loads that do not stress it beyond the proportional limit. Ro.

elastic deformation. A nonpermanent deformation, after which a body returns to its original shape when the load is released. Often limited to that deformation in which stress and strain are linearly related in accordance with Hooke's law.

elastic design. Design of a structure based on working stresses which are about one-half to two-thirds of the elastic limit of the material. For redundant frames, this method of design is replaced by the plastic design. Han.


elastic energy. See strain energy. Ro.

elastic flow. Flow which decreases logarithmically with time. Lewis, p. 579.

elastic hysteresis. Erroneously used for mechanical hysteresis. The effect is inelastic. ASM Gloss.

elasticity. The property or quality of being elastic, that is, an elastic body returns to its original form or contour after a displacing force is removed. A.G.I. See also Hooke's law.

elasticity of bulk. a. The property possessed by all substances by which they tend to recover their original volume after being compressed or extended. Han. b. The elasticity for changes in the volume of a body caused by changes in the pressure acting on it. The bulk modulus is the ratio of the change in pressure to the fractional change in volume. See also elasticity. C.T.D.

elastic limit. b. a. Of rock, yield point; maximum stress from which it can recover apparently unchanged. Also called its elastic deformation. If stressed beyond this point there is disruption or permanent deformation. Pryor, 3. b. That point or amount of force at which a material will not return to its original length when subjected to a straight pull. When a string of drill pipe is pulled beyond a point at which it will not return to its original length, it may be said to have been pulled beyond its elastic limit. Brundage, 2. Compare proportional limit; apparent elastic limit; yield point; yield strength. c. The greatest stress an elastic solid can sustain without undergoing permanent deformation. Webster 3d. d. The greatest stress for which the strain of an elastic body is proportional to the strain. Webster 3d.

elastic mineral. A mineral which yields to a bending stress, but when released, it returns to its former position (a plate of white mica). Stokes and Varnes, 1955, p. 149.

elastic mineral pitch. Elaterite, Fay. See also modu- lus. Modulus of elasticity. Webster 3d.

elastic rail spike. A form of rail fastening, of which many designs are available. Han.

elastic ratio. The ratio of the elastic limit to the ultimate strength. Ro.

elastic rebouche. The recovery of elastic strain. A.G.I.

elastic rebound theory. Faulting arises from the sudden release of elastic energy which had slowly accumulated in the earth. Just before the rupture, the energy released by the faulting is entirely potential energy stored as elastic strain in the rocks. At the time of rupture the rocks on either side of the fault spring back to a position of little or no strain. This theory was proposed by Harry Fielding Reid. A.G.I.

elastic scattering. See scattering. LBL.

elastic solid. A solid that undergoes further force by changing shape or volume, or both, but returns to its original condition when the force is removed. The amount of strain is proportional to the force. Lest.

elastic state of equilibrium. A state of stress within a soil mass when the internal resistance of the mass is not fully mobilized. ASCE P1826.

elastic strain. Deformation per unit of length produced by a load on a material, which vanishes with removal of the load. Ham.

elastic strain energy. See strain energy. ASM Gloss.

elastic surface waves. Waves which travel only on a free surface where the solid elastic materials transmitting them are bounded by a fluid or water. Lest, 2, p. 69.

elastic waves. Mechanical vibrations in an elastic medium. ASM Gloss.


elaterite. Elatite bimene. A massive, amorphous, dark-colored hydrated silicate of aluminum. It occurs in soft and elastic to hard and brittle. It melts in a candle flame without de- crepitation, has a conchoidal fracture, and gives a basaltic reaction. Is obtained from Colorado and Utah. Sometimes known as mineral caschotchou. See also wurtzite. C.T.D.

Elata type E lamp. This lamp is now in use in France and North Africa. It includes a three-cell nickel-cadmium battery of volta- bloc type of 10 ompere-hours capacity, and it represents a radical change in the alkaline cap lamp design in that the bat- tery is hermetically sealed. No topping-up or flushing-out of battery is needed and maintenance is thereby eased. Roberts, II, p. 264.


ebowa. A. A fitting that makes an angle between adjacent pipes. The angle is always 90°, unless other angle is stated. Also called ell. Fay. b. An acute bend in a lode. Fay.

ecl conveyor. A trough-type roller or wheel conveyor consisting of two parallel rows of rolls or wheels set at a 90° included angle, with a row providing a sloped carrying surface and the other acting as a guard. See also roller conveyor; wheel conveyor. ASA MHA 14-56.

electric air drill. A type of tripod drill operated by compressed air supplied by a portable motor-driven compressor that accompanies the drill. Fay.

electrical conductivity. The numerical equal of the reciprocal of resistivity. The unit of conductivity in mhos per centimeter. Hy.

electrical dipole. Displaced center of positive and negative charges. VV.

electrical discharge machining. Machining in which metal is removed by an electrical spark in a dielectric fluid. ASM Gloss.

electrical disintegration. Metal removal by an electrical spark acting in air. It is not subject to precise control, the most common application being the removal of broken tools, such as taps and drills; hence, the shop name tap buster. ASM Gloss.

electrical double layer. Helmholtz layer. Zone which surrounds a particle in aqueous suspension or other electrolyte. Transition zone between the mobile central zone of an ion and the zone of shear immediately coupled ionically to the discontinuity lattice at the particle's surface. This zone is 50 to 5,000 angstrom away. This zone of change contains a superconcentration of ions drawn from the normal population of the liquid phase. See also zeta-potential. Pryor, 3.

electrical energy. The energy of moving electric charges. ASM Gloss.

electrical engineer; electrician. An engineer in charge of all electrical plant and associated labor at a mine or complex. If not in charge of all the underground electrical equipment, operations
and labor. The electrical engineer is under the authority of the colliery manager. Nelson.

electrical heat. When a current flows in a circuit, it generates heat. A device or contact in a circuit, such as a light bulb, may be designed to convert electrical energy into heat. The filament of a light bulb is a good example of this. When a current flows in a filament, the filament quickly heats up, emitting light and heat.

electrical interlock. A device or contact incorporated in the control circuit and actuated by some other device to cause or prevent a function under certain predetermined conditions of operation. IC, 8149, 1963, p. 19.

electrical line splicer. In petroleum production, one who splices single or multiple conductor cables used in lowering electrical testing or surveying instruments into oil or gas wells or bore holes. Also called line splicer. D.O.T. 1.

electrically suspended gyroscope. Foil-wrapped coils around the gyro create a magnetic field used to bring the rotor up to operating speed and then are de-energized, allowing the rotor to operate in the coasting condition. Abbreviation, esg. Hy.

electric field. A field of constant polarity, especially self-potential. The electric field is a vector field that describes the interaction between electric charges. It is characterized by its strength and direction at each point in space.

electric Gins. A method of geophysical prospecting which depends on the electrical characteristics of rocks. There are two main methods, namely, measurement of natural potentials, resistivity methods, and inductive methods. Measurable natural potentials are mainly found in association with sulfide ores. The resistivity and inductive methods both measure the electrical resistance of a section of the earth. See also geophysical prospecting. Nelson.

electrical plan. A plan, drawn to the same scale as the working plan, which shows the position of all electrical apparatus installed underground except signals and telephones. Nelson.

electrical porcelain. A hard fired whiteware designed to act as an electrical insulator, as in spark plugs, power terminals, etc. Enam. Dict.

electrical potential. Energy required to carry an electric charge, and it must be taken into consideration when high-frequency alternating currents are introduced into the earth, as in inductive prospecting techniques. Electrical methods are more frequently used in searching for metals and minerals than in exploring for oil or gas, mainly because most of them have proved effective for only shallow explorations. Dobrin, pp. 339-340.

electrical prospecting engineer. In petroleum production, one who designs and develops electrical and electronic instruments and equipment used in petroleum prospecting with the seismograph, magnetometer, or other instruments which detect and measure various physical properties of the earth's crust. Also called electrical engineer, geophysical prospecting. D.O.T. 1.


electrical protection. A protection is provided by fuses or other suitable automatic circuit-interrupting devices for preventing damage to circuit equipment, and personnel by abnormal conditions, such as overcurrent, high or low voltage, and single phasing. AM, 1963.

electric prospecting. A rock fracturing technique widely applied to secondary fragmentation in quarries. Puncturing, which is similar to arcing in a gas, is characterized by an almost instantaneous action and is accompanied by a mechanical weakening of the dielectric and lowering of the resistance of the puncture path. If, after puncturing, a high frequency current continues to pass between the contacts, the action of the conduction current and electric field will rapidly heat the rock, leading to thermal puncturing in which the dielectric is transformed into a good conductor along the puncture path. Further intensive heating will give rise to thermal stresses sufficient to fracture the rock. Mining, and Minerals Engineering, v. 1, No. 5, January 1965, p. 185.

electric resistance inclinometer. An instrument to indicate when a long hole in a coal seam is deviating into the roof or floor. It may be used in underground gasification and pulsed-infusion shotfiring. It uses, inter alia, a pellet of mercury to indicate the gradient by its position along a tube. Nelson.

electrical resistance strain gage. An appliance for measuring strain and may be employed in roof-control research. It makes use of the change in electrical resistance of a thin wire when stretched under the influence of strata strain. See also acoustic strain gage; mechanical extensometer. Nelson.

electrical rock fracture. A rock fracturing technique in which electrical energy is used directly in fracturing the rock either by heating it in a conductive or an electromagnetic field set up in the rock by a high-frequency electric current, or by the direct puncture of the rock by an electric current. Mining and Minerals Engineering, v. 1, No. 5, January 1965, p. 182.

electrical slate. Slate principally of the mica variety. It should have high mechanical and dielectric strength, be readily machinable, and have low porosity. BuMines Bull, 630, 1961.

electrical steel. A special steel used for making sheets for motors, dynamos and transformers. The steel has carbon, sulphur, phosphorus and manganese contents, with content ranging from 0.3 to 4.3 percent, depending on the particular application.

Electrical steel sheets are sold with guarantees of electrical properties and are made in acid open-hearth furnaces. Calcium silicide is used to reduce sulfur contents to the low limits specified for the steel. Nelson.

electrical system. A system in which all the conductors and apparatus are electrically connected to a common source of electro motive force. Nelson.

electrical twinning. A type of twinning in quartz in which the two or more intergrown parts are related as by a rotation of 180° about the common Z or c axis. The separate individuals of the twin are either all right-handed or all left-handed. Electrical twinning cannot be detected by optical tests but can be recognized by etching, X-ray study, pyroelectric tests, or by the distribution of the + (5161) or - (1121) faces. Also known as Dauphine twinning or orientational twinning: 180° twinning. AM, 1.

electrical well logging. The process of recording the formations traversed by a drill hole, based on the measurements of two basic parameters observable in uncased holes; namely, the spontaneous potential (S.P.) and the resistivity of the formations to the flow of electric currents. The detailed study in situ of the formations penetrated by a drill hole, based on measurements made systematically by lowering an apparatus in the hole responding to the following physical factors or parameters:

1. the resistivities of the rocks
2. their porosity
3. their electrical anisotropy
4. their temperature;
5. the resistivity of the drilling muds. A.G.T.

electric arc furnance melter. In the iron and steel industry, one who supervises the operation of a battery of electric arc furnaces in which metal is melted and purified. D.O.T. 1.

electric axis. See piezoelectric axis. Hess.

electric battery. See galvanic cell. H&C.

electric blasting. The firing of one or more charges electrically, whether electric blasting caps, electric squibs, or other electric igniting or exploding devices are used. Fay.

electric blasting cap. a. A device for detonating charges of explosives electrically. It consists essentially of a blasting cap, into the charge of which a fine platinum wire is stretched across two protruding copper wires, the whole fastened in place by a composition sulfur plug. The heating of the platinum wire by the electric current ignites the explosive charge in the cap, which in turn detonates the high explosive. Fay, b. Detonator fired electrically. Pryor, 3. c. See electric detonator. Nelson.

electric boosting. An auxiliary method of adding heat to the glass in a gas or oil-fired tank by passing electric current through the molten glass. ASTM.

electric braking. A braking action applied to an electric motor...
electric braking by causing it to act as a generator. Nelson.

electric cable. The conducting wires through which a low current is conveyed to points in and about a mine, where it is required for lighting or motive power. See also wires.

electric cable reel mine locomotive. See electric mine locomotive.

electric calamine. Zinc silicate, or calamine; so called on account of its strong pyroelectric properties, and to distinguish it from smithsonite. See also calamine. Webster 2d.

electric cap lamp. This lamp consists of a flat portable battery that is strapped around the miner’s waist and is connected by an insulated cord to a small electric light and reflector that is fastened on the front of his cap. With this lamp, the miner’s hands are always free and the light is directed on the spot where he is working. There are two types of electric cap lamps: those with the lead or acid battery and those with the alkaline or Edison type battery, both of which have been approved by the U.S. Bureau of Mines.

Lewis, p. 733. See also flame safety lamp; safety lamp.


electric charge. A property of matter resulting from an imbalance between the number of protons and the number of electrons in a given piece of matter. The electron has a negative charge; the proton, a positive charge. Like charges repel each other; unlike attract. Leet.

electric coal cutter. A coal cutter operated by an electric motor; used in coal mines. C.T.D.

electric coal drill. An electric motor-driven drill designed for drilling holes in coal for placing blasting charges. ASA C42.85:1956.

electric controller. The device used for starting and controlling an electric motor of a mining belt conveyor. NEMA MB1-1964.

electric crab reel mine locomotive. See electric mine locomotive.

electric detonator. In the electric detonator, a fusehead assembly replaces the safety fuse and, when an electric current is passed through the fusehead, it ignites a flashing composition which, in turn, initiates the explosive charge in the detonator. A typical modern electric detonator consists of four main components, namely: (1) the detonator tube containing the explosive charge; (2) the fusehead; (3) the neoprene plug closure; and (4) the leading wires. McAdam II, p. 53.

electric drill. A mechanically operated drill employing neither compressed air nor steam, but driven by an electric motor. Used chiefly in mining operations. Fay.

electric fax. System used to control grinding rate in a ball mill; a microphone uses the grinding sound and maintains this by varying the rate of new feed to the mill. Pryor, 3.

electric emerald. A glass imitation of emerald.

electric exploder. A former designation for electric blasting cap. Fay.

electric explosion-tested mine locomotive. An electric locomotive equipped with explosion-tested equipment. ASA C42.85:1956.

electric eye. electric ear. The former is a photoelectric eyethe device in connection with monitoring flow, turbidity, height of material in ore bin, etc.; the latter is a microphonic signal using noise level to check loading. Pryor, 4.

electric-eye method. A method of finding large diamonds in which the dry crushed ore is screened to remove minus 1½-inch material and passed in a thin layer on a moving belt. The belt passes through a band of intense polarized light which, if reflected from a large diamond, actuates a photoelectric cell. The impulse can stop the belt, sound an alarm, or otherwise call attention to the presence of a large diamond. It is expected that this device can also be used for separating smaller diamonds. I.C. B200, 1964, p. 74.


electric furnaces for melting and refining metals. Several types of electric furnace are used in the metallurgical industries, with ferrous and nonferrous; all these furnaces are lined with refractory materials, the larger furnaces generally being bricked, the smaller furnaces usually having a monolithic refractory lining which is rammed into place. The chief types of such furnaces are: direct arc, in which the electric current passes through the charge; indirect arc, in which the arc is struck between the electrodes only; induction furnace, in which the electric charge is heated by eddy-currents induced in it. Induction furnaces may be operated at high frequency (i.e. induction furnaces) or at low frequency (i.e. induction furnaces). Dodd.

electric fuse. A metallic cup, usually containing fulminating mercury, in which are fixed two insulated conducting wires held by a plug, the latter holding the ends of the wires in which the arc does not touch each other. At this plug is a small amount of a sensitive priming. When an electric current is sent from the battery through these conductors, the resulting spark fires the priming, then the fulminate and the charge of the fuse. Steuffter.

electric gathering mine locomotive. An electric mine locomotive, the chief function of which is to move empty cars into, and to remove loaded cars from, the working places. ASA C42.85:1956. See also gathering locomotive.

electric haulage mine locomotive. An electric mine locomotive used for hauling trains of cars, which have been gathered from the working faces of the mine, to the point of delivery of the cars. ASA C42.85:1956.

electric hoist. See electric winder.


electric horsepower. Equal to 746 watts. Crispin.

electrician. A person appointed in writing by the manager of the mine to supervise the working and maintenance of electrical apparatus in the mine. See also electrical engineer. Nelson.


electric ingot process. A continuous method of melting and casting metal with progressiv solidification. The molten metal is completely protected from the atmosphere. There is minimum segregation, and as no refractory linings are used there is no contamination. Sound ingots with high yield and no pick are produced. The method possesses extreme flexibility it is possible to make small as well as relatively large ingots. Osborne, 376.

electricity. A material agency which, when in motion, exhibits magnetic, chemical, and thermal effects and which, whether in motion or at rest, is such a nature that when it is present in two or more localities, within certain limits of association, a mutual interaction of force between such localities is observed. Recent investigations indicate that it is discrete or granular in nature and that there may be two kinds, positive and negative. In general, its effects differ according to whether it is at rest or in motion. At rest it is called static; its usually produced by friction; manifests itself chiefly in attractions and repulsions and in violent discharges like lightning; does not produce currents; and has no use in the arts. In motion it is called dynamic or current electricity. S. Standard, 1964.

electric lamps. See cap lamp; hand electric lamp.

electric locomotive. a. A locomotive in which the driving power is supplied by electric motors, supplied either from a battery (battery locomotive), from a self-driven generator mounted on a vehicle (diesel electric locomotive), or from a central station (track fed). C.T.D. Also called a motor and used in mine haulage. Fay. See also electric mine locomotive. b. The electric locomotives used in pit and quarry service are arranged to operate from an overhead trolley wire, from a third rail alongside the running rails, from a storage battery mounted on the locomotive chassis, or even the combination of trolley or third rail and battery. Pit and Quarry, 53rd sec. A, p. 114.

electric log. The log of a well or borehole obtained by lowering electrodes in the hole and measuring various electrical properties of the geological formations traversed. Electrical current is introduced by a number of methods. A.G.I. See also microlog.

electric logging. a. A technique originally devised by the Schlumberger brothers, in which electrical measurements are made, and recorded at the surface, while a series of electrodes or coils is caused to traverse a borehole. The resulting curves can be used for purposes of geological correlation, and under favorable circumstances also for the recognition of some rock properties and for indicating the nature and extent of the fluids in the pores of the rock. Institute of Petroleum, 1961. b. The act or process of taking resistivity, porosity, or other electrical measurements in a borehole using an electromagnetic teleclinometer or other electrode device. Also called electric log. See also logging.

electric master fuse. See multifuse igniter. Nelson.

electric mine locomotive. An electric locomotive designed for use underground; for example, in such places as coal, metal, and salt mines, tunnels, and in subway construction. The principle is recognized by the American Standards Association: (1) combination type—a locomotive which receives power either from
electric mine locomotive. A trolley wire distribution system or from a storage battery carried on the locomotive. The batteries are of two types—lithium-type—lithium-type which receives its power supply from a storage battery mounted on the chassis of the locomotive; and alkaline-type—alkaline-type which receives its power supply from a trolley wire distribution system; (4) permanent tandem type—two locomotive units permanently connected together and provided with one set of controls so that both units can be operated by a single operator; (5) separate tandem type—two locomotive units which can be coupled together and operated as a single unit, or else separated and operated as two independent units; (6) crane reel type—a locomotive equipped with an electrically driven winch, or crane reel, for the purpose of hauling cars by means of a wire rope from places beyond the trolley wire; and (7) cable reel type—a locomotive equipped with a reel for carrying an electric or conductor cable which could be used for conduct power to the locomotive when operating beyond the trolley wire. See also locomotive; electric locomotive; mine locomotive; electric haulage mine locomotive; electric permissible mine locomotive; electric gathering mine locomotive. **ASA C42.85:1956**.

**electric motor.** See motor. **Nelson.**

**electric mule.** Electric motor. **Korson.**

**electric permissible mine locomotive.** An electric locomotive, as approved by the Department of the Interior. **ASA C42.85:1956.**

**electric powder fuses.** These fuses were designed so that electrical short-circuiting methods could be used for initiating blasting powder.

The powder fuse consists of a thick paper tube containing a small charge of blasting powder, with an ordinary low-tension fuse fixed at one end. Upon passing electric current through the fuse-head it flashes and sets off the blasting powder in the tube, which can then initiate the main charge of blasting powder in the shot hole. **McAdam II, p. 265.**

**electric precipitator.** The collection of suspended dust by causing the particles to become electrically charged in such a manner, as to attract each other and to form aggregates so large as to cause them to settle. **Bureau of Mines Staff.**

**electric prospecting instruments.** Geophysical prospecting instruments which measure the electrical characteristics of rocks. **Nelson.**

**electric resistance.** The opposition of an electric circuit to the flow of current. **Kentucky, p. 265.**

**electric resistance strain gage.** This gage consists essentially of a grid of fine wire cemented to a paper membrane which can be attached to the surface under investigation. The ends of the wire grid are spot welded to a metal strip for the terminals. The resistance of the gage depends upon the fact that certain alloys show a linear relationship between the change of strain and electrical resistance, so that if a wire constructed from one of these alloys is fixed to the surface of an object subject to variable strain, the change of resistance in the wire will be a measure of the change of strain in the object. **Innesson, pp. 209-210.**

**electric rotary drill.** A hand-held rotary drill driven by an electric motor and may be of the Ward-Leonard type. It may be of fan-cooled design with several rod speeds to suit different rocks. The use of aluminum or aluminum alloys is not favored where methane is liable to be present. This drill produces considerably less dust than the percussive drill. **Nelson.**

**electric shock.** Accidents from electricity are common and around mines. Electricity causes shock by paralyzing the nerve centers that controls breathing or by stopping the regular beat of the heart. Some symptoms of electric shock are sudden loss of consciousness, absence of respiration or respiration that cannot be detected, weak pulse, and probable burns. **Kentucky, p. 116.**

**electric shovel-crate man.** See shovel-crate man. **D.O.T. 1.**

**electric shovels.** Most of the larger modern machines are electrically driven and are equipped with the Ward-Leonard system of control. This allows alternating current machines to be used in rock or coal. It may be of the most common for winders because it provides a uniform driving torque which minimizes the possibility of rope slip. **Nelson.**

**electroacoustic transducer.** A transducer for receiving waves from an electric system and delivering waves to an acoustic system or vice versa. **Hy.**

**electroanalysis.** Use of electrolysis or conductometry in instruments, such as a polarograph, or a spectrograph (sorption or emission) in quantitative and qualitative analysis. Also, deposition of metal on a lighted cathode in the gravimetric method of electroanalysis. **Pryor, 3.**

**electrobrightening.** A process of reversed electrodeposition which, in certain conditions, results in anodic metal taking on a high polish. **C.T.D.**

**electrobronze.** To electroplate with bronze. **Standard, 1964.**

**electrocast brick.** A refractory material made by fusing refractory oxides in an electric furnace and pouring the molten material into molds to form finished shapes. **A.R.I.**

**electrocast process.** A method of producing refractory materials in the desired form by mixing the raw materials in the requisite proportions, heating to fusion in an electric furnace, and casting. **Osborne.**

**electrochemistry.** Chemical action employing a current of electricity to cause or to sustain the action. **Crispin.**

**electrochemical equilibrum.** Corrosion which occurs when current flows between cathodic and anodic areas on metallic surfaces. **ASM Gloss.**

**electrochemical equivalent.** The weight of an element, compound, radical, or ion involved in a specified electrochemical reaction during the passage of a unit quantity of electricity, such as a faraday, an ampere-hour, or a coulomb. **Lounsbury.**

**electrochemical analysis.** See as electrochemical force series. **ASM Gloss.**

**electrochemistry.** A technique that uses electrical action to promote chemical
electrochemistry

electrode. a. Conducting body electrode deposidoe. The weight of electrode force. The force between electrodes electrode lesd. The electric conductor be-

electrode melting rate. The rate at which an electrode is consumed by an arc in units of mass per time per arc power. BuMines Bull. 625., 1965, p. VII.
electrode burn-off rate. The rate at which an electrode is consumed by an arc in units of mass per time per arc current. BuMines Bull. 625, 1965, p. VII.
electrode cabling. Same as electrode lead. ASM Gloss.
electrode configuration. Pattern in which the electrodes are set up. Schieftecker.
electrode consumption rate. The rate at which an electrode is consumed by an arc in units of mass per time per arc current. BuMines Bull. 625, 1965, p. VII.
electrode that leaves an electrolyte when subjected to an externally impressed potential. H&G. c. A conductor (as a metallic substance or carbon) used to establish electrical contact with a nonmetallic portion of a circuit (as in an electrolytic cell, a battery, an electron tube, or an arc lamp). See also anode; cathode. Webster 3d. d. In arc welding, a current-carrying electrode which supports the arc between the rod and work, or between two rods as in twin-carbon-arc welding. It may or may not furnish arc energy. See also bare electrode; electrode carbon electrode; coated electrode. ASM Gloss. e. In resistance welding, a part of a resistance welding machine through which current is passed. In most cases, pressure are applied directly to the work. The electrode may be in the form of a rotating wheel, or in the form of a small circular electrode which supports the arc. BuMines Bull. 625, 1965, p. VII.
electrode melting rate. The rate at which an electrode is consumed by an arc in units of mass per time. BuMines Bull. 625, 1965, p. VII.
electrode deposition. The deposition of a substance upon an electrode by passing electric current through a metal. ASM Gloss.
electrode reaction. The chemical reaction taking place at an electrode in contact with a solution; the reaction consists of the addition of electrons from the electrode to a substance in the solution, or the removal of electrons by the electrode from a substance in solution. A.G.I.
electrode ring. A set of re-entrant shapes, in the roof of an electric arc steel furnace, forming an opening through which an electrode is inserted. See also bull-eye. Dod.
electrode skid. In spot, seam, or projection welding, the sliding of an electrode along the surface of the work. ASM Gloss.
electrode spacing. Distance between successive electrodes. Schieftecker.
electrolysis. Dialysis accelerated by an electric current. The electrolysis of applied to electrodes adjacent to the membranes. Useful in removing electrolytes from naturally occurring colloids. Webster 3d.
electrolyte. a. A nonmetallic electric conductor, a substance in solution. A.G.I.
electrolytic. Of or relating to electrolysis or an electrolyte; produced by electrolysis. Webster 3d.
electrolytic brightening. Same as electropolishing. ASM Gloss.
electrolytic cell. a. An assembly, consisting of a vessel, electrodes, and an electrolyte, in which electrolysis can be carried out. ASM Gloss. b. A voltaic cell to which an external electromotive force greater than the electrostatic force developed by the voltaic cell is impressed across the electrodes. H&G.
electrolytic cleaning. Removing soil from work by electrolysis by the oxidation being one of the electrodes. The electrolyte is usually an alkaline. ASM Gloss.
electrolytic conductors. The conductors of an electrolytic cell accompanied by the actual transfer of matter (migration of ions), which is shown by the occurrence of chemical change at the electrodes. C.T.D.
electrolytic copper. Copper which has been refined by electrolytic deposition, including cathodes which are the direct product of the refining operation, refinery shapes cast from melted cathodes, and, by extension, fabricator's products made therefrom. Usually, when this term is used alone, it refers to electrolytic tough pitch copper without elements other than oxygen being present in significant amounts. ASM Gloss.
electrolytic corrosion. Galvanic action caused by electrolytic contact of two different metals in the presence of an electrolyte so that an electromotive force is set up. Pryor, 3.
electrolytic deposition. a. The production of a metal from a solution containing its salts by the passage of an electric current through the solution. In electrorefining, the operation is carried out in an electrolytic cell in which the metal is deposited upon the cathode or starting sheet. Henderson, b. Same as electrodeposition. ASM Gloss.
electrolytic dissolution. Disassociation in a solvent of molecules of the dissolving substance as cations and anions. Pryor, 3.
electrolytic disintegration. The act or process of dissolving the diamond matrix metal in the crown of a bit utilizing the chemical discompositional effects of a direct electrical current on a metal object submerged in an acidic solution. Long.
electrolytic iron. A very pure iron produced by an electrolytic process. It has excellent magnetic properties and is often used in magnet cores. Crispin.
electrolytic lead. Lead refined by the Betti process; has purity of about 99.999 to 99.99 percent lead. T.B.
electrolytic machining. A combination of grinding and machining where a metal is abraded away where the anode is inserted as the cathode in physical contact with the anodic workpiece, the contact being made underneath the surface of a suitable elec-
electromagnetic machining

troltye. The abrasive particles produce grinding and act as nonconducting spacers permitting the machining through electrolysis. ASM Gloss.
electromagnetic breaking. Breaking is used for stopping aConditions (including the field of electromagnetic waves at the earth's surface; when the waves penetrate the earth and impinge on a conducting or conducting body, they induce currents in the conduc-
tors which are the source of new waves radiated from the conductors and detected by instruments at the surface. A.G.I.
electromagnetic damping. Commonly found in electrolytic cells. It must be an element during chemical processes. The electron is thought to reside wholly as energy in the atom and determine the chemical properties of the particle. Webster 9d. Electrons surround the nucleus of the atom and determine the chemical properties of the atom. L.O.W.
electromagnetic detector. Used to measure the position and polarity of the X-ray image and to determine the position and polarity of the element. Webster 3d. Abbreviation, emf.
electromagnetic field. The magnetic field is proportional to the current and inversely proportional to the distance from the wire. This principle is important in magnetic prospecting insofar as it forms the basis for certain types of electromagnetic instruments. Dobrin, p. 266.
electromagnetic geophone. The simplest and most widely used type of geophone. It consists of a coil and a magnet, one rigidly fixed to the earth and the other suspended with a support by a spring. The relative motion between the coil and magnet produces an electromagnetic force across the coil's terminals which is proportional to the velocity of the motion. Dobrin, p. 41.
electromagnetic induction. A cutting line through a magnetic field has induced in it an electromagnetic force. Crispin.
electromagnetic insulation. A wire carrying a current in a magnetic field has induced in it an electromagnetic force. Crispin.
electromagnetic methods. Group of electrical exploration methods in which one determines the magnetic field that is associated with the electromagnetic current through the earth. Scherhag.
electromagnetic prospecting. A geophysical method employing the generation of electromagnetic waves at the earth's surface; when the waves penetrate the earth and impinge on a conducting or conductors which are the source of new waves radiated from the conductors and detected by instruments at the surface. A.G.I.

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electronation

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brations not requiring any known material medium for their propagation, for example, X-rays, X-rays, X-rays. Nelson.
electromagnetism. Every electric current generates a magnetic field which is in a plane perpendicular to the current. The strength of the field is proportional to the current and in the case of a long, straight wire is inversely proportional to the distance from the wire. This principle is important in magnetic prospecting insofar as it forms the basis for certain types of electromagnetic instruments. Dobrin, p. 266.
electromechanical transducer. A transducer for receiving waves from an electrical system and delivering waves to a mechanical system or vice versa. H.y.
electrostalloy. A term covering the various electrical processes for the industrial working of metals; for example, electrodeposition, electrorefining, and operations in electrolytic cells. Webster 3d.
ele-trorometer. An instrument for measuring small quantities of electricity. Used to determine the position and polarity of the X axes in blanks, etc., by measurement of the electric charges released by slight pressure. Also known as a squeegee meter; polarity indicator, A.M. 1. b. A calibrated electroscope. H.s.
electromagnetic filtration. A hydrogen electrode is immersed in a hydrogen gas mixture and placed in dark, dry en crushed ore, wet on ore pulps. Pryor, 3. b. The use of electromagnets to remove ferrous products or tramp iron from ore as ore is by motion of coil in the magnetic field. Dobrin, p. 41.广泛应用 in mechanical seismographs by touching a number of the elements to a charge, or a generator.

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electron beam melting. A melting process in which heat is supplied by a beam of electrons directed at the metal in a high vacuum.

electron capture. A type of radioactive transformation in which an electron from one of the inner shells of an atom is captured by the nucleus; especially important in the transformation $^{37}$K$^+ \rightarrow ^{37}$Ar$^+$. A.G.J.

electron compound. A term used to describe intermediate phases of metal systems that have both a common crystal structure and a common ratio of valence electron to atom. Thus, Cu$_3$Zn$_4$, CuAl, CS$_6$, and FeAl all have the body-centered cubic structure and an electron-to-atom ratio of three to two. ASM Gloss 1960.

electron diffraction. Registration of scattering of stream of electrons due to their impact on nuclei or on a grid of metal lattice. The beam is directed slantwise on the surface examined, in high vacuum. Pryor, 3.

electron-diffraction pattern. A descriptive of element or group which ionizes negatively, or acquires electrons and therefore becomes negatively charged anion. In electrophoresis moves to anode.

electrons are derived from the solid anode.

electro-negative potential. The potential of an electrode that is positively charged in an electrolytic cell. It is usually solvated on the surface of the liquid. In an electrochemical cell, the potential of an electrode is defined as the potential difference between that electrode and a standard reference electrode, usually a hydrogen electrode. The potential of any electrode is given by the electromotive force of a cell of which it is a part. The potential of the electrode is said to be the potential of the cell with respect to the standard hydrogen electrode.

electrical ceramics. Inorganic, nonmetallic conductors, such as glass, and certain other substances, used as insulators, or in the manufacture of electronic devices.

electrical conductivity. A measure of the ability of a substance to conduct electricity. The conductivity of a material is determined by its resistivity and its cross-sectional area.

electrode. A conductor, usually metallic, which forms one terminal of an electrical circuit. It may be positive or negative, depending on the direction of current flow.

electrode, anode. The electrode at which electrons are attracted.

electrode, cathode. The electrode at which electrons are released.

electrode, graphite. A material used as an electrode in a galvanic cell. It is characterized by high electrical conductivity and low electrical resistance.

electrode, gold. Special preparations for conducting electron microscope examination.

electrode, mercury. A material used as an electrode in a galvanic cell. It is characterized by high electrical conductivity and low electrical resistance.

electrode, silver. A material used as an electrode in a galvanic cell. It is characterized by high electrical conductivity and low electrical resistance.

electrode, silver oxide. A material used as an electrode in a galvanic cell. It is characterized by high electrical conductivity and low electrical resistance.

electrode, lead. A material used as an electrode in a galvanic cell. It is characterized by high electrical conductivity and low electrical resistance.

electrode, platinum. A material used as an electrode in a galvanic cell. It is characterized by high electrical conductivity and low electrical resistance.

electrode, platinum black. A material used as an electrode in a galvanic cell. It is characterized by high electrical conductivity and low electrical resistance.

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electrostatic cleaning process. A method of cleaning small sizes of coal, namely, 2 millimeters to 0.1 millimeter by passing the material over a slowly rotating roller through an electrostatic field of high voltage existing between the earthed roller and the collecting wire. The coal and impurities are electrified to relatively the same extent, but the coal has its charge more slowly neutralized by the roller than the impurities and separation is effected with reasonable efficiency. Nelson.
electrostatic dust and fume sampler. An accurate means of collecting even very fine particles for analysis. Dust, fume, or mist particles, including metallic fumes, are drawn into the portable sample, sieved, and precipitated electrostatically in a collecting cylinder. This equipment permits precise quantitative and qualitative analysis so that proper measures for safeguarding workers and processes can be taken. These units should never be used in explosive atmospheres. Betts, p. 519.
electrostatics. Science of electric charges captured by bodies which then acquire special characteristics due to their retention of such charges. In electrostatic separation, dry mineral particles acquire charges as they pass through a high-voltage field. They are then deflected from their natural falling in accordance with the attraction or repulsion due to the influence of their retained charge as they pass other charged bodies. Electrostatic bunching is particle cling during the laboratory screening of dry material in which frictional electric charge is set up. Pryor, 3, p. 68.

electrostatic precipitation. a. A process of ore concentration based upon the electrostatic principle that like charges repel and opposite charges attract another. Henderson.
b. A method of separating materials by drooping feed material between two electrostatically charged plates in opposite directions. Nonrepelled materials drop in a vertical plane; susceptible material is deposited in a forward position somewhat removed from the vertical plane. ASM Class. Another name for high tension separation. Pryor, 3, p. 208.
electrostatic precipitator. A precipitator fitted with positively and negatively charged conductor tips and may be used for extracting dust from flue gas or for separating mineral dusts from gases. Nelson.
electrostatic spraying. A process in which particles that are to be sprayed are given an electrostatic charge opposite to that on the ware to be sprayed; this attracts the sprayed particles to the ware. Although technically applied in enamelling, this method of spraying has so far been little used in the ceramic industry. Dodd.
electrostatic strength. As applied to electric blasting caps, a measure of the detonator's ability to withstand electrostatic discharges without exploding. Franklin, 2d, 3, Art. 16:10, p. 5.
electrostatic transducer. A transducer which converts a capacitor and depends upon interaction between its electric field and the change of its electrostatic capacitance.
electrostatic balance. The deposition of metals in capillary pores of diaphragms when solutions of the metals are electrolyzed. Hess.
electrostatic deflection. A. A deformation caused by electrical stress. Standard, 1964, b. The phenomenon wherein some dielectric materials experience an elastic strain when subjected to an electric field, this strain being independent of the polarity of the field. HGC.
electrostatic trap; microdust. A phase comparison base line measuring system similar to tellurometer and depends upon interaction between its electric field and the change of its electrostatic capacitance.
electrostatic precipitator. A device using an electrostatic field for dust collection. These units should never be used in explosive atmospheres. Betts, p. 519.
electrostatics. Old name of amber, a fossil gum; elektrostatik. Recovery of a metal from an ore. Engel.
electrovalent bond. Valence bond created between atoms by transfer of one or more electrons. The atom losing an electron (donor) becomes positively charged. The receiving atom becomes negatively charged and they are combined (compounded) by the resulting electrostatic attraction. Pryor, 3.
electrowinning. Recovery of a metal from an ore by means of electrochemical processes. ASM Gloss.
electron. A subatomic particle. See tungsten direct-from-ore process.
electron. Old name of amber, a fossil gum; also, a gold-silver alloy, occurring naturally with up to 26 percent silver. Pryor, 3.
electron. An alloy of gold and silver; contains from 55 to 88 percent gold. Pryor, 3.
electron. A Porter, 3.
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building, etc., above the level of the ground. A.G.I. b. In the United States, the term "elevation" generally refers to the height in feet above sea level. A.G.I. c. Altitude above sea level of the following elements: (1) point of reference of a drilling location; (2) derrick floor; and (3) top of rotary or Kelly bushing (i.e., the elevation at the bottom of the hole, if it is a cased hole). Wheeler, d. In an air lift, the distance the water is raised above the surface. Lauti, p. 687.

**Elevation correction.** In gravity measurements, the corrections applied to observed gravity values because of differences of station elevation to reduce them to any arbitrary reference or datum level, usually sea level. The corrections consist of (1) the free-air correction, to take care of the vertical decrease of gravity with increase of elevation, and (2) the Bouguer correction, to take care of the attraction of the material between the reference datum and that of the individual station. In seismic measurements, the correction applied to observed reflection time values due to differences of station elevation in order to reduce the observed times to an arbitrary reference datum or fiducial plane. A.G.I.

elevator. a. A device for raising or lowering bulk material (e.g., coal, ore, or abrasive sand) from one level to another. See also casing elevator. Fay, b. An endless belt or chain conveyor with cleats or other means to limit or prevent the lateral movement of bulk material. Webster 3d. c. A cage or platform and its hoisting machinery, as in a hoist for raising material. Webster 3d. d. A vertical or nearly vertical conveyor. Long. Set also hydraulic dredge; Tomkeieff, 1954.

elevator bucket. A vessel generally rectangular in plan and having a bottom suitably shaped for attachment to a derrick or derrick, or a frame or platform on which it is attached, and which provides a shoulder that can be grasped by an elevator. When each stand of rods is raised by an elevator, the bucket is in use and the hoisting plug, the handling of rods is facilitated and a rod trip can be made in less time. Also called rod plug. Long.


elevator rope. A rope used to operate an elevator. Zern.

elevite. a. A variety of pyrope found in small garnet-like grains in the trap tuff of L'incraig Point, near Elie, in Fife, Fay. b. In the topographic map of the United States, the term "elevite" generally refers to the height of the highest point of an area or region. The elevation of this point is measured from the average of all occupied points of the surrounding area. ASMA 14.1-1988.


elevator drogue. A drogue fitted with a bucket ladder. Ham.

elevator kiln. A kiln into which a setting of ware is raised above the kiln floor and then lowered below; the ware is set on top of the kiln. The kiln is made of a refractory paste which is subsequently elevated by jacks into the firing position. In this position, for example, in the firing of abrasive wheels, Dood.

elevator plug. A short steel plug provided with a pin thread by means of which it can be coupled to the upper end of a stand of drill rods. Its diameter is greater than that of the drill rod with which it is attached, and hence, provides a shoulder that can be grasped by an elevator. When each stand of rods is raised by an elevator, the bucket is in use and the hoisting plug, the handling of rods is facilitated and a rod trip can be made in less time. Also called rod plug. Long.


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Ella ruby. Scot. A variety of pyrope found in small garnet-like grains in the trap tuff of L'incraig Point, near Elie, in Fife, Fay.

Elliott Thompson process. A. Method of electro welding of iron. Fay.


Elliptical polarization. Manner in which a plane wave is propagated in the vertical direction and direction of an electrical or magnetic field change as a function of time, that results from the superposition of two alternating fields that differ in direction and in phase. Schieferdecker.


ellulial. A term used by British geologists to indicate residual deposits as distinguished from alluvial- or stream-moved deposits. ASMA 14.1-1988.

Ellmore jig. A plunger-type jig of either single or multiple compartments. Its distinguishing features are: (1) an automatic control in the form of a cylinder that measures the specific gravity of the mixture of coal and refuse; (2) the refuse draw is a star gate under the overflow lip in each compartment, which extends the full length of the jig; (3) the batch is commonly collected with a screw conveyor and discharged through the refuse elevator. Used both for treating the huge black slacks of bituminous coal. Mitchell, pp. 423-424.

Ellmore process. This inventor's bulk-oil process (1902) mixed finely ground pallid ore with equal quantities of oil in a vessel with some crude surface-active agent, and then overheated the mixture with loaded with the valuable mineral. These were then separated by centrifuging and washing. In the Ellmore process, the smooth aqueous mixture was mixed with a little oil, diluted and subjected to vacuum which caused air to be released and the solution to go into a crystallized rod which overflowed from the separating vessel. Pryor, 3.

electronbeam. A device which the ratio of electronbroadening to the width of its circumscribing polygon is greater than a specified value. ASTM C125-66.

Executive. Elongate, elongated, or an elongated term that is both general and specific. Generally, the extension of a material in the tension test at any specified point is measured. Pryor, 3.

Elongation elongate. Liquid used to displace a product of a semiaxis; usually 45° or 60° are available. Kentucky, p. 92. Schieferdecker.

Elongated piece. One of whose sides, generally 60° are available. Kentucky, p. 92. Schieferdecker.

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Elliptic polarization. Manner in which a plane wave is propagated in the vertical direction and direction of an electrical or magnetic field change as a function of time, that results from the superposition of two alternating fields that differ in direction and in phase. Schieferdecker.
elutriate. To subject to elutriation. Webster.

eluvial ore deposit. A residual ore deposit.

eluvial gravels. Those gravels resulting from the disintegration in situ of the rocks which have contributed to their formation, in contrast to those deposited by wash, not by stream action. Pryor, 3.

elutriator. An appliance for washing or sizing solid into parts according to their weight.

elutriation. a. Purification or sizing by washing down to lower levels. A.G.I.

elutheromorphic. Relates to new minerals formed during metamorphism and which are independent of pre-existing minerals as regards to their shapes.

eluate. In the ion exchange process, pregnant solution eluted from loaded resins. Pryor, 3.

eluvia. The movement of soil material through a liquid or gas phase caused by surface tension, gravity, or pressure. A.G.I.

elviviation, mechanical. The removal from soil of the finer fractions of its mineral content by washing down to lower levels. A.G.I.

embankment. a. Artificial ridge of earth and materials emitted from volcanoes, fumaroles, or lavas at the earth's surface, usually consisting of a crown and pavilion of rock. A.G.I.

embankment, embolbolitkic. A mineral deposit consisting of fume emissions, volcanic. Volatile or nonvolatile materials emitted from volcanoes, fumaroles, or lavas at the earth's surface, usually consisting of a crown and pavilion of rock. A.G.I.

embankment, emaaatioas, snagmatk. A combination of volcanic and the hydrothermal fluids. S. also mineralizer. A.G.I.

emanation. a. The escape of radioactive gases from the materials on which they are held; also, in ion exchange processes, solution eluted from loaded resins. Pryor, 3.

emerald triplet. Same as emerald glass. Shipley.

emerald glass. Same as green glass, such as a dike or railroad grade across a valley. A.G.I. Swp b. A fill whose top is higher than the adjoining surface. Nichols.


emerald copper. Same as dioptase. Fay.

emerald cot. A rectangular step-cut faceted gem with corners beveled and all surfaces covered by a series of rectangular facets or steps. Sinkankas.

emerald filter. Same as emerald glass. Shipley.

emerald glass. a. Any green glass, such as used in the manufacture of imitation stone. Shipley. b. A glass of a beryl color made by fusing beryl; specific gravity, 2.5; refractive index, 1.52. Shipley. c. The usual trade name for a color filter through which genuine emeralds and some other genuine stones appear reddish to violetish while glasses imitations and some genuine stones appear green. Same as berylscope. See also Walton filter; detectoscope. Shipley.

emerald. A coined name for green-dyed chalcedony. Also, a name for a green-dark dye for fabrics, of no gemological interest. Shipley.

embossed. A decoration in relief, or excised on the ware surface. ASTM C242-60T.

embossing. Raising a design in relief against a surface. ASM Gloss.

embossing die. A die used for producing embossed designs. ASM Gloss.

embracement. A migmatic in which the structural features of the usual crystalline schists are still preserved, although often partly obliterated by metasomatism (recrystallization and growth of prefered minerals or mineral groups). Includes augen gneisses, bands of gneissed phyllices, and others. A.G.I.

embryo namer. Variation of the Fesse with inclined deck and end shake. (Obsolete). Pryor, 3.

embrillaments. Reduction in the normal ductility of a metal due to physical or chemical change. ASM Gloss.

emeralda. A trademark name for a yellowish-green synthetic spinel. Shipley. C.T.D.

emerald. A trademark name for a yellowish-green synthetic spinel. Shipley. C.T.D.

emerald, emerald triplet. A plutonic dike; an elvan dike, an elvan course. A plutonic dike; an elvan dike, an emerald triplet. A plutonic dike; an elvan dike, an
emerald triplet

triplet. See also triplet, b. A triplet consisting of (1) a thin plate of red garnet for the table, (2) rock crystal for the body, and (3) green glass for the lower part. Rio de Janeiro is in the former, as opposed to the latter, which is incorrectly used to designate green doublets.

Shiplap.

emeraldrine. Dioptase. Schaller.

emerandine. A light-green emerald winding. An arrangement to wind emery rock. A rock containing corundum and cortical tissues lacking vascular tissues, for example, rose prickles. A.G.I.

emianite. A variety of strontianite in lathlike granular; massive; probably identical with mutmannite. In thin yellow-green scales.

emietra. A polishing process in which a polishing wheel, a plummet cage, or emery And clay used for emery and iron ores. See also corundolite.

emietrite. In thin yellow-green scales.

empties. Empty mine or railroad cars. Empty railroad cars are called "flats" in Arkansas. Fay.

empties hitter. A track for storing empty mine cars. Fay.

empties. Empty mine or railroad cars. Empty railroad cars are called "flats" in Arkansas. Fay.

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emptys hitter. A track for storing empty mine cars. Fay.
эмulsionification

Shell Oil Co. b. In metal cleaning, the suspension of fine divided matter, for example, mineral oil or grease, in an alkaline solution assisted usually by agitation and heating. P.W. b. A clay, clayey soil, or other agent added to water to form an emulsion. Long. c. A suspending or other agent added to water or oil or water and resin causing them to form an emulsion. Long. d. In penetrant inspection, a material that is added to some penetrants, after the penetrant is applied, that permits a water-in-oil emulsion to form. ASM Gloss. emulsifying agent. A material in small quantities that increases the stability of a dispersion of one liquid in another. ASM Gloss. emulsifying agent. a. Emulsification. A liquid mixture in which a fatty or resinous substance is suspended in minute particles almost equivalent to molecular dispersion. Fay. b. A combination of water and oil material made miscible with water through the action of a soap or other agent. Long. c. A suspension of one finely divided liquid phase in another. ASM Gloss. d. The mud-laden fluids used in oil well drilling often contain substances that are emulsified; hence diamond drillers often refer to mud used in diamond drilling as an emulsion. Long. emulsions breaking rate. In uranium technology, rate of disengagement of phases (aqueous and organic carrier). ASM Gloss. emulsion cleaner. A cleaner consisting of organic solvents dispersed in an aqueous medium that is an aid of an emulsifying agent. ASM Gloss. emulsion injection. An artificial cementing agent. See headways. SMRB, Paper No. 61. emulsion injection. Artificial cementing agent. See headways. SMRB, Paper No. 61. emulsion injection. A process of breaking slurry by adding a chemical, thus producing a fluid of small droplet size. Typical emulsions are those found in dewatered coal slurries, in which a water-in-oil emulsion is produced. Bence. emulsion injection. A process of breaking slurry by adding a chemical, thus producing a fluid of small droplet size. Typical emulsions are those found in dewatered coal slurries, in which a water-in-oil emulsion is produced. Bence.
large faces are inclined towards each other in such a way that one of the end faces is smaller than the other. Dodd.

end arch. A roof of the charnockite series composed of quartz, plagioclase, hypersthene, and accessory magnetite and zircon. A medium-grained, gray phalutonic rock with conspicuous blue quartz. Hess.

eend arch. A coal face that is at right angles to the main cleats in the seam. Nelson.

eend arch. See feather brick. Dodd.

eend-fired furnace. A furnace with fuel supplied from the end wall. ASTM C162-66.

end flow. Flow of metal at the ends of steel rails when in service, caused by impact and the pressure of railroad wheels. Bennett, 1962.

end gate. A gate at the front end of a car so that it travels toward the dump. This gate has hooks which are engaged at the dump by stirrups which lift it, so that when the dump pitches forward the coal slides under the uplifted endgate and is discharged onto a chute or over a dump pile. Zern. a. A gate leading to and at right angles to an end face. Also called ending. TIME.

endgate car. A mine car constructed with one hinged end that lifts up as the car is tilted down, permitting the coal, ore, and waste to run out. Kentucky, p. 211. See also end arch.

eend gate books. See endgate. Zern.

eend grade. A road driven at right angles to a main cleat. Mason, b. Eng. An adit driven in a direction with the grain of the coal. Fay.

eend grades; grade end. Corn. A highly jointed part of a granite mass. Arckell.

eend hauling. See endless rope haulage. Foy.

eend joint. A joint at right angles to the face cleats in a coal seam. Also called end cleat; butt cleat. Fay, 3.

eend joint. The minor joints in a coal seam. Also called end cleat; butt cleat. Fay.

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endogenous. Formed by processes interior to the earth's surface, as by aqueous deposition in veins: said of mineral or rock masses. A synonym for endogeneic; endogenetic; endogenetic.

endogenous elements. The group of elements probably belonging to the interior of the earth (siderophile elements, chalcophile elements, and a specific part of the lithophile elements). This group is more or less identical to the metallogenic elements of the earlier classifications.

endolith. A hieroglyph found within a single layer. Pettijohn 3d.

endolith. Pertaining to or characteristic of contact metamorphism that takes place within the cooler eruptive rock: resulting from the penetration of the wall rock upon the peripheral portion of an eruptive rock mass.


endolith. A crystal of one species enclosed in another. Webster 3d.

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engine barrel

used in sinking shafts. Fay.
engine boy. A young person in charge of the drive for a face conveyor; he starts and stops the conveyor according to the supply of empty cars at the discharge end. NELSON.

engine distillate. A refined or unrefined petroleum naphtha similar to naphtha but of higher distillation range. ASTM D288-57.

engineer. A person who is trained in or who follows as a calling or profession a branch of engineering (as civil, military, electrical, mining, or structural engineering). WEBSTER 3d.

engineered brick. A brick whose nominal dimensions are 3.2 by 4 by 8 inches. ACSG.

engineering geology. a. The application of the geological sciences to engineering practice for the purpose of assuring that the geologic factors affecting the location, design, construction, operation, and maintenance of engineering works are recognized and adequately provided for. ACI J. b. A branch of geological science, forming a link between geology and engineering, particularly civil and mining. It provides a basis of theory to guide engineering practice where earth or rock materials are directly or indirectly involved. See also mining geology; soil mechanics. NELSON.

Engineering News formula. A pile driving formula which is as follows: \( P = \frac{c}{W} \)

where \( P \) is the allowable load on the pile; \( W \) is the weight of a drophammer, or the weight of the moving parts of a single-acting steam or air hammer; \( c \) is the distance through which a drophammer falls or the stroke of a steam or air hammer, expressed in feet; \( W \) is the average penetration per blow for the last few blows, expressed in inches; and \( c \) is a constant equal to 1.0 for a drophammer and 0.1 for a steam or air hammer. The values for \( P \) and \( W \) are expressed in the same units; \( p \) and \( W \) are in tons. The formula as written includes a safety factor of 6. URGHART, Sec. 8, pp. 63, 65.

engineering geology. See human engineering; NELSON.

engineer's transit. Theodolite. Fay.

engineer's turn. Ceramic unique ware that is lined or fluted in a special lathe. ACSG.

engine-turning lathe. A lathe having an eccentric center to provide decoration on pottery ware before it is fired. DODD.

engineer's weight. Mid. A practical man whose duty it is to inspect the machinery, ropes, and other appliances. Fay.

englacial. Embedded in a glacier, as englacial drift; being within the body of a glacier, as an englacial stream. WEBSTER 5th.

englacial till. See till. Fay.

English amber. See British amber. Shipley.

English copper process. Obtaining copper from copper ores in a reverberatory furnace. BENNETT 2d, 1962.

English translucent china. Ceramic body of a porcelain nature that is lined or fluted in a special lathe. ACSG.

English white. See prepared calcium carbonate. BENNETT 2d, 1962.

English zinc furnace. A furnace in which zinc is reduced and distilled from calcined ores in crucibles. Fay.

enamel. Slip coating applied to a ceramic body for imparting color, opacity, or other desired characteristics and then covered with a glaze. BENNETT 2d, 1962 Add.

glazing. The clogging of a furnace. Fay.

genetically valley system. Valley system consisting of originally independent rivers, contracted to one stream in consequence of negative movements of the sea level. SCHIEFELDECKER.

engraving. The process of carving figures, letters, etc., upon glass by abrasive means. ASTM C162-66.

engrhydrite. A mineral (as nodules of chaledony) having cavities containing water. STANDARD, 1964.

enghydrous. Containing water; having drops of included fluid. ENGHYDROUS CHALEDONITE, 1964.

enigmatis. See enigmatical.

enlarging shots. Boreholes driven after the face has been uncorked, and two or three free faces have thus been provided. STAUFTER.

en masse conveyor. A conveyor comprising a series of skeleton or solid flights on an endless chain, or other link which operates in horizontal, inclined, or vertical paths within a closely fitted casing for the carrying run. The bulk material is conveyed and elevated on mass in a substantially continuous stream with a full cross section of the casing. ASA MH4-1958. Also called chain conveyor. einghydrite. See conveyor-type feeder. ASTMH 4-1958.

enochlin series. The middle portion of the classic Jurassic succession of Alaska, consisting of shales, sandstones, and conglomerates; represented in northwest Alaska by a very group of Lent, the South plant-bearing continental strata. C.T.D.

enriched uranium. Uranium in which the percentage of the isotope containing the radioactive isotope U-235 has been increased above the 0.71 percent contained in natural uranium. LLNL Handbook of Chemistry and Physics.
enriched uranium

ent,
entry driver

ries the broken down coal back to another conveyor mounted on a turntable so that the coal is loaded into a mine car, or slate are deposited on the gob side of the entry. The entire machine is mounted on a D.O.T. 1.

entry driving machine operator. See entry driver operator. D.O.T. 1.

entryman. a. A miner who works in an entry. Fay. b. One who enters upon public land with intent to secure an allotment under homestead, mining, or other law. Webster 3d. c. In anthracite and bituminous coal mining, one who is engaged in driving a haulageway, airway, or passageway from one place to another in the mine or to the surface. Also called heading machine operator. D.O.T. 1.

event stumps. Pillars of coal left in the mouth of abandoned rooms to support the roof, entry, or gallery until the entry pillars are drawn. In Arkansas, these pillars are called entry stumps even when the rooms are first driven, before any pillars are pulled or the rooms abandoned. Fay.

entry table or convoy which transports material to the feeding position of a machine. ASA M114.1-1958.

evelope. a. The outer part of a recumbent fold; especially used to contrast the sedimentary cover of a recumbent anticline with the crystalline core. b. Applied to sandblasts, and indirectly by wave action on shores; eolian gradation. c. Applied to shallow seas that cover large parts of continents without being disconnected from the ocean. Stokes and Varnes, 1955.

eplaster. A mineral deposit or horizontal gradient of gravity.

epibatolithk. The third stage in which erosion has gone deep enough to expose small parts of the barren rock that lies below the dead line. A.G.I.


epicontinental. Situated upon a continental plateau or platform, as an epicontinental sea. Webster 3d.

epicycle. Any part of a moving celestial body which is used in direct response to precipitation. F. epicyclic. The deformation of the earth's crust by which the broader features of relief (as continents, ocean basins, and greater plateaus) are produced. Compare diastrophism. Webster 3d.

epicyclic. Of or relating to an epicycle.

epidemic. The lower of two Cenozoic subdivisions, consisting of Palocene, Eocene, and Oligocene. Compots Neogene. A.G.I.

epidemia. The process by which wind modifies land surfaces, both directly by transportation of dust and sand and by the work of sand blasts, and indirectly by wave action on shores; eolic gradation. Standard, 1964.

epifluorescence. olating, relating to, formed by, or deposed from the wind or currents of air. Eolian was formerly spelled aeolian. See also aeolian. Fay. Applied to sand dunes which have been accumulated by the wind. Gordon.

eolite. A fragmental rock, composed of wind-deposited materials. For example, the drift sandrock, the common building stone of Bermuda. Fay.

eolitic. Dawn stone. Oldest known stone implement, believed to have been developed by early man. Found in gravels. Pryor, 3.

epistolize. See acotolotropic.

eon. A period of existence; an age. Used by some geologists to subdivide all geologic time into two broad categories. Bury (of Mining) and Oligocene.

epogene. Originally used for the earlier portion of Paleozoic time, including the Cambrian, Ordovician, and Silurian.Obsolete. A.G.I.

epoedite. A basic silicate of aluminum, calcium, and iron. One form is Ca[Al0H]
epidote (Al₂Fe (SO₄)₃) monoclinc; Mohs' hardness, 6 to 7; specific gravity, 3.25 to 3.3; and a secondary constituent of igneous rocks. Pryor, 3.

epidote. A term generally applied to ore deposits. Drainage by streams is generally assumed to have been effective in hypogene systems. Dr. Johannes. 2, p. 26.

episodic. a. Formed, originating, or taking place on or not far below the surface of the earth. Water 3d. b. Material or a deposit that is not natural to the substances in which it is found. Compare pseudomorph. Water 3d. Fay.

episodic relief. Includes hills, ridges and peaks, valleys, gorges, and canyons, certain plains and plateaus, basins of various sorts, and other minor features sculptured into or constructed upon hypogene or preexisting epigenetic features by the action of surface forces. Rivers, winds, glaciers, oceans, and others, which effect the surface of the earth and the outermost zones of the lithosphere. Stokes and Vernet, 1955.

episodic. The change in the mineral character of a rock due to oxidation. Contrasted with hypogene. As applied to ore deposits, epigenetic deposits are younger than the country rock containing them. Webster 3d. Fay.

epigene. Produced on or near the earth's surface. For example, epigenetic disintegration, epigenetic valleys, etc. In petroglyphy, it is usually applied to mineral deposits of later origin than the enclosing rocks, or to the formation of secondary minerals in a rock which is epigenetic. Johannesen, v. 1, 24, 1939, p. 173.

epigenetic deposit. a. A mineral deposit formed later than the enclosing rocks. Deposits of this nature are formed in openings in the rocks or by replacement. Stokes and Vernet, 1955. b. Deposits formed subsequently to the enclosing rock by the mother liquor penetrating into surrounding rocks and depositing minerals. Most mining districts containing epigenetic deposits are commonly characterized by the presence of intrusive igneous rocks, complex folding and deformation of the geologic structure of the district, and by alteration of the country rock through the chemical action of the circulating mineral solutions. These deposits can be classified into six groups: (1) contact-metamorphic deposits; (2) pegmatitic deposits; (3) deposits of the deep-seated vein zone; (4) deposits of the intermediate vein zone; (5) deposits of the shallow vein zone; and (6) surface deposits formed by springs of magmatic origin. See also deep-seated vein zone deposits; intermediate vein zone deposits; shallow vein zone deposits; pegmatite deposits; pegmatite. Lewis, pp. 273-275.

epigenetic drainage. Drainage by streams whose courses were determined by the conditions of an older, higher land surface now eroded. Stokes and Vernet, 1955.

epigenetic. A term applied to ore (mineral) deposits of later origin than the enclosing rocks. Schieredecker.


epigenetic stream. Proposed by Richtohofer for what is now referred to as superposed stream. Obolote. A.G.I.

epigenetic. Described as a steel-gray metallic mineral with a black streak and an uneven fracture, 4C03.3Fe.5A.As; Mohs' hardness, 2.5. St. Peter's, 3d.

epilith. A hortifol on top of a bed. Pettijohn.

epilithic environment. The marine bottoms to a depth maximum 20 fathoms. Schieredecker.

epitome. a. The essence, core, or kernel of something; essence, 6 to 7; specific gravity, 3.25 to 3.5; hardness, 6 to 7; Mohs' hardness, 6 to 7; fracture, 4CuSsiFeS.AseSs; density at which equal portions of the feed material are wrongly placed in each of two products of a specific-gravity separation. BS. 3552, 1962.

equal-expansion rule of. If two oil wells under similar conditions produce equal quantities during any given year, the quantities produced by the two wells, on the average, will be approximately equal, regardless of their relative ages. A.G.I.

equal-failing product. A category of products possessing equal terminal velocities. They are the oversize material and form the underflow of a classifier. See also Stokes law. Fay.

equalization of winding load. The balancing of the weight of the winding rope which varies considerably during a winding cycle. See also balance rope; winding; winding drum. Nelson.

equal bed. Bed of ballast or concrete in the bottom of a trench on which pipes are laid. Ham.

equal lay. Ropes of which the layers of wires in strands have all been laid to the same length of lay. Also known as parallel lay. Ham.

equal area. Applied to crystals having the same or nearly the same diameter or the same dimensions in all directions. Small crystals may be polyhedral, spherical, or irregularly anhedral. A.G.I.; Schieredecker.


equation. In a chemical reaction no matter what is created and none is destroyed. Hence, the number of atoms of each element is conserved. Hence, the number of atoms of the same elements are not created in the reactants. Hence, the number of atoms of the same elements are not destroyed in the products. The equation is made up of chemical symbols in the form of a balanced equation. The equation for the balanced chemical reaction of water to hydrogen and oxygen is given in the following equation: 2H₂ + O₂ → 2H₂O. Microsystems. A.G.I.

equation, chemical. Expression which shows formulas of reacting components and resulting products (change of state). Conforms with laws of conservation of mass. An ionic equation expresses ion-reaction, for example, Ba₂⁺ + SO₄²⁻ → BaSO₄.
equation, chemical

the arrow showing reversibility tending to
ward equilibrium. Pryor, 3.

equation of motion. The Newtonian law of
motion is stated as the product of mass and
acceleration equals the vector sum of the
forces. In meteorological and oceanograph-
ic use, the components of the equation of
motion are divided by mass to give force per
unit mass. The forces considered in ocean cur-
rents are 3. Coriolis force, gradient force, and
frictional forces. Hj.

equation of state. One connecting pressure
(p), volume (v) and temperature (t) for a
substance. Pryor, 3.

equator. The great circle midway between
the two poles and dividing the grain into
two polar hemispheres. A.G.I.

equal. A combining form meaning equal, or
equally, from the Latin aequis (equal).

 Webster 3d.

equatorial projection. Projection from the cen-
ter of a sphere through a point on its sur-
face to a plane tangent at the south pole
so constructed that areas between merid-
ians and parallels on the plane are equal to
corresponding areas on the surface of the

equated crystals. Polyhedral crystals formed
by a reaction in which the crystallization in the in-
terior of a mass of metal in a mold. Distinguis-
hed from columnar crystals and chill crystals.

equilaxed structure. A structure in which
the grains have approximately the same
dimensions in all directions. ASM Gloss.

equiform. Applied to the crystals of equi-
axial rocks, the essential minerals of which are
all of the same order of size. Holmes, 1920.

equiform. An adjective applied to a force
that will balance two or more other forces.

equiform. When two or more forces act
upon a body in such a manner that the body remains at rest the forces are said to
be in equilibrium, or in a perfect balance.
Morris and Cooper, p. 173. b. Chemical equi-
molar. Is the condition in which each mole of an in-
organic substance is present in the
same number of moles. A.G.I.

equilibrium. Steady unsatisfied state which will undergo
change. Metastable equilibrium is a
state when a fixed proportion of daughter
radioactive elements or gamma-emitters are present
of a substance in two or more phases, such as
necessary to complete its stability. Physical
equilibrium can be understood best when we refer to
the potential energy of the system and
consider the forces acting on it. A.G.I.

equilibrium, a. When two or more forces act
upon a body in such a manner that the body remains at rest the forces are said to
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Morris and Cooper, p. 173. b. Chemical equi-
molar. Is the condition in which each mole of an in-
organic substance is present in the
same number of moles. A.G.I.

equilibrium diagram. A graphical representa-
tion of the temperature, pressure, and com-
position limits of the phases produced in a
system at equilibrium. In this type of diagram,
equilibrium is a steady state. The system will not
change unless it is disturbed. A.G.I.

equilibrium, b. Applied to rocks. The moisture
content of a soil when the water is static.
equivalent orifice

opening in a thin plate through which the same quantity of air flows under the same pressure as in the mine:

\[ \text{E.O.} = \frac{\text{W.G.}}{V} \]

where E.O. equals the equivalent orifice in square feet; Q equals flow of air in cubic feet per minute; W.G. equals weight of water gage; P equals pressure in pounds per square inch; V equals flow of air in kilocalories. The formula is based on a venous contracta of 0.63 for the flow through the orifice. *Levett*, p. 712.

equivalent particle diameter; equivalent free-falling diameter. A concept used in evaluating the size of fine particles by a sedimentation process; it is defined as the diameter of a sphere that has the same density and the same free-falling velocity in any given fluid as the particle in question. *Dodd*. *Eq. Proportion law*. See law of equivalent proportion.

equivalent radius. The radius of a spherical particle of density 2.65 (the density of quartz) which would have the same rate of settling as the given particle. *A.G.I.*

equivalent sheathed explosives. Ordinary permutit explosives to which extra common salt has been added and which appear to have the good effects of actual sheathed explosives. Used in many mines. *Cooper*, p. 347.

equivalent temperature. A composite of mean radiation temperature and air temperature also defined as the mean temperature of the environment effective in controlling the rate of temperature change of a rock body in still air when the surface temperature and size of the black body are comparable to those of the human body. Where the enclosure surface (mean radiant temperature) and air temperatures are equal, this temperature is also the British equivalent temperature; when not equal the British equivalent temperature is that temperature at which a body with an 80° F surface temperature will lose sensible heat at the same rate as the given environment. *Stack*, p. 10.

equivalent twinning movement. A twisting moment which, acting alone, would produce in a circular shaft a shear stress of the same magnitude as the shear stress produced by a given twisting moment and a given bending moment acting simultaneously. *Re.

equivalent weight. It equals the molecular weight of the substance or a submultiple of it chosen according to some convention. *A.G.I.*

equivalent at wave. Synonym for distortion wave; secondary wave; shear wave; S-wave; translation wave. *Ex*


erbia. A silvery metallic element of the rare earth group. Found in euxenite and in the same minerals as dysprosion (gadolinite, fergusonite, and xenotimite). Symbol, Er; valence, 3; hexagonal; atomic number, 68; atomic weight, 167.26; specific gravity, 8.95; melting point, 1,497° C; boiling point, 2,200° C; insoluble in water; and soluble in acids. C.T.D.; *Handbook of Chemistry and Physics*, 45th ed., 1964, pp. B-109, B-174.

erbia family. The rare earth elements dysprosion (atomic number, 66), holmium (atomic number, 67), erbium (atomic number, 68), and thulium (atomic number, 69) are a subgroup of the yttrium family. *Hed.*

erbia oxide. Pink; monoclinic; En(SO4)3; soluble in water; specific gravity, 3.217; and loses 814.20 at 400° C. Used for infrared absorbing glass; as a phosphor activator; and in microwave ovens. *Erlich*, p. B-174. Used for infrared absorbing glass; as a phosphor activator; and in microwave ferrites. *Lee.*

erbia oxide, pink. A reddish microcrystalline powder; En(GO),10H2O; decomposes at 375° C; and insoluble in water and in dilute acids. Oxalates of the rare earth metals are used to separate the latter from common metals. *CCD* 6d, 1961; *Handbook of Chemistry and Physics*, 45th ed., 1964, p. B-174.

erbia oxides. Synonym for erbia.

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erbium oxide, pink. A reddish microcrystalline powder; En(GO),10H2O; decomposes at 375° C; and insoluble in water and in dilute acids. Oxalates of the rare earth metals are used to separate the latter from common metals. *CCD* 6d, 1961; *Handbook of Chemistry and Physics*, 45th ed., 1964, p. B-174.
erosional unconformity

ing older rocks, that have been subjected to erosion, from the younger or sedimentary rocks which cover them. A.G.I.

erosional vacuity. That part of a lacuna resulting from the removal of former existing rocks at an unconformity. A.G.I. Supp.

erosion caldera. A large amphitheatrical volcano resulting from the enlargement of a caldera or a crater by erosional processes. An example is the Parnello caldera of Trigile. A.G.I.

erosion channel. See chemical washout. Nelson.

erosion-corrosion. This is the combination of erosion phenomenon and corrosion phenomena which produces a high rate of local attack of the base metal. Since many materials are corrosive-resistant because of a productive oxide film adhering to their surface, when corrosive fluids are present this film is eroded away leaving the base metal unprotected from erosion. HBG.

erosion cycle. The succession of stages through which a newly uplifted surface must pass before it is worn down to a plane or to a surface near sea level. In the initial stages the surface is sharply cut by canyons; in the mature stages, it may disappear and the topography be characterized by high, steep hills and gently worn valleys. In older-stage ages, the land is so worn down that the streams meander sluggishly across a lowland. Stokes and Varvis, 1955.

erratic. a. One of the large water worn and ice-cored blocks or boulders which are scattered generally over the higher and middle latitudes of the Northern Hemisphere. A.G.I. b. A rock which has been transported from a distance, generally by ice. A.G.I. c. A transported rock fragment different from the bedrock on which it lies, either free or as part of a sediment. Generally applied to fragments transported by glacier ice or by floating ice. A.G.I.

erratic scree. An area of a sample that shows a distinctly higher (or lower) value than the assays of other samples in its vicinity. A.G.I.

erratic blocks. Eng. See erratic. Rounded erratic blocks are called boulders. Fay.

erratics. a. A term applied to coal and rock pebbles, boulders and fossil tree trunks found in, or associated with, coal seams. The study of these erratics throws valuable light on the origin and formation of coal seams. Nelson. b. Stones, ranging in size from pebbles to large boulders, which were transported by ice, and on melting, were left stranded on alien soil and far from their original source. As with the Coal Measures, they furnish valuable evidence on the Ice Age. Nelson.

erosion difference. Difference between observed or calculated value and the true one. Pryor, 3.

erosion or curving by erosion. A partition curve drawn to defined conventional scales with the portion showing recoveries over 50 percent being the most convex marks. Pettina.

erosion intensity. The mass of material eroded per unit area per unit time. Its symbol is c. A.G.I. Supp.

erosion refractory. Mechanical wearing away of the surfaces of refractory bodies in service by the washing action of moving liquids, such as water. See also refractory. HW.

erosion proportionality factor. The ratio of erosion intensity to erosion time. It is a measure of the quantity of material removed per unit of applied erosive force. Its symbol is k. A.G.I. Supp.

erosion ramp. A sloping belt of reef rock immediately above the reef flat where marine erosion is active on an atoll islet. A.G.I. Supp.

erosion scarp. A scarp produced by the agents of erosion. A.G.I.


erosion spurs. Term applied to worm casts. Pettinai.

escarpment. a. Applied to igneous rocks that reach the surface of the earth in the molten state. A.G.I. Supp. b. Refers to a raised landform of rock at the surface of the earth. A.G.I. Supp. c. Sometimes applied to any igneous rock, but this usage is not recommended. See also surface. A.G.I.

erosive breccia. Synonymous with volcanic breccia. A.G.I.


escarpment. a. Synonym for erythritol. CDD 66, 1961. b. Cobalt bloom. A natural hydrous cobalt arsenate, Cu(A0)2(S04)·H2O. Formerly oxidized parts of soil and arenic-bearing veins. Crimson, peach, red, pink, or pearl gray in color, with adammantine or pearly luster. Contains 75.7 percent cobalt oxide. Soluble in hydrochloric acid; Mohs' hardness, 1.5 to 2.5; specific gravity, 2.91 to 2.95. Found in California, Colorado, Idaho, Nevada; Ontario, Canada. Used for coloring glass and ceramics. CDD 66, 1961.


escarpment cement. A ferruginous hydraulic cement formerly made in Germany; it has now given place to Ferracement. See also Ferracement. Fay.


escarpment. a. In a contract likely to require labor over a substantial period, a clause providing for readjustment of agreed payments in the event of defined events, for example, change in wages rates. Pryor, 19.

escarpment. a. Eng. A second or additional shaft by which the men may get out of the mine in case of accident to the other shafts. Also an upcast; escape pit; escape-shaft. Fay. b. A waste-way for discharging the entire flow of a stream. Seely, 1.

escarpment apparatus. An apparatus used to give underground workers adequate protection against carbon monoxide and other noxious gases at mine fires and explosions. There are two main types available: (1) simple, lightweight, self-contained breathing sets which can be used in poisonous atmospheres or in atmospheres deficient in oxygen, and (2) carbon monoxide filters which give protection against carbon monoxide poisoning but can only be used when the atmosphere contains sufficient oxygen to support life. McAdam, p. 48.


escarpment. A shaft driven especially to permit egress from the mine in case of emergency. B.C.I.

escarpment. A slope or cliff formed in the face of a wall, etc., by the force of running water, or by wind, etc. Fay.

escarpment. A cliff or a relatively steep slope separating the level of a valley from the bottom of the valley. Fay. b. In gently inclined strata, the abruptly truncated and cliff-like outcrops of the resistant coal or of a ferruginous hydraulic cement. A.G.I. c. The steep face presented by the abrupt termination of a strata.
Esker's mixture. A mixture of 2 parts magnesia and 1 part dried sodium carbonate; used as a reagent for determining sulfur in coal or coke. Haeckel's Chem. Ind.

esker: A deposit of rare earths, (Ce, Fe, Th, Ti, Cb, Ba, Sr, Mo, etc.). An end member of the isomorphic eschynite-precious mineral. A black to brown color, moderately to strongly radioactive. Found in nepheline syenite and in the nepheline-free mica schist, with feldspar, zircon, and garnet, at Miask, in the Ilen Mountains, U.S.S.R.; also found in gold sands in Norway and in the nepheline syenite in Siluria. Also spelled eschynite. Crosby, pp. 18-19; Fromel, p. 179.

cross: A dead ort breed money, or a piece of land owned or divested into the keeping of a third party by one party to a contract or sometimes taken from one party to a contract and put in trust to be returned only upon the performance or fulfillment of some condition of the contract or to induce such performance of fulfillment by some other disposition. Webster 3d.

ed: Abbreviation for electricity force.

es. Sid. p. 39.

eskar: See esker.

eskerite: A mineral, perhaps FeSe, (Fe, Cu-Se), or (Cu,Fe)Se, Very similar to pyrrhotite, chemical properties being much softer. Magnetism highly variable according to orientation. Optically hexagonal or pseudohexagonal, but the ray pattern is cubic, similar to that of sulfanite. American Mineralogist, v. 39, No. 7-8, July-August, 1954, pp. 69:492, 492: v. 46, No. 3-4, March-April, 1961, p. 467.

esker: escar, eskar: a. A glacial-fluvial landform, which is most commonly called an eskers in the United States, It is also called on (singular) and osar (plural) in the United States, having been derived from the Swedish as (singular) and asar (plural). Also spelled eschar; asar. Bureau of Mines Staff. b. A long, winding gravel ridge deposited in the bed of a subglacial stream. C.T.D. c. A long, narrow, often sinuous, ridge or mound of sand, gravel, and boulders deposited between ice walls by a stream flowing on, within, or beneath a stagnant glacier. Compare kame. Webster 3d. c. A mixture of 2 parts magnesia and 1 part dried sodium carbonate; used as a reagent for determining sulfur in coal or coke. Haeckel's Chem. Ind.

estuarine: A classification of the estuarine type in which the settled material is transported by a current up an inclined plane by a stream flowing on, within or beneath the ice. Webster 3d.

esplanade: A broad beach or terrace bordering a bay, especially in the plateau areas of the southwestern United States. Stokes and Stiles. Webster 3d.

espley rock: A conglomerate or breccia with rapid lateral passage through grit to fine sandstone; cement usually ferruginous with some lime and alumina. Characteristically developed in variegated clays of Ettruria Marl group of Upper Coal Measures in the English Midlands. Arkell.

essential: In petrology, necessarily present in a particular type of rock, being required by the definition of that rock type; applied to the characteristic in a particular rock. Fay.

essential ejecta: a. Pyroclastic debris, whether loose or indurated, which is of immediate, juvenile, magnetic origin. A.G.I. b. Fresh magmatic material thrown out in liquid form by a volcano. Synonymous with juvenile ejecta. A.G.I.

essential mineral: One of those mineral constituents of a rock that are necessary to its classification and nomenclature. An essential constituent is not necessarily a major constituent, for the presence in a rock of minor amounts of such minerals, as nepheline, olivine, or quartz may affect its classification. See also accessory mineral. A.G.I. b. A mineral essential to national defense for which no great difficulty of procurement during war is anticipated, but which requires constant surveillance because future developments may necessitate a revision in the list. In 941, essential minerals of the United States included arsenic, copper, helium, iron, lead, magnesium, molybdenum, potash, phosphates, potash, sulfur, and pyrite, uranium, zinc, and zirconium. Hess.


essentialite: A cinnamon-colored variety of heaume- nite; called haysinite when used as a gem, though the term more properly belongs to Zenas. Dana.


established: Some can only be moved by the wind when it is dry and when only a little vegetation is growing on it. In a humid climate, the prevailing moisture and the favorable conditions for the growth of vegetation are factors that tend to arrest the advance of sand dunes. When these conditions become dominant, the dunes are soon covered with vegetation and their movement stopped. They become established dunes. A.G.I.

Estates Department: Gr. Brit. Each Area of the National Coal Board has an Estates Deparragor for matters covering and managing estates and farms owned by the Board. It performs its duties much in the same manner as a good estate agent would for a landlord. A further duty of the department is the investigation of subsidence damage claims by property owners. A.G.I.

estuarine: A name given by Michel-Levy to a variety of diolite porphyry from Esteral, France. The rock shows some peculiarity of chemical composition which have given it special interest in discussions relating to differentiation. Fay.

essentialize: An approximate figure, based on rough application of experience cum mental arithmetic to a problem at an early stage of discussion. Not a firm, basic datum. Prior, 3.

estuaries: Eng. Necessary supplies; especially wood that a tenant is allowed to take from the landlord's premises for the necessary fuel or implements used by himself and his resident servants or for necessary repair. Webster 3d.

estuarine: A massive variety of apatite found in Estramadura, Spain. A phosphate containing apatite and sometimes pyrite, uranium, zinc, and zirconium. Hess.

estuarine: Of, relating to, or formed in an estuary. Webster 3d.

estuarine: A clay deposited in depressed valleys or estuaries of the sea, or in lakes. It is represented by certain Wisconsin types, those of the Hudson River Valley, and by many Columbia clays along the Atlantic Coast. USGS Prof. Paper 11, 1903, p. 19.

estuarine: A delta built into a pre-existing estuary. A.G.I. Supp.

estuarine: A mixed deposit of organics and sediments of both marine and fluvial origin. Along river channels, they grade upstream into typical freshwater river-channel deposits; seaward, they grade into marine deposits; laterally, they grade into deposits consisting of mud-cracked clays, silts, some sands, and a little peat. A.G.I.

estuarine deposition: Sedimentation in the environment of an estuary. The deposits differ from those which form in a deltaic environment, chiefly in their relationship to the strata of the adjacent land, and they are usually found in an area of low sedimentation rate. Both estuarine and deltaic deposits are characterized by brackish water and by their content of marine life. Webster, p. 223.
estuarine sand. Sand produced by the precipitation of finely divided material carried down by the rivers to the sea. Estuarine sands are frequently laminated. Although silt is the chief constituent of estuarine sands, clay is often present.

etch method; etchirs method. A method, etching. A process of engraving in which etching, a. A marking con-
etched. a. Applied to a rough, frosted sur-
etching line. A line of demarcation between etched portions of the acid bottle is clearly discernible. Long.
etched. a. leucite nepheline. A.G.I. b. An rough surface, are said to be affected by acid, alkalis, or other chemical agents or to the tectonic structure. Produced that a pattern of pits or lines is etched in an acid bottle as measured before capillarity corrections are applied. Also called apparent angle. Compare apparent dip. Long.
etch cleaning. Removing soil by dissolving away some of the underlying metal. A.S.M. Gloss.
etched. a. Applied to a rough, frosted sur-
etched. a. fig. etching figures. A marking consisting usually of a minute pit produced by a solvent (or an etchant) on the crystal face of a mineral and revealing its crystaline or molecular structure. Webster 3d.
etched. a. A process of engraving in which the lines produced by the action of an acid or a mordant, or taken on a rough surface, are said to have been etched. Enam. Dict.
etching acid. See hydrofluoric acid. Long.
etching pit. Small cavities formed on the surface of metals during etching. G.T.D.
etch line. A line of demarcation between the etched and unetched portions of the image on an acid bottle, used to determine the inclination of a borehole by an acid dip survey. Long.
etching method. A method, using a soda-lime glass tube partially filled with a dilute solution of hydrofluoric acid, of determining the angle at which a bore-
hole is inclined at any specific point of its course below the collar. See also acid-dip survey. Long.
etch pattern. Regular surface marking developed by etching from the surface of alloy or crystal, and characteristic for that specific substance. The reagent used is an etchant, usually an acid in water or alcohol. Pryor, 3.
etch period; etching period. See etch time. Long.
etch ring. Synonym for etch line. Long.
etch time; etching time. The time required for a dilute solution of hydrofluoric acid, of a specific strength, to etch the inside of an acid bottle enough so that the line of demarcation between the etched and unetched portion of the acid bottle is clearly discernible. Long.
etch tube. Synonym for acid bottle. Long.
ethanne. Colorless; gasous; CaO; contained in the gases given off by petroleum and in illuminating gas. Crispin.
ethanole. See ethyl alcohol. C6H5O. Made by treating alcohol with sulfuric acid. Chiefly used in the manufacture of smokeless powder and as solvent for gums, fats, waxes, etc. Crispin.
ether oxes. See oxes of elasticity. Fay.
etrical geometry. The study of the correct and incorrect nomenclature of gems, with emphasis on names and terms which may mislead or deceive purchasers. Shipley.
etnemolite. A cutting intrusive body of plutonic rock that narrows downward and is funnel-shaped. A.G.I.
etyl alcohol. A colorless, volatile, flammable liquid, C2H5OH, which is fermented and distilled liquors. Also called ethanol. A.P.I. Gloss. See also alcohol.
etylhexene. Colorless; flammable; unsaturated; gas; C6H10. Contained in illuminating gas. Crispin.
etylhexylene. Used as an electrolyte to transform coal into a tan-gray substance resembling asphalt. A.S.M. Gloss.
etylhexylenem. A combining form meaning well.
etylhexylmethane. A natural basic aluminum-beryllium silicate, &Al( SiO3 )2( OH )4. Fay.
etylhexylole. A highly explosive liquid, C4H10( NO3 ); somewhat volatile; nonfreezing; explosive base. Used as an antifreeze. Lewis, p. 104.
etyl orthoboricate; ethyl silicate; tetraethyl orthoborate. A. G. I. b. Pierced or corroded in such a manner that a pattern of pits or lines is produced that is related to the crystal structure or to the tectonic structure. See also frosting. A.G.I. c. Weathered so that the surface is roughened. See also centering. ASTM C162-66. d. Treated by etching. ASTM C162-66. etch oxide. A. Natural basic aluminum-beryllium silicate, &Al( SiO3 )2( OH )4. Fay.
etylsilicate. A. A natural basic aluminum-beryllium silicate, &Al( SiO3 )2( OH )4. Fay.
etylsilicate. A. A natural basic aluminum-beryllium silicate, &Al( SiO3 )2( OH )4. Fay.
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etylsilicate. A. A natural basic aluminum-beryllium silicate, &Al( SiO3 )2( OH )4. Fay.


eutectic point. A eutectic point is the lowest melting temperature obtainable.

eutrecrystalline. A textural term meaning well crystallized and applied to igneous rocks, such as granites, which are well crystallized. A.G.I.

eutrecy. A worldwide phenomenon. Webster 3d.

eutrecymorphic. Applied to a structure of certain volcanic rocks with a streaked or blotched appearance due to the alternation of bands or elongated lenses of different color, composition, or texture; the bands, etc., having been ejected originally as individual portions of magma which were drawn out together in a viscous state and formed a heterogeneous mass by welding. The term is most appropriately used in describing the structure of many welded tuffs. Holmes, 1920.

eutrecy. a. As a noun, an alloy or a solution having its components in such proportions that the melting point is the lowest possible with those components. Webster 3d. b. The characteristic microstructure resulting from the solidification of a metal of a eutectic composition. Webster 3d. c. As an adjective, relating to a eutectic or to its composition (eutectic mixture) or to the temperature at which it melts or freezes (crystallizes) which is the eutectic point. Webster 3d. d. An isolated, eutectic reaction in which a liquid solution is converted into two or more intimately mixed solids formed being the same as the number of components in the system. ASM Gloss. e. An alloy having a composition indicated by the eutectic point in a phase diagram. ASM Gloss. f. An alloy structure of intermixed solid constituents formed by a eutectic reaction. ASM Gloss. eutectic alloys. Such alums as aluminum and silicon, cadmium and bismuth, cadmium and zinc, silver and tin are made up of two metals entirely soluble in each other when liquid but on setting or freezing the crystals of the individual metals form. Crispin.

eutrecy change. The transformation from the liquid state to the solid state in a eutectic mixture. It involves the simultaneous crystallization of two components in a binary system and of three in a ternary system. C.M.D.

eutrecy melting. Melting of localized micro areas whose composition corresponds to that of the eutectic in the system. ASM Gloss.

eutrecy mixture. A discrete mixture (not a compound) of two or more minerals which have crystallized simultaneously from the mutual solution of their constituents, the two or more minerals being in definite proportions. Simultaneous crystallization sometimes gives rise to graphic texture, but it does not necessarily do so, as the development of graphic intergrowth involves other factors besides eutectic proportions. Stokey and Barnes, 1935.

eutrecy point. A eutectic point is the lowest melting temperature obtainable.

eutrecy. A siliconic bismuth, Bi₂SO₄, occurrine usually in minute dark brown or rare fishes, B. bioluminescent. A.G.I.


eutrecycope. A black, hollow copper cylinder heated electrically to the surface temperature of a human being. The heat loss from the cylinder in a given environment is equivalent to that lost by a human being; thus, equivalent temperature. Stock, 10.


eutrecy. Applied to compact felsic rocks without phenocrysts, having the composition of quartz porphyry or porphyry. Also used in a wider sense to cover all anaphylactic, as for composition whether porphyritic or not. A.G.I.

eutrecy. A metallic element of the rare earth group, contained in black monazite, gadolinite, samarskite, and xenotime. Symbol: Eu: ion; isotopic; atomic weight, 151.96. Grenier b. Gray metal; atomic number, 63; valences, 2 and 3; melting point, 826°C; boiling point, 1,439°C; specific gravity, 5.259; insoluble in water; and stable in air and in water. The most sparingly distributed of the terbium family of rare earths. Empedocles. A worldwide phenomenon. Webster 3d.

eutrecy. A name derived from the Greek word eu (good) and oxy (acid) giving a compound to one which filled a gap in his classification of rocks. The same rock had been described by another a little earlier. Empedocles. A worldwide phenomenon. Webster 3d.

eutrecy. a. As a noun, an alloy or a solution having its components in such proportions that the melting point is the lowest possible with those components. Webster 3d. b. The characteristic microstructure resulting from the solidification of a metal of a eutectic composition. Webster 3d. c. As an adjective, relating to a eutectic or to its composition (eutectic mixture) or to the temperature at which it melts or freezes (crystallizes) which is the eutectic point. Webster 3d. d. An isolated, eutectic reaction in which a liquid solution is converted into two or more intimately mixed solids formed being the same as the number of components in the system. ASM Gloss. e. An alloy having a composition indicated by the eutectic point in a phase diagram. ASM Gloss. f. An alloy structure of intermixed solid constituents formed by a eutectic reaction. ASM Gloss. eutectic alloys. Such alums as aluminum and silicon, cadmium and bismuth, cadmium and zinc, silver and tin are made up of two metals entirely soluble in each other when liquid but on setting or freezing the crystals of the individual metals form. Crispin.

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eutrecy point. A eutectic point is the lowest melting temperature obtainable.
eutectic point

with a mixture of components, provided the components do not form solid solutions. A.G.I.

eutectic system. The ratio of solid phases crystallizing from the eutectic liquid at the eutectic temperature. It is such as to yield a gross composition for the crystalizing from the eutectic liquid, that is identical with that of the liquid. Most frequently stated in terms of weight-percent. A.G.I.

eutectic structure. The particular arrangement of the constituents in a eutectic alloy which arises from their simultaneous crystallization from the melt. See also graphic texture. C.T.D.

eutectic temperature. The lowest melting temperature in a series of mixtures of two or more substances. A.G.I.

eutectic texture; eutectoid texture. Intergrowth of minerals, either along crystallographic or boundaries resembling those precipitated from eutectic solutions. A.G.I.

even-bedded, See eutectophyre. Hsu.

eutic. a. An isothermal reversible reaction in which a solid solution is converted into two or more intimately mixed solids on cooling, the number of solids formed being the same as the number of components in the system. ASM Gloss. A. An alloy having the composition indicated by the ruttedet eutectoid on an equilibrium diagram. ASM Gloss. C. An alloy structure of intermediate solid constituents formed by a eutectoid reaction. ASM Gloss.

eutectoid texture. A graphic texture with radiating grains among the complicated graphic intergrowth. Schieferdecke.
even-crested ridges

plain reconstructed by filling, the surface depressions to the level of the ridge tops in an old pavement. Also called even-crested skyline; even-crested summit areas; accordant summit levels. A.G.I. b. The general accor-
dance of summit levels in a surface of high topographic relief, suggesting that the highest preserved plain that resulted from a previous cycle of erosion. A.G.I.
even fracture. A fracture surface which is flat or nearly flat, as in chert. Nelson.
evening emerald. Peridot, which loses some of its yellow tint by artificial light, ap-
proximately greenish. Shipley.
evenmild. Paraffin wax, C18H34, as white, opti-
ismatch biaxial scales in a vein of sulfide
ore. A.G.I. d. The phase of weathering that
results from a number of different local condi-
tions, such as climate, slope inclination, water
flow, and rocks weathering. The conformation
ary process progresses approximately parallel to the
strike or dip of the rocks. Fay.
evena. A tract of swampy land that is
mostly with tall grass. A swamp or an in-
tricate biaxial scales in a vein of sulfide
ore. A.G.I. d. The phase of weathering that
results from a number of different local condi-
tions, such as climate, slope inclination, water
flow, and rocks weathering. The conformation
ary process progresses approximately parallel to the
strike or dip of the rocks. Fay.
event. Seismic. Applied to any definite phase
of a fracture. A fracture surface which is
parallel to the stress direction at right angles to the leaves or
plates, thus opening like a book or extend-
ing like an accordion. For example, ver-
miculite exfoliates when it is heated and
extends its individual crystals into cutting, curved,
or frayed like broken paper. A.G.I.
evenly. Horblende gabbro containing labra-
donite or bytownite as the only light-colored
mineral. The hornblende must be pri-
dorite or brownite as the only light-col-
mendite in the surface, and it makes no difference whether the
word used is excepted or reserved. Rick-
etts, 1.
evenly. Paraffin wax, C18H34, as white, opti-
mismatch biaxial scales in a vein of sulfide
ore. A.G.I. d. The phase of weathering that
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ore. A.G.I. d. The phase of weathering that
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tions, such as climate, slope inclination, water
flow, and rocks weathering. The conformation
ary process progresses approximately parallel to the
strike or dip of the rocks. Fay.
exhalation

ing either through a conduit or fissure, or from molten lava or a hot spring; an ema-
nation. Fay. c. An exhalation or sending forth of gases or vapor. Sometimes it is exhaled or given off or that rises in the form of gas, fumes, or steam. For example, a foul exhalation from the marsh. Webster 3d.

exhaust fan. In coal mining, a fan which sucks used air from a mine and thereby causes fresh air to enter by separate entries to repeat the cycle. B.C.

exhausting auxiliary fan; suction fan. An auxiliary fan which exhausts air from the face of a tunnel through ducting or piping and discharges it into the return side of the airway off which the tunnel branches. See also auxiliary ventilation. Nelson.

exhaustion. a. In mining, the complete re-
moval of ore reserves. Fay. b. The process of completely extracting from a substance whatever is removable by a given solvent. Fay.

exhaustion purifier. Attached to the exhaust manifold of diesel motors; up to four cylinders, this purifier reduces noxious and irritating fumes by burning in air and other enclosed gases, such as tunnels. The purifier consists of a heavy steel shell enclosing the catalytic action that burns hot gases to carbon dioxide and water vapor. Purified gases are fed through a water-filled tank and condensed. Bests, p. 374.

exhaust system. A system in which the flue exhaust is taken from a device in which the fan draws air through the chimney or blower arrangement and discharges it into the return side of the airway off which the tunnel branches. See also auxiliary ventilation. Webster 3d.

exhaust ventilator. A system of ventilation in which the fan draws air through the windings by suction. Opposite of forced ventilation. B.S. 3618, 1963, sec. 2.

exhume topography. Monadnocks, moun-
tains, or other topographic forms buried under younger rocks and exposed again by erosion. A.G.I.


elixirial; lithophile. a. M. C. Stopes in 1935 used the term exinitie for the constituent represented by the exines of spores in coal. C. A. Seyler in 1932, however, used the term exinite for the constituent represented by the exines of spores in coal. The term lithophile, introduced by A. Ammosov in 1956, refers to the constituent which owes its origin to chemical processes and is exinite. Schieferdecker.

exit table. See runout table. ASA M114.1-


expansion of the intrusion; opposite of endomorphic. Fay.

expansion; exomorphism; exomorphic. The mod-
ifications produced in the invaded rocks by intrusions which transverse them; contact metamorphism in the usual sense as contrasted with endomorphic or exomorphic. A.G.I.

expansions. See exomorphism. Hess. exogeneous; exothermic. A region that is drained by rivers that flow into the ocean. Oppo-

expansion. The process of caving in an outward direction. C.T.D. Compare endo-
nomos.

exosphere. Space beyond the earth's atmos-
phere. It begins at a height of about 1,000 kilometers. A.G.I. Supp.

exothermal; exothermic. Characterized by
or formed with the evolution of heat. Opposite of endothermic; endothermal. Webster 3d.

exothermic reaction. A reaction that pro-
ces with the evolution of heat. A.G.I.

exotic. That which has been introduced from other regions. Fay.

exotic limonite. Limonite precipitated in rock other than that which formerly contained the gel-like limonite. ASTM C716-66.

expanded blast furnace slag. The lightweight cellular material obtained by controlled processing of molten blast furnace slag with water, or with water and other agents, such as steam or compressed air, or both. ASTM C716-66.

expanded clay. See lightweight expanded clay aggregate. Dodd.

expanded foot. The lobe or fan of ice formed where the lower portion of a valley glacier leaves the confining walls of a valley and expands onto a level surface. A.G.I.

expander. An inert material, such as carbon or barium sulfate, added to the active ma-
terial in accumulator plates in order to prevent shrinkage of the mixture. C.T.D.

expanding. A process used to increase the diameter of a cup, shell, or tube. See also bulging. ASM Glass.

expanding cement. Hydraulic cement of special type produced from clinker, gypsum, and blast furnace slag, an experi-
mentally developed cement by Prof. F. C. Joslin. This expands during setting and initial hardening, and the expansion degree can be controlled. Hess. See expanding cutter. C.T.D.

expanding cutter. See expansion cutter. Long.

expanding electrode test. A geophysical test based on the resistivity method to deter-
mine underground geological structure. Nelson.

expanding metals. Alloys of bismuth, which
expand on cooling and solidifying; for exam-
ple, 2 parts antimony to 1 part bismuth. C.T.D.

expanding plug. See expansion plug. Long.

expanding reamer. A reamer which is cap-
able of slight adjustment in diameter by means of a coned internal plug acting in a partially split length of the tool. Nelson. See expanding waterjet. A channel or groove incised into and across the face of a bit, the depth and/or width of which gradually increases from the inside to the outside. Long. A.G.I.

expansion. Synonym for dilatation. Schiefer-
decker.

expansion beam. A bend in a pipeline that takes up movement due to temperature change and that prevents damage. Pryor, 3.
expansion

expansion. a. A drift that may be adapted to various uses of holes. The expansion of nature pores may be accomplished by mechanical means while the hot is either hot or cold, or in the called puddle process. Long

expansion bolt. a bolt equipped with a split or ring-nut as a means of preventing the problem of expansion, as arises in the case of granite spacers, used to attach a strip or a concrete slip. The expansion bolt prevents the loosening of the strip or concrete slip due to expansion and contraction of the surrounding material, which can cause damage to the structure.

expansion pressure. the pressure exerted by the hot on the surface of a system, such as a glass or a metal, when it is subjected to a sudden increase in temperature. This pressure can cause the surface of the system to expand and, in some cases, to crack or break.

expansion pipe. a pipe used to equalize pressure in a system, such as a water or gas system, by allowing the system to expand and contract without causing damage. The expansion pipe is typically made of a flexible material, such as rubber or PVC, and is connected to the system at points where the pressure is expected to change.

expansion, expansion drum. a drum used in the process of expanding metal, such as copper or steel, by heating it to a high temperature and then allowing it to cool slowly. The expansion drum is typically used in the production of pipes, tubes, and other metal products.

expansion. A measure of the rate of expansion with change of temperature.

expansion cutter; expanding cutter. A borehole drill bit used to expand the diameter of a tunnel or tunneling machine. These cutters are typically made of hard materials, such as tungsten carbide, and are designed to withstand the high pressures and temperatures found in tunneling operations.

expansion. A system of underground works that may be rationally used inside a bridge or tunnel. Long

expansion. A measure of the rate of expansion with change of temperature.

expansion system. a system of expansion bolts or pipes that is used to equalize pressure in a structure, such as a bridge or tunnel. The expansion system is typically made of a flexible material, such as rubber or PVC, and is connected to the structure at points where the pressure is expected to change.

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explosive Drilling: a method of drilling coal seams in which the explosive charge is placed in the drill holes and the holes are then drilled to the correct vertical and horizontal position. The explosive is then detonated, causing the coal to be broken into small pieces.弱点

exploratory drilling: a method of probing for the presence of mineral deposits, often using a small explosive charge to penetrate the surface and reveal the underlying material.弱点

exploratory work: the process of investigating a new area or region in order to discover potential resources or new markets.弱点

explosibility: the tendency of a substance to undergo an explosive reaction. highlights

explosibility curves: graphical representations of the explosibility of different substances, showing the relationship between the pressure and the distance from the explosion source.弱点

explosive drift: an underground tunnel or passage in which explosive charges are placed to break up the rock.弱点

explosive heading: a. A heading driven horizontally or downwards from mine workings for exploration purposes. b. A heading driven in advance of the workings as a special safeguard when approaching waterlogged workings whose position is uncertain. See also intubation of nozzles. c. A heading driven ahead in an area intersected by faults or washouts to explore the ground and disrupt the drifted coal seam.弱点

explosive limit: the addition of inert dust to coal dust decreases its explosibility, and when enough has been added an explosion cannot occur. The point at which explosion cannot occur is said to be the explosibility limit of the coal in question.弱点

explodable: capable of being exploded.弱点

explosimeter: a. An instrument for testing explosibility by measuring the concentration of combustible gases and vapors in air; b. An instrument for measuring low concentrations of combustible gases and vapors in air. Weakness

explosion: a. A violent and rapid chemical reaction, usually accompanied by a loud report, and a high temperature. b. The phenomenon that occurs when a substance is decomposed by a violent reaction, resulting in a rapid release of energy.弱点

explosion drift: an underground tunnel or passage in which explosive charges are placed to break up the rock.弱点

explosion hazard investigation: The investigation of a mine to determine the possibility of an explosion occurring by reason of the kind, size, purity, and dryness of the coal dust along the mine passages and the presence or absence of fireproofing. It also determines the degree of the hazard of an explosion from natural conditions and of one arising through the neglect or ignorance of the mine personnel. The purpose of such investigations is to make specific recommendations for reducing the hazard to a negligible point; appropriate methods for continued diligence.弱点

explosion pressure: the pressure at the instant of an explosion. Weakness

explosion-proof: a. A term applied to apparatus that is not constructed and maintained so as to prevent the presence of a flammable atmosphere in such apparatus. b. A term applied to apparatus that is not constructed and maintained so as to prevent the presence of a flammable atmosphere in such apparatus.
explosive forming. Shaping metal parts in confined die cavities where the forming pressure is generated by an explosive charge. See explosive fringe. B.S.

expression. 1. The process by which a liquid is caused to pass through a die, or along a cutting-off table, by forcing it through a die or along a cutting-off table. This pressure is produced by an ordinary detonator, and also transmitted through millisecond delay electric cells, or through millisecond delay electric cells containing nitroalycerin. Guncotton, nitrosed mixtures, contain K.CI04: Dynamites, may be used in coal mining. The proportional mass of diamond or other cutting medium, grinding the ore, is determined by the expression rolls. A pair of steel rolls which, when rotated, will force a clay column through a die or along a cutting-off table (as in shaping of bars for roofing-tile manufacture). Compare crushing rolls. Dodd.

expression rolls. A force applied with separate values for the heat liberated by the explosive decomposition and the detonation fragment requirement, but 5 tons per pound is about average in quarry blasting. To minimize secondary blasting, some quarrymen prefer a factor of about 3 tons per pound. See also blasting. Nelson.


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extended discharge trough. Consists of two extension coupling. Coupling consisting of a porous material such as concrete or mineral liquor with headwater. It is part of a discharge system used to control and maintain a desired water level in the discharge area.

extended head pulley. See head pulley, a.

extended stream. When a region near the sea is uplifted and a submerged continental shelf became part of the coastal plain, the streams of the older land are extended across it. A.G.I.

extender. A mineral substance used to dilute and thicken paint which may be used in facilitating the suspension of the pigment, increasing moisture resistance, giving a dull finish, thickening primers for filling porous surfaces, improving abrasion resistance, or improving brushing qualities. Extenders include clays, diatomaceous earth, dolomite, bentonite, and others. Also see bentonite, diatomaceous earth, dolomite, and vermiculite. BuMines Bull. 7264, December 1943, p. 19; Hui.

extendible conveyor. A conveyor which is capable of being lengthened or shortened when in operation. NEMA MM-1943.

extendible discharge trough. Consists of two or more shaker conveyor troughs, nested to be installed on the discharge end of the pipe line so as to provide for adjustment of the position of the discharge point. After adjustment, they are locked in place. Jones.

extensional fault. A normal fault believed to have resulted from the stretching of the earth's crust. A.G.I. Supp.

extension bar. Synonym of extension core barrel. Long.

extension core barrel. A core barrel, the length of which may be increased by coupling similar sections. Long.

extension coupling. Coupling consisting of a threaded tubular section around which a loose or tight-fitting ring is placed. The coupling connects the core barrel to the drill string. Also called guide-ring coupling. Long.

extension fracture. One of the fractures that form during extension. In a sense, they are tension fractures. Billings, 1934, p. 96.

extension joint. One of the joints that form parallel to or perpendicular to the line of fracture. A.G.I.

extinction of a pigment, increasing moisture resistance, giving a dull finish, thickening primers for filling porous surfaces, improving abrasion resistance, or improving brushing qualities. Extenders include clays, diatomaceous earth, dolomite, bentonite, and others. Also see bentonite, diatomaceous earth, dolomite, and vermiculite. BuMines Bull. 7264, December 1943, p. 19; Hui.

extraneous. a. Pertaining to igneous material present on the surface of the earth in a molten state and to fragmental material of all sizes erupted from volcanic vents. Lava flows and fields of extrusive material often contain stones and rocks of various sizes, ranging from small pebbles to large boulders. These extrusive products can be found in many locations around the world, including volcanoes, calderas, and rift zones. The term "extrusive" is often used to describe igneous rocks that were once molten and have flowed onto the Earth's surface as lava. These rocks are typically found in volcanic areas and can be divided into two main types: extrusive igneous rocks and extrusive volcanic rocks. Extrusive igneous rocks are those that were formed from the solidification of magma on the Earth's surface, while extrusive volcanic rocks are those that were formed from the solidification of lava that flowed from a volcano. The term "extrusive" is derived from the Latin word "extrinseca," which means "outside."
facing brick. A brick made especially for facing purposes, often treated to produce greater brilliancy. See also grinding; polishing.

facing machine. Mechanical device for holding stones during grinding or polishing faceted upon them. By these means, certain stones can be placed at the exact angles which theoretically result in producing the most brilliant stone. Rarely used in faceting diamonds or other valuable colored stones where recovery of a greater amount of weight is more important than maximum brilliancy. See also grinding; polishing.

facing point. See transfer point. Nelson.

facing wheel. A walking fitted across the end of a trench and held in position by the ends of the time. A wall built to sustain a face cut in the earth in distinction to a retaining wall, which supports earth deposited behind it. Zena.

face worker. A miner who works regularly at the face. In a coal mine it means a light-faced, face shifter, face parker, etc. Nelson.


facades. The aspect belonging to a geologic unit of sedimentation, including mineral composition, type of bedding, fossil content, etc. Sedimentary facies are generally segregated parts of differing nature belonging to any genetically related body of sedimentary rocks. G.S.A. Mem. 39, 1949, p. 8. In petrography: (1) the general appearance or nature of one part of a rock related to or connected with other parts; (2) a part of a rock body as differentiated from other parts by appearance or composition; and (3) a kind of rock so differentiated from other more or less related kinds. In stratigraphy: (1) a stratigraphic body as distinguished from other bodies of differing appearance or composition; and (2) a kind of rock or rock body so differentiated from other more or less related bodies. (3) a kind of rock or rock body so differentiated from other more or less related bodies.

faceting. The art of improving a gemstone by such processes as cutting, polishing, and faceting. Faceting is essentially a method of polishing the surface of a gemstone in order to improve its appearance and to render it more suitable for use as a gemstone. Faceting is a highly skilled art and requires a great deal of patience and care. The art of faceting is one of the most difficult of all the arts and sciences in the field of gemology. Faceting is an art that requires a great deal of practice and study in order to master it.

facets. The small flat or pointed surfaces on the faces of a crystal. Facets are formed by the action of the crystal on the surrounding medium. Facets are usually larger than the crystal itself and are characterized by their sharp, angular edges.

facing brick. A brick made especially for facing purposes, often treated to produce greater brilliancy. See also grinding; polishing.

facing machine. Mechanical device for holding stones during grinding or polishing faceted upon them. By these means, certain stones can be placed at the exact angles which theoretically result in producing the most brilliant stone. Rarely used in faceting diamonds or other valuable colored stones where recovery of a greater amount of weight is more important than maximum brilliancy. See also grinding; polishing.

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A factor, A number or property associated with a particular condition or variable that is used to determine the effect of that condition or variable on a certain result. For example, the factor of safety is used to determine the maximum stress that a material can withstand without failure.

Factor of safety is the ratio of the allowable stress to the maximum stress. It is used to ensure that a structure is safe and can withstand the forces it is expected to encounter. A factor of safety greater than 1 indicates that the structure is safe, while a factor of safety less than 1 indicates that the structure is unsafe.

Failure is the condition of a material or structure when it is no longer able to perform its intended function. Failure can be caused by a variety of factors, including stress, temperature, corrosion, and fatigue. Failure analysis is the process of determining the cause of failure in a material or structure.

Fahrenheit, Gabriel Fahrenheit, a German physicist (1686-1736). His name is given to the common thermometric scale in which the freezing point of water is 32° and the boiling point is 212°. (Griffin.) To convert from the Fahrenheit scale to the centigrade scale, subtract 32° and multiply by 5/9. Symbol, F. C.T.D.

Fahrenheit machines. These include (1) a hydraulic cylinder, (2) a reciprocating cell marketed as the Denver Sub. A. Pryor, 3.

Fadleness. a. Originally the French name for the earthenware made at Faenza, Italy, in

Fadeometer. An instrument used to measure
Fall. A name given to a moving roller, pulley, or wheel, carrying the cable of a cage. Also a crusty deposit on the walls of a mine shaft.

Fall (n.) - A descent or drop, especially in waterfalls.

Falling fall. A system of work in a mine, where a water wheel is used to supply power to the machinery.

Falling water. A precipitous descent of water.

Fall of the coal mine. The process of extracting coal from a mine shaft.

Fall of a wall. A horizontal force that causes a wall to collapse.

Falling water mills. A type of watermill where the water falls from a higher level to a lower level, driving the millstones.

Falling zone. The region of waterfalls or rapids.

Fallout. The deposition of radioactive material from the atmosphere after a nuclear explosion.

Fall zone. The region of waterfalls or rapids in a river.

False galeas. A species of leafy plant.

False emerald. A mineral that resembles emerald but is not.

False gold. A mineral that resembles gold but is not.

False graphite. A mineral that resembles graphite but is not.

False heat. A mineral that resembles heat but is not.

False inclusion. A mineral that resembles inclusion but is not.

False jade. A mineral that resembles jade but is not.

False kyanite. A mineral that resembles kyanite but is not.

False mica. A mineral that resembles mica but is not.

False muscovite. A mineral that resembles muscovite but is not.

False nephrite. A mineral that resembles nephrite but is not.

False plaster. A mineral that resembles plaster but is not.

False sapphire. A mineral that resembles sapphire but is not.

False topaz. A mineral that resembles topaz but is not.

False tourmaline. A mineral that resembles tourmaline but is not.

False water. A mineral that resembles water but is not.

False watch. A mineral that resembles watch but is not.

False yellow. A mineral that resembles yellow but is not.

False zircon. A mineral that resembles zircon but is not.
false galeana

false gate. A gate carried forward in the seam thickness only (which must be over 3 feet), with cut-throughs as required to the main gate. The false gate has a short con

false lapis lazuli. Lazufite. Schaller.

false indication. In nondestructive inspection,

false mud cracks. Some polygonal patterns,


false stratification. An earl; term for cross-

false set. a. A light, temporary lagging set


false ruby. Some species of garnet (Cape
dates. Modern fan drifts conduct

false fan. Usually temporary framework,

false work. Usually temporary framework,

false topaz. A yellow variety of quartz re-

false wiring. Same as curling. ASM Glass.
fan efficiency

pressure, on the assumption that the air does not change in volume. The velocity pressure, present in the air, does not change in volume. The velocity pressure, on the assumption that the air does not change in volume. The velocity pressure is the pressure that is present in the air, which is equal to the product of the air density and the square of the air velocity. The velocity pressure is a measure of the resistance offered by the air to the flow of a fluid, and it is directly proportional to the air density and the square of the air velocity.

fanning's equation. Frictional pressure drop (2Dρ) of fluid flowing in a pipe is

\[ A \Delta p = 2f \left( \frac{1}{d} - \frac{1}{D} \right) \]

where \( A \) is a function of the Reynolds number, \( v = \) rate of flow, \( g = \) acceleration due to gravity, \( l = \) length and diameter of pipe. Fryer, 3.

fan shaft. A. The ventilating shaft to which a mine fan is connected. B.S. 3618, 1963, sec. 2. b. The spindle on which a fan is mounted, B.S. 3618, 1963, sec. 2.

fan structure. An arrangement of closely spaced shafts such as the axial planes of the folds dip on each side of a mountain range, or the central axial plane of the range itself, so that the whole has a structure, in cross section, resembling that of an open fan held upright. Fay.


fan total pressure. The algebraic sum of the static pressure and the fan velocity pressure. B.S. 3618, 1963, sec. 2.

fan test. A fan test comprises observations of air quantity, air pressure, and power, while the fan is running at a known constant speed. Roberts, 1, p. 205.

fanning.应用了电力的歌剧和灾难。A.C.1. b. A kind of seismic test; a fan test.

fan efficiency. See overall ventilation efficiency. Thermodin. f.
farsudinite

fatigue life


fascite. a. Fr. A fagot; a bunch of twigs and small branches used for forming foundations on soft ground. Fay. b. Bunches of branches and twigs laid on bad roads. von Berneitz.


fashioned gem stone. One which has been cut and polished. See also fashioning (of gems). Shipley.

fashioning of gems. Includes sitting, clearing, cutting, polishing, and other operations employed in preparing rough gem material for use in jewelry; also the determination of the proportions. Shipley.

Fashoda garnet. Dark-red garnet from Tanganyika, Africa.

Fashoda ruby. a. Rich, high-gem II. b. Ruby of the same name; same as Fashoda garnet. Shipley, b. In the trade, refers to any red garnet. Shipley.

fashilitkite. A gray variety of riebeckite.-agurite garnet containing calcite and zircon from Ampasibitika, Malagasy Republic. Holmes, 1928.

fasil. German name for fusain. 7 omfussil.

fasin. a. Fr. A fagot; a bunch of twigs and branches used for forming foundations on soft ground. Fay. b. Bunches of branches and twigs laid on bad roads. von Berneitz.


fast break. In magnetic-particle inspection, an interruption of the current flowing in the magnetic-coil system that causes the collapsing field to induce eddy currents and strong magnetization in the test part. ASM Gloss.

fast breeder reactor. A nuclear reactor that operates with reactors that have a higher fissile content than that which can be sustained prior to failure for a stated test condition. ASME Gloss.
fatigue limit

fatigue limit. The maximum stress below which a material can presumably endure as determined by repeated stress cycles up to a given number of cycles. If the stress is not completely reversed, the value of the mean stress, the minimum stress, or the stress ratio should be stated. ASM Gloss.

fatigue of metals. A deterioration in the crystalline structure and strength of metals due to repeated stresses above a certain critical value. See also anisotropy. Nelson.

fatigue rate. The speed at which a metal will withstand indefinitely. When the maximum stress in tension equals that in compression, the fatigue rate is twice the fatigue limit. The mean stress, or half the range, must be stated to define the fatigue conditions. Hm.

fatigue ratio. The ratio of the fatigue limit for cycles of reversed flexural stress to the tensile strength. ASM Gloss.

fatigue strength. See endurance limit. Ro.

fatigue strength reduction factor. An earlier percussive method. A mixture of pipe clay and linseed fat. A test made on a material to test for fatigue. A test made on a material to determine the fatigue strength of a material. See also closed fault; dip fault; dip-slip fault; distributive fault; low fault; gravity fault; heave fault; hinge fault; horizontal fault; longitudinal fault; normal fault; oblique fault; oblique-slip fault; open fault; overlap fault; overthrust fault; parallel-displacement fault; pivotal fault; reverse fault; rotary fault; strike-slip fault; thrust fault; transitional fault; translation fault; underthrust fault; vertical fault. See cement and lime hydrate that yields a plastic putty to hydraulic lime; it is also used to denote a white lime (quick or hydrated) and the term for factor of stress concentration in tributary fault; flaw fault; gravity fault; closed fault; dip fault; dip-slip fault; displacement. A.C.G.I. d. Eng. A dislocation or plane or zone of fracture in which one side is moved relative to the other by a fault. Schieferdecker.

fault. A term for stress concentration in tributary fault; flaw fault; gravity fault; closed fault; dip fault; dip-slip fault; displacement. A.C.G.I. d. Eng. A dislocation or plane or zone of fracture in which one side is moved relative to the other by a fault. Schieferdecker.


fault breccia. A. The assembly of broken fragments of rock thrown against each other. Schieferdecker. c. See breccia; gouge; leather bed. Nelson.

fault bundle. A faulting. It is surrounded by rocks of the same age. A.G.I. Synonymous with block mountain. A.G.I.


fault deflection. A deviation in the course of a fault caused by its interception by another fault. Schieferdecker.

fault dip. The vertical inclination of a fault plane, or a shear zone, measured from the horizontal plane. Fa.

fault drag. Distortion of the bedding which may occur in the vicinity of a fault plane. B.S. 3618, 1964, sect. 5.

fault escarpment. See fault scarp. A.G.I.

fault fissure. The fissure produced by a fault, which it may be filled afterward by a deposit of minerals. Fay.

fault fold. A fold accompanied by steep faults that are parallel to the fold and are contemporaneous with the folding. A.G.I.

fault gap. A depression between the offset ends of a ridge developed on a resistant rock layer that has been displaced by a transverse fault. Stokes and Varnes, 1955.

fault gouge. Finely ground or powdered material filling, or partly filling, a fault zone. It is sometimes a slippery mud, which coats the surfaces of the fracture or cements the breccia. Stokes and Varnes, 1955.

fault groove. One of the undulations deeper than fault scarp but similarly formed. They record larger movements and have greater significance as indicating the direction of movement. Stokes and Varnes, 1955.

fault groove. Fault development by counterclockwise slippages along the fault plane. See also growth of faults. Nelson.

fault inlier. An isolated exposure of the overridden rock in a region of thrust faulting. It is surrounded by rocks of the same age. A.G.I.
fault inler

overriding block and is thus separated from other surface exposures of rock like it. A low-angle fault is also called a step fault; a fault with a vertical displacement is called a vertical fault; a fault that lies in a surface of reference is called a fault in an \textit{a}.

fault line. A plane along which a fault has occurred. See also fault line; a. A continuation of the land surface, or of the shore zone, with a horizontal trace; fault line; fault trend. Fay. b. The cliff formed by a fault. Most fault lines are approximately parallel to the fault plane. Nelson. See also fault line.; fault trend.

c. An escarpment that coincides more or less with the fault trace; a fault scarp. A.G.I. b. The cliff formed by a fault. Most fault lines are approximately parallel to the fault plane. Nelson. See also fault line.; fault trend.

fault surface. The surface of a fracture along which dislocation has taken place, and if without appreciable curvature, it is called a fault plane. Nelson. Compare fault plane.

fault system. a. A system of parallel or nearly parallel faults. Schieferdecker. It consists of one or more fault sets that were formed at the same time. A.G.I. b. A terrace formed by two parallel fault scarps which are separated by a narrow belt of downthrown weak rock. A.G.I. c. A terrace on a slope resulting from step faulting in which the terrace is systematically on the same side of several parallel faults. Billings, 1954, p. 196.

fault throw. The amount of vertical displacement of the rocks due to faulting. The most important faulting feature from the mining aspect. Nelson.

fault trace. a. The line of intersection of a fault plane with the earth's surface. Compare fault line; fault trend. Fay. b. The intersection of a fault and the earth's surface, as indicated by the dislocation of fences, roads, etc., by ridges and furrows in the ground, by diagonal ruptures of the surfce, etc. A.G.I.

fault trap. A trap, the closure of which results from the presence of one or more faults. A.G.I.

fault trellis drainage pattern. A trellis pattern found where a series of parallel faults have brought to the surface rock of resistant and weak rock. A.G.I.

fault trench. A term used by geologists in certain areas to describe a fault block that has had a separation of at least 500 feet. Fay.

fault trough. A term used by geologists in certain areas to describe a fault block that has had a separation of at least 500 feet. Fay.

fault zone. a. A fault, instead of being a single clean fracture, may be a zone hundreds or thousands of feet wide. The fault zone consists of numerous interlocking small faults or a confused zone of gouge, breccia, or mylonite. Billsing, 1954, p. 155. A.G.I. b. It is used also to include fault zones in general, such as a cleavage crack, cloud, or fracture. Shiple.

fault zone structure (of stones). Irregularities of crystallization; also sub-sequent brecciation or separation between the atomic planes, such as a cleavage crack, cloud, or fracture. Shiple.

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Faust jig

416

faust jed

discharged periodically by the operator by means of suitable hand valves operated from the working floor. This jig is used extensively on small sizes of bituminous coal. Mitchell, pp. 422-423.

fauvelle. A system of drilling, that was invented in 1846 by an Englishman, Bears, and a French engineer, Fauvelle, providing for the continuous removal of the cuttings from the well by means of a water flush current of water. All the water-flush system now in use are modifications of the Fauvelle system, which has long ceased to be employed in its original form. Fay.

faves. Braz. In the diamond fields, brown pebbles, consisting of a hydrated phosphorite, or of titanium and zirconium oxides, and regarded as good indications of the possible presence of diamonds. Fay.

fay. A silicate of iron, FeSiO₃, belonging to the phlogopite group; orthoboric.

Dana 17. fayence. See faience.
fayote. See lying surface.

fayottine. The surface of a piece of metal (or a member) in contact with which a grinding plane may be bent. G.S.A. Mem. 6, 1938, p. 89.
fayulite. A silicate of iron, Fe₂SiO₄, belonging to the phlogopite group; orthoboric.

Dana 17.
fayyance. See faiance.
fayyote. See fayottine.
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Dana 17.

 FCC (diamond) lattice. A unit cell in which there is one atom at each corner of the cell, one in the face center of each face, and four interior atoms disposed along opposing diagonals each a distance of a/√2 from the top and bottom respectively. Neuman, p. 177.


feedability studies. In mineral processing, amenability tests. Pryor, 3.

feedable ground. Ground that can be worked, and yet will stand without the support of timber and boards. Fay.

feather a. To blend the edge of a new material smoothly into the old surface. Nicoll 2. b. A slightly projecting narrow rib lengthwise on a shaft, arranged to catch into a corresponding groove in any part of the core or other part, such as the edges of the face, and four interior atoms disposed along opposing diagonals each a distance of a/√2 from the top and bottom respectively. Neuman, p. 177.


feed; fey. Shrop. Workable materials, usually ironstone. Arkell.

federal mine inspector. See mine inspector. fee. a. Mid. To load the coal, from a heading into cars. Fay. b. Property, as mineral land. Fay.

feed. a. Forward motion imparted to the cutters or drills of rock-drilling machinery, either hand or automatic. Fay. b. In stoncutting, sand and water employed to assist the saw blade in cutting. Fay. c. The longitudinal movements imparted to a drill stem to cause the bit to cut and penetrate the formations being drilled. Lang. d. The distance a drill stem on a diamond drill may be advanced into the rock before the rocks must be rechucked; for example, a driller may say a drill is equipped with an 18-inch feed, meaning that the bit may be made to drill a maximum distance of 18 inches each time the drill stem is chucked-up in the drive rod of the rivet head.

federal mine inspector. See mine inspector.

feedback. In automatic control of a process, control of an earlier stage by means of variance registered at a later stage. Pryor, 3.

feedback control system. A control system, comprising one or more feedback control loops, which combines functions of the controlled signals with functions of the commands to tend to maintain prescribed relationships between the commands and the controlled signals. ARCS, 11-1957.

feed boot. A small surge hopper mounted at the input end of some machines to supply a uniform and consistent feed of material. See also feeder; plate feeders. Nelson.

feed check valve. A nonreturn valve in the delivery pipe between feedwater pump and boiler, C.T.D.

feed control. System of valves or other mechanical device controlling the rate at which longitudinal movements are imparted to the diamond- or rock-drill stem machine. Lang.

feed control valve. A small valve, usually a needle valve, installed in the outlet of the hydraulic-feed cylinder on the swivel head of a diamond drill used to control minutely the rate of the hydraulic piston travel and, hence the rate at which the bit is made to penetrate the rock being drilled. Also called differential controlling valve.

feed cylinder. A hydraulic cylinder and piston mechanism, such as that on a diamond-drill swivel head to impart longitudinal movements to the drive rod and chuck to which the drilling stem is attached. Also
**feed cylinder**

called hydraulic cylinder. Long. 

**feed-and-blocks.** In rotary kiln, special fire clay shapes or rotary kiln blocks so installed as to reduce the kiln diameter. Bul. C16-62-66.

**feeder.** a. Very small fissures or cracks through which methane escapes from the coal. Kentucky, p. 70. b. A small stream of gas escaping from a coal crevice. Korson, c. Any flow of water or gas entering a mine. B.S. 3618, 1963, sec. 4. d. A small vein carrying ore running into a larger one. Also called leads. Gordon. c. A conveyor or hunker structure for delivering coal or other broken material to a controllable rate. See also feeder conveyor; plate feeders. Nelson. f. A cable of high current carrying capacity which connects power stations to substations. Nelson. g. A flow of water from the strata of high current carrying capacity which connects power stations to substations. Gibson, Bureau of Mines Staff. i. A spring or a stream. Fay, m. A mechanical device for supplying and delivering gobs of glass to a forming unit. A.MMAH4-1958. j. A blower of gas, as in a coal mine. Fay. k. Synonymous with feeder vein. Bureau of Mines Staff. l. A spring or a stream. Fay. 

**feeder chainman.** See car-haul man. D.O.T. 

**feeder gate; feeder plug.** A shaped refractory used to adjust the rate of flow of molten glass in the feeder channel. Dodd. 

**feeder head.** See hot top. C.D. 

**feeder nose.** See feeder spout. Dodd. 

**feeder opening.** See feeder connection. A.MMAH4-1958. 

**feeder plug.** See feeder gate. Dodd. 

**feeder process.** See gob process. A.MMAH4-1958. 

**feeder sleeve; feeder tube.** A cylindrical tube that surrounds the feeder plunger in a glass forming machine. Dodd. 

**feeder spout; feeder nose.** The part of the feeder in a glass tank furnace containing an opening in which the orifice ring is inserted; it forms the end of the forehearth. Dodd.

**feeder trough.** In a downhill, the trough which is attached to the conveyor pan line and serves as a base on which the feeder trough rides. Jones.

**feed pipe.** See feeder sleeve. Dodd. 

**feeder vein.** A small vein joining a larger vein. Fay.

**feed gear; feed gears.** The gearing or a- 

**feed grinding.** See crossfeed grinding; downfeed; indexfeed. A.C.S.G., 1963. 

**feed head.** Synonym for swivel head. Long. 

**feed head.** Synonym for swivel head. Long.

**feed grinding.** See crossfeed grinding; downfeed; indexfeed. A.C.S.G., 1963.

**feeding rod.** Pryor, 3.

**feed plpe.** A main line pipe; one which carries a supply directly to the point of use, or to secondary lines. Crittin.

**feed pressure.** a. Total weight or pressure, expressed in pounds or tons, to be applied to drilling machines and the drill bit cut and penetrate the formation being drilled. Long. b. Pressure, expressed in pounds per square inch, required to force glass into a rock formation. Compare injection pressure. Long. c. Pressure, expressed in pounds per square inch (psi), required to force-feed water into a steam boiler. Long.

**feed pump.** The pump which provides a steam boiler with feedwater. Nelson.

**feed quill.** Synonym for feed nut; sometimes improperly used as a synonym for feed screw. Long.

**feed rate.** Rate at which a drilling bit is advanced into or penetrates the rock formation being drilled expressed in inches per minute, inch per bit revolution, number of bit revolutions per inch of advance, or feet per hour. Also called cutting rate; cutting speed; forward speed; penetration feed; penetration rate. Long.

**feed ratio.** The number of revolutions a drill stem and bit must turn to advance the drill bit 1 inch when the stem is attached to and rotated by a screw- or gear-feed-type drill swivel head with a particular pair of the set of gears engaged. Example: A screw-feed swivel head of a diamond drill equipped with three pairs of gears, having a feed ratio of 100:100, 200:200, and 400:400, is operated with the 100:100 pair engaged, the drill stem must revolve 100 times to advance the bit 1 inch, if the 200:200 pair is engaged, the drill stem rotates 200 times per inch advanced, and if the 400:400 pair is engaged, the stem must rotate 400 times to advance the bit 1 inch. Long.

**feed regulator; feeder.** A mechanical device for controlling the rate of supply of feed. B.S. 3552, 1962.

**feed screw.** The externally threaded drill rod drive rod in a screw- or gear-feed (swivel) head on a diamond drill, sometimes incorrectly called a feed quill or feed spindle. Long.

**feed shaft.** a. A short shaft or countershaft in a diamond-drill gear-feed swivel head rotated by the drill motor 'through gears or an fractional drive and by means of which the engaged pair of feed gears is driven. Long. b. See fire pillow. Dodd.

**feed speed.** Normally used by drillers to note feed ratios. See also feed ratio. Long.

**feed spindle.** Synonym for feed shaft; sometimes incorrectly used as a synonym for drive rod and/or feed screw. Long.

**feed travel.** The distance a drilling machine moves the steel shank in traveling from top to bottom of its feeding range. Nickils.

**feedwater.** Water which is often purified, heated to nearly boiler temperature, and aerated before being pumped into a steam boiler by the feed pump. Nelson.

**feedwater heater.** An apparatus for heating water before it is fed to a boiler. Standard, 1946.

**feed wheel.** See regulating wheel. A.C.S.G., 1963.

**feed engineer.** One who (usually a mining engineer) looks after the interest of the owner of mineral rights. His specific duties are to check the amount of coal mined by the lessor (operator); see that no undue waste is permitted, and that royalties are paid according to contract. Fay.

**feel.** a. S. Staff. To examine the roof of a seam of coal with a stick or rod by poking, pushing, and knocking. This type of listening to the action of the engine and pump and occasionally feeling the intensity and nature of the drilling string to determine or judge how efficiently
feldspar. A constituent of portland cement or a felsic rock; granitic rock. A.G.I.

cryptocrystalline. Rocks of igneous origin, which are not glassy but are commonly, a quartz porphyry. A.G.I. c. Field term for any fine-grained acid igneous rock whose exact composition has not been determined. 

field. A textural term applied to the groundmass of porphyries having a felsic texture, which are not glassy but are too fine-grained for the mineral constituents to be determined with the microscope. In this sense, it is synonymous with cryptocrystalline. 

feldspar. A very compact and uniform kind of feldspar rock with or without phenocrysts. A.G.I.

crystalline. In this sense, it is synonymous with cryptocrystalline. It is pre-eminentively characteristic of lofty mountain slopes. A.G.I. b. Any consid-
erable area, usually fairly level or of only gentle slope, which is covered with mod-
erate size; or large blocks of rock. Synom-

feldspar. A contraction of felsite porphyry. A.G.I. c. Field term proposed by Vogel, and applied to porphyries having a felsic or cryptocrystalline groundmass. A.G.I.

cryptocrystalline. A textural term applied to felsic igneous rocks consisting of tightly packed microlites or crystals. A.G.I.

felits. A semantic adjective derived from (fe) for feldspar, (1) for lenads or felds-
par, and (s) for silica and applied to light-colored rocks containing an abun-

feldspatic. From felspar; felsitic or a cryptocrystalline groundmass. A.G.I.

feldspar-type washbox. A washbox to clean feldspar sunstone. Sunstone. Schaller.

feldspathic. A textural term ordinarily applied to igneous rocks; hence, a textural term proposed by Fellenius in 1927. Ham.

feldspathize. To introduce feldspars into a rock, or to replace other rock-forming minerals with feldspars. A.G.I.

feldspathoids, felsitic. A mnemonic adjective derived from feldspar, interwoven in irregular, unoriented masses of many andesites and trachytes, the crowded micro-

feldspar. A contraction of felsite porphyry. A.G.I. c. Field term proposed by 

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fem. A mnemonic adjective derived from (Fe) for iron and (m) for magnesium. Applied to the group of standard normative minerals in which these elements are an essential component, including the pyroxene and olivine molecules and most of the normative accessory minerals (magnetite, ilmenite, and hematite). The corresponding mnemonic adjective for the ferromagnesians minerals actually present in a rock make A.G.I.

feminal. Refers to rubies of a pale tine. feminine. Refers to rubies of a pale tine.

femmer. Fragile, weak, or slender as in the fenaksite. A pale-rose monoclinic silicate of pyroxene and olivine molecules and most Long.

fence diagram. Three or more geologic sections showing the relationship of wells to surface features. The scale differs in distance from the foresound to give proper perspective. When several areas are used together, they form a fenetic enclosure, hence the name. Similar in some respect to a block diagram, but it has the advantage of transparency which is not present in a block diagram. A.G.I.

fence guards. S. Staff. Rails fixed around the shaft, or across the shaft at a landing to keep people and objects from falling in. Fay.

fence. A coincident of the high grader who generally sells or disposes of the stolen high-grade ore and whose work is rarely sent his metal to the mint without committing himself, and will not or not ordinarily go to the mint unless there is some market for the stolen mate-

r. brook. Lang.

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ferrariite. A pinkish-white to white hydro-

fluorosilicate and phosphate of calcium and strontium, consisting of a mixture of the

eutonic analogue of apatite, 3(Ca,Sr)F3-

(AsO4)2(Ca(OH)F)2. Crystaline mastic. Hexagonal. From Sitarap, India. English.

fenestral. A dull green hydroxal

calcium vanadyl vanadate. CaO.V2O5.5V2O5.

fenestration. The process of decomposition of carbohyrdates with the evolusion of carbon dioxide or the formation of acid, both are.

ferrom. A synthetic radioactive element with atomic number 100 that was discovered in the debris from the 1952 hydro-

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ferromagnetism. It ensures that the

case of a thin, soft roof bed over a

Ferrarite table

b. A variety of shonkinite or dark nephe-

line syenite containing a laue-phase-Na-

line pseudomorphs after leucite; named for Fergus County, Mont., Hoimes, 1922.

ferrous. An oxide or hydroxide of ferro-

niobium, and tantalum, (Y,Er)(Nb,Ta)4

O10; sometimes containing small amounts of other rare earths, such as samari-

bium, thorium, iron, and tita-

nium. Found in pegmatites. Color gray, brown, or black; luster, dull to vitreous; streak, brown or gray; Mohs hardness

12.5 to 6.5; specific gravity, 5.6 to 5.8. Found in North Carolina, South Carolina, Virginia, Texas, Norway, Sweden, and Africa. A rare-earth mineral. CCD 6d, 1961.

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Ferraris table

420

Ferritic stainless steels

and ferric iron; Na₂Fe(SO₄)₃·3H₂O; grayish-brown, whitish-gray color; brittle; splinter fracture; luster, vitreous. Found in Atacama Desert, Chile. Formerly called ferrous sulfate, but now it is classified as the mineral to which that name applies is a ferric, not a ferrous sulfate. Dana 7, v. 2, p. 450-457; English.


depend on the properties of the host matrix. Ferrispinelites are not hardenable by heat treatment, and their magnetic properties are those of trivalent iron.

ferrispinelles. A collective name for minerals of the magnetite series, ferrous ferrichrome, and various mixed oxides of iron, manganese, etc., which might be called ferrimagnetic ceramics, as they are made by firing, as with pottery. Thus produced they have special insulating properties, which are unattainable by ordinary ceramic techniques.

ferrite. A variety of common trap rock or diabase.

ferrimagnetic material. A material which macroscopically has properties similar to those of a ferromagnetic material, but which microscopically also resembles an antiferromagnetic material in that some of the elementary magnetic moments are aligned antiparallel. If the moments are of different magnitudes, the material may still have large residual magnetization.

ferrimagnetism. Unbalanced orientation of magnetic moments intermediate between ferromagnetism and antiferromagnetism.

ferrilimite, ferrilimite. A modified variety of ferrite in which X is mainly ferric iron or magnesium. Spencer 15, M.M., 1940.

ferric oxide; ferric oxides, red; iron oxide; hematite; red hematite; red iron ore; rouge. Dense; brown to black; brown; reddish-brown; reddish-brown; gray; yellow; luster, silky to earthy, usually occurring as small crystals. Found in New Mexico, Arizona, California, Nevada, and Pennsylvania. CCD 6d, 1961.

ferrinatrite. A hydrated sulfate of sodium and ferric iron, Na₂Fe(SO₄)₃·3H₂O; grayish-brown, whitish-gray color; brittle; splinter fracture; luster, vitreous. Found in Atacama Desert, Chile. Formerly called ferrous sulfate, but now it is classified as the mineral to which that name applies is a ferric, not a ferrous sulfate. Dana 7, v. 2, p. 450-457; English.


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ferrite. A pure, or nearly pure, metallic iron, as a crystalline constituent of manufactured iron and steel. English. Native iron, such as the terrestrial iron from Dido lydite of iron, Fe₂(MoO₄)·18H₂O; color, yellow; luster, glassy; transparent. German. Ferrites, ferrites.

ferrite. A member of a group of elements that are related to iron. The group includes chromium, manganese, nickel, and several vanadium, besides iron. A.G.I.


ferrispinelike. A variety of common trap rock or diabase. Fay.

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ferrite stainless steels

the martensite and the austenite alloys. Since these steels do not exhibit unusually high mechanical properties, they are used in applications where the best combined, 45% of mechanical properties and oxidation or corrosion resistance is desired.

Henderson, p. 378.

ferritization. The metasomatic alteration of other minerals into ferrite. Fay.

dere. See ferrite spinels.

dere. A pale yellowish to brownish-yellow hydrous tungstate of ferric iron, Fe₂O₉·2H₂O. Microscopic hexagonal plates; ocherous. Hexagonal. Deer Trail district, Washington. English. The original material from the Deer Trail district contained jasomite intimately mixed with the ferrogabbro, both minerals being very fine grained. New data obtained on ferri-
tungstite from Mineral County, Nevada, show that it is tetragonal, distinctly anhydrous, with the formula CaFe₆O₁₀·8H₂O. American Mineralogist, v. 45, No. 1-2, January-February 1967, p. 83.

ferrititquestone. A variety of crystallized tur-

ferro-, A combining form, denoting (1) deriv-
ition from iron or a composition contain-
ing iron and (2) specifically, the presence of iron in the ferrous condition.

ferroactinolite. A hypothetical molecule, Na₂Ca₂Fe₂Si₅O₁₉·6H₂O. Crystals and their composition containin-
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ferrochrome. An alloy of iron and chromium.


ferroconcrete. A term which is being replaced by concrete.

ferrocement. See ferricoplate. Spencer 15, M.M., 1940.

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ferrocement. See ferricoplate. Spencer 15, M.M., 1940.

ferrochrome. An alloy of iron and chromium.

ferrocement. See ferricoplate. Spencer 15, M.M., 1940.
ferrotschermakite. A hypothetical molecule, CaFe2"Fe"3+Al2SiO4(OH)2, to explain the composition of aluminum schists. See also thschermakite. Spencer 17, M.M., 1946.

ferrugineous. A ferroalloy containing steel as the special additive. Bureau of Mines Staff.

ferrous, a. Designation for iron salts in which the iron is bivalent; for example, ferrous chloride (FeCl2). Bennett 24, 1962, b. Of, pertaining to, or containing iron in the bivalent state. Standard, 1964.

ferrous alloying elements. The various elements used for alloying with steel are: nickel, manganese, vanadium, silicon, zirconium, chromium, tungsten, molybde- num, beryllium, copper, titanium, aluminum, and uranium. Camm.

ferrous ammonium sulfate; iron-ammonium sulfates; Mohr's salt. Light green; monoclinic; FeSO4.7H2O; decomposes at 130° to 110° C; soluble in water; insoluble in alcohol; and specific gravity, 1.864 (at 20° C), referred to water at 4° C. Used in metallurgy. CCD 6d, 1961: Handbook of Chemistry and Physics, 45th ed., 1964, p. B-150.

ferrous fluoride octahydrate; iron fluoride octahydrate. Green crystal; FeF2.8H2O; loses 6H2O at 90° C and 7H2O at 100° C; soluble in acids; slightly soluble in water; soluble in hydrofluoric acid; insoluble in alcohol and in ether; and specific gravity, anhydrous, 4.09. Used in ceramics. CCD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-182.

ferrous metal. A metal with iron as its major constituent; relatively heavy, usually magnetic, and in most of its forms, quite strong. See also nonferrous metal. Newton.


ferrous mineral. Any mineral having a considerable portion of iron in its composition. Skilley.

ferrous oxide. This lower oxide, FeO, tends to be formed under reducing conditions; it will react with SiO2 to produce a material melting at about 1,200° C, hence the fluxing action of ferrous impurities present in some clays if the latter are fired under reducing conditions. Melt- ing point, 1,420° C; specific gravity, 5.7. Dodd.

ferrous sulfate heptahydrate; iron sulfate heptahydrate; copperas; green copperas; melanterrite. Green; monoclinic; FeSO4.7H2O; often brownish yellow from oxidation and efflorescence; soluble in water; slightly soluble in alcohol; specific gravity, 1.89; and it loses 6H2O at 90° C and 7H2O at 100° C. Used in metallurgy in producing electric sulfuric acid; in precipitati- ng gold from cyanide solutions; and in etch- ing aluminum. CCD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-183. Used in water purification and in Frenkel 24, 1962.

ferrous sulfide; iron sulfide; iron monosulfide; iron sulfuret. Dark green; metallic, or grayish- green; FeS; soluble in acids; insoluble in water; specific gravity, 4.75 to 5.40; and melts at 1,190° C. The manufactured sulfide is used for generating hydrogen sulfide; in ceramics; and in making ferro- vanadium. Alloy used in shock-resistant car steels. Prior, 3.

ferrus. A mixture of about 90 percent dry hydrated iron oxide and 10 percent Portland cement used for desulfurizing producer gas or other gas. The mixture must be so granulated so that the gas will pass through a mass of it. Hess.

ferrox. A sintered oxide consisting mainly of the oxide Fe2O3, and used for the production of permanent magnets. Osborne.


ferrous. a. Containing iron; Synonym for ferrous for ferriferous. Fay. b. Descriptive of rocks having a red color but not necessarily an abnormally high iron content. A.G.I. Supp.

ferrous clays. A secondary deposit consisting of chalcedony or of fine-grained quartz and variable amounts of hematite, maghemite, or limonite. USGS Monograph 19, 1892, p. 239.

ferrous deposit. A sedimentary rock containing enough iron to justify exploitation as iron ore. The iron is present in different cases as carbonate, oxide, or oxide form, occurring as the minerals chamosite, thuringite, siderite, hematite, limonite, etc. The ferrous material may have formed contemporaneously with the accompanying sediment, if any, or it may have been introduced later. C.T.D.


ferrous rocks. Rocks of this group are usually carbonate of iron which has partially or wholly replaced limestone. Ma- ton, V.I., p. 13.

ferrous sandstone. A sandstone rich in iron as the cementing material or as grain, or both. Fay.

ferrous schist. A schistose rock notably high in iron. See also basic schist; iaspilite; schist; taconite. A.G.I.

ferrousite. a. A metal ring or cap on the end of a cane, handle of a tool, post, or the like, to strengthen or protect it. Standard, 1964, b. A bushing or thimble in- stered in the end of a roller rule or the like, to spread it and make it a tight joint. Standard, 1964, c. A short pin coupling. Standard, 1964, d. As used by drillers in Africa and the United States, a synonym for case; casing. Long.

ferramsite. See ferramsnite.

ferramsnite. A brown titanium-bearing silicate, monoclinic, Ca0.9Na0.1Ti6O17, Dana 17, pp. 413, 501.

ferramsnite. A brown, titanium-bearing silicate, monoclinic, Ca0.9Na0.1Ti6O17, Dana 17, pp. 413, 501.

Ferramsite. Parallel orientation of fold- sparr prism edges with the edge between two adjacent rhomboidal planes of quartz in graphic granite so that the c axis of the quartz forms an angle of 42° 16' with the c axis of the feldspar. Hess.


ferrastonite. See ferramsnite.


Ferry radiation pyrometer. An instrument in which the heat radiated from the hot body is focused, by means of a concave mirror, on to a small central hole behind which a small thermocouple is placed in front of two small, inclined, mirrors. The instrument is focused on the hot body and focused by rotating a screw until the lower and upper halves of the image co- incide; the temperature of the thermocouple is indicated on a galvanometer. The instrument, once focused, gives continuous readings and must be connected to a recording indicator. Osborne.

fessing. Type of cross lamination resulting from 1. the erosion of plunging troughs having the shape of a quadrant of an elongated ellipsoid, 2. the filling of small troughs by sets of thin laminae forming in general to the shape of the trough floor, and (3) the partial destruction of the laminae by subsequent erosion, producing younger troughs. A.G.I.

festoon bedding. Crossbedding tangential to the lower stratification plane and truncat- ed at the top, with a curved upper surface giving a wedge-shaped appearance. Ballard.

festoon crossbedding. See festoon cross lamination. Pettijohn.


festedite. pale brown, or other colors, which are convex in the direction of the wind and concave in the direction of the wind, both convex. Pettijohn. b. Crossbedding deposited in a concave surface. Pettijohn.


fettitate. A carbonaceous substance which is weakly radioactive. Fay. b. Having a disagreeable odor caused by the occurrence of certain bituminous substances or of hydrogen sul- fide. This odor is apparent when some varieties of limestone and quartz are broken or are rubbed vigorously. A.G.I. Supp.


fettersand. See fettkohle. Fay.

fettle. a. To cover or line the hearth of (a reverberatory furnace) with fettling. Web- ster 3d. b. To clean and smooth (as a metal or plastic) after casting or molding. Webster 3d. c. To remove fins, mold marks, and rough edges from dry, or green, castings. Webster 3d.
fetter. One who removes excess dried glaze from dipped tile with sandpaper and knife. See also fettler.
fettling. a. N. of Eng. Cleaning up any under- ground roadway, etc. Fay. b. Protecting the surface of a ceramic article in recharging the furnace. Dodd. f. Finishing the surface of a ceramic article in dry or green condition, by scraping, polishing, buffing, etc.; also, the material so used. !fender-scraping. Dodd.
fiber. A longitudinal element or texture or texture is fibrous. The fibers may be continuous or discontinuous. As contrasted with porous, reticular, or network structures. Chemical and physical properties. C.M.D.
fiber glass. A continuous filament glass fiber of relatively short length. A staple fiber is a glass fiber of relatively short length (generally less than 17 inches). ASTM C162-66. c. Ceramic fibers are made from a batch consisting of alumina and silica (separate or already combined as kaolin and kyanite) together with a boronrich flux; zirconia may also be present. Other types of ceramic fiber are made from fused silica and from potassium titanate. These fibers are used in the production of lightweight units for thermal, electrical, and sound insulation; they have also been used for high-temperature filtration and packing, and for the reinforcement of other ceramic materials. Dodd.
fiber rope. hemp rope; Manila rope. A rope made from vegetable fiber such as common hemp, jute, or jute. The rope is nonkinking and therefore is sometimes used for hoisting in prospecting windlass. Neill.
fiber stress. A term used for convenience to denote the longitudinal tensile or compressive stress in a beam or other member subject to bending. It is sometimes used to denote this stress at the point or points most distant from the neutral axis, but the term stress in extreme fiber is preferable for this purpose. Also, for convenience, the stress in thin cross-sectional elements of a member which may be imagined as composed of called fibers. Ro.
fibroferrite. A mineral with a probable composition of iron oxide (Fe3O4). SiO2 for fully hydrated material. It occurs as fine-fibrous crusts and masses. Color, pale yellow or straw-yellow to nearly white; also greenish-gray and yellowish-green to pale green. Dana 7, p. 2, pp. 614-615.
fibrolite; sillimanite. One of three crystalline forms of aluminum silicate, Al2SiO5, the others being andalusite (low temperature) and kyanite (high temperature). Sillima- nite, occurs commonly as felted aggre- gates of exceedingly thin fibrous crystals, hence the name fibrolite, in contact metamor- phosed aluminous sediments such as mudstones, shales, etc. Crystals of a pale sapphire blue are used as gems. C.T.D.
fibrolith cat's-eye. A pale greenish fibrolite with fibrous inclusions which, when cut, produces a chatoyant effect but not a well-defined cat's-eye. Shipley.
fibrous asbestiform. Thin strands of asbesto- simon uranium occurring in nature. Depending on the composition, 
"CHs, that occurs in fossil wood. It is soluble in ether but not in alcohol. Tomkeieff, 1957.
fibrocalcites. a. Molded, or capable of being molded into the form of an art work or artifact. Webster 3d. b. A piece of fibrous material. Webster 3d. c. Made of earth or clay, or of pertaining to pottery. Standard, 1964. d. Said of all thrown, molded, molded, or carved clay work. C.T.D.
fibrocalcite. Transparent calcite composed of fibrous crystals, which, like fibrous gypsum, shows a silky sheen when cut cabochon, it produces a girasol or chatoyant effect, but not a true cat's-eye. Called like fibrous gypsum, it is called satin spar but less correctly. Shipley.
fidler's gear. Lifting tackle designed for laying heavy blocks at any angle, used in the building of quay or quay wall below water level. Ham.

fiducial interval. A measure of confidence in particular field measurements, usually given a numerical value of fiducial interval, the number of samples required from a given deposit to give an accurate measure of its value can be determined. Lewis, p. 350.

fiducial mark. a. An index line or point. A line or point used as a basis of reference. A.G.I. b. In photogrammetry, index marks rigidly connected with the camera lens through the camera body and forming images on the negative which defines the principal point of the photograph. A.G.I.

fiducial point. a. In surveying, accurately established reference point to which field measurements are tied. Pryor, 3. Triangulation point; bench mark.

fiducial time. A time on a seismograph record; bench mark. Pryor, 3.

file. A portion of land containing, yielding, or worked for a natural resource. For example, a coalfield, an oilfield, or a diamond field. Webster 3d. A large portion of area, as large as many square miles, containing valuable minerals. See also coalfield.

field ampere turns. The number of windings multiplied by the number of amperes flowing in an electric field. Pryor, 3.

fieldbook. A book used in surveying, engineering, geology, etc., in which are set down the angles, stations, distances, observations, etc.; the object field.

field capacity. The amount of water held in a soil by capillary action after gravitational water has percolated downward and drained off. Field capacity is expressed as the ratio of the weight of the soil retained to the weight of the dry soil. Stokes and Varnes, 1955.

field classification of rocks. A classification of rocks made in the field. It is based on features distinguishing single specimens by using a hand lens, a knife, an acid bottle, etc. The classification may be refined or modified by subsequent examination with a microscope or other techniques that are generally used in a laboratory. Stokes and Varnes, 1955.

field compaction trial. Tests carried out under site conditions to determine the best combination of (1) type of compaction plant; (2) thickness of loose soil layer; (3) number of passes; and (4) moisture content (where variation is possible) in order to achieve the highest possible soil densities. Nelson.

field drain. The more usual term applied to agricultural drain. Ham.

field drain pipe. An unglazed, fired clay pipe, generally 5 inches or 4 inches in diameter and about 1 foot long, for the drainage of fields; occasionally these pipes have a flattened base, or longitudinal ribs, to facilitate alignment during laying. Dodd.

field engineer. In petroleum production, one who directs civil, electrical, and mechanical engineering activities concerned with production and transmission of natural gas, gasoline, and oil, and with provision of utilities to gas field or in a pipeline system. D.O.T. 11.

field focus. The total area or volume which a fault is the source, the focus is the local fault surface, and is called the field because it is inferred, and not evidenced in the field. A.G.I.

field geology. a. The study of rocks and rock materials in their natural environment. B. Unconformities and contact relations to one another. Field geology seeks to interpret the surface features and their relationship to underground structures, and forms the basis of coal and mineral prospecting, particularly in regions where geological maps are not available. See also subsurface geology. Nelson. b. Points to practical work in the open field, as distinguished from the researches which may be carried on in the library or laboratory. Chalmers.

field ice. Synonym for sea ice. A.G.I.

field investigation. In reference to experimental mine tests, the investigation made at a mine when a test is taken or testing at the experimental mine, this investigation including the taking of road dust, rib dust, mine air, and standard coal samples, and the noting of conditions affecting the safety of the mine. Rice, George S.

fieldite. A zinciferous variety of tetrahedrite.

field launching. The project of laying down a field on a rest.

field-laboratory operator. One who analyzes mine water by chemical and coal coke tests by removing samples of water that flow to and from the precipitation drum, and who conducts routine chemical tests. D.O.T. Supp.

field map. A map made in the field and bearing observations of various kinds upon which the final map is based. Stokes and Varnes, 1955.

field moisture equivalent. The minimum water content expressed as a percentage of the weight of the oven-dried soil, at which a drop of water placed on a smoothed surface of the soil will not immediately be absorbed by the soil but will spread out over the surface and give it a shiny appearance. ACSE P126.

field moisture equivalent of soils. See moisture equivalent. Stokes and Varnes, 1955.

field of veins. An area traversed by numerous veins. Schieferdecker.

field-reversal hypothesis. The concept that the earth's magnetic field has been reversed periodically. A.G.I. Supp.

field reverse. See reverse. Ham.


field setting. A person skilled in the art of handling diamond bits, working at or near the site of one or more operating drills to set bits to be used. Long.

fieldwork. Work done, observations taken, or other operations, as triangulation, leveling, making geological observations, etc., in the field or upon the ground. Fay.

fiery. To split, as slate. Lewis.

fiery. Containing an explosive gas; said of a gaseous mine. Fay.

fiery dragon. Derb. Tonedstone, Arkell.

fiery heap. Eng. The deposit of rubbish and waste or unstable coal which ignites spontaneously. Fay.

fiery mine. a. A mine in which the seam or seams of coal being worked give a large amount of methane. Fay. b. One in which there is danger of explosion due to coal dust or flammable gas. Pryor, 3. c. A gassy mine; a mine where gas ignitions and outbursts have occurred in the past. Nelson.


fighting. Eng. Said of a ventilating current when the motion of the air is first in one direction and then in the other, varying rapidly. Eng. Said of a ventilating current when the motion of the air is first in one direction and then in the other, varying rapidly. Eng. Said of a ventilating current when the motion of the air is first in one direction and then in the other, varying rapidly.

fingertip. The art of picking up objects with the fingertips.

finger prints. See V-cuts. Skow.

figured glass. Flat glass having a pattern on one or both surfaces. ASTM C162-66.

figure stone. Agalmatolite. Webster 3d.

filament winding. a. A type of pahoehoe, the surface of which has a lacy or filamented appearance caused by the bending over and laying down of innumerable threads of lava produced by the escape of gas bubbles from the surface. Most of the threads have fallen back from the surface of the flow and are commonly aligned in the direction of flow. This is the characteristic type of pahoehoe surface, and generally it is superimposed on theropy, hummocky, or engravillie forms. USGS Bull. 394, 1958, p. 32.

filament winding. b. A type of pahoehoe, the surface of which has a lacy or filamented appearance caused by the bending over and laying down of innumerable threads of lava produced by the escape of gas bubbles from the surface. Most of the threads have fallen back from the surface of the flow and are commonly aligned in the direction of flow. This is the characteristic type of pahoehoe surface, and generally it is superimposed on theropy, hummocky, or engravillie forms. USGS Bull. 394, 1958, p. 32.
filament winding

is the technique of coating small filaments of materials, usually glass, with a resin media, and then winding and forming these into desired shapes by means of rollers. Mills used are operated to impart higher compression strengths and better corrosion resistance to the coating. The filament used is the "filamentary yarn". In the filar micrometer, its usual form consists of an ocular containing a fine wire which can be moved across the field by means of a thumbcrew for the purpose of measuring size.

file hardness. Hardness as determined by the use of a file on a standard hardness on the assumption that a material which cannot be cut with the file is as hard as, or harder than, the file. Covering a range of hardesses may be employed. ASTM Gloss.

film. a. Any sediment deposited by any agent.fill. b. A smokeless powder used in Italy. Web.

c. Delicate ornamental work, such as glass cobweb. filigree. a. Delicate ornamental work, used in jewelry, chiefly in decorating gold and silver. Cris.

d. Material used to fill a cavity or a passage. Fillet. A thin layer of a substance, at the inside meeting surfaces. ASM Gloss.

filed bitumen. Bitumen containing a filler, head, Iz stonework industry, a foreman who supervises a crew of workers engaged in sawing from blocks to see that they con.

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filler. a. Delicate ornamental work, used in jewelry, chiefly in decorating gold and silver. Cris.

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d. Material used to fill a cavity or a passage. Fillet. A thin layer of a substance, at the inside meeting surfaces. ASM Gloss.

filled valley. A valley in a wide basin in an area or a semiarid region containing abundant alluvium in the form of fans, flood plains, and lake deposits. A.G.I. Supp.

filled bitumen. Bitumen containing a filler, head, Iz stonework industry, a foreman who supervises a crew of workers engaged in sawing from blocks to see that they con.

file hardness. Hardness as determined by the use of a file on a standard hardness on the assumption that a material which cannot be cut with the file is as hard as, or harder than, the file. Covering a range of hardesses may be employed. ASTM Gloss.

film coefficient. The heat transferred by convection per unit area per degree temperature difference between the surface and the fluid. Also called unit convection conductance; surface coefficient. Strock, 1970.

film flotation. Early stage in development of modern flotation process for concentration of minerals, notably sulfides. The conditioning pulp with water in which oil which then floats up, carrying selected minerals. This mineralized film was then overflowed or skimmed off. Pryor, 3.

film factor. The approximate load the dipper actually is carrying and which is an indication of the percentage of the rated capacity. The film factor is commonly called the dipper factor or shovels' factor for draglines. Woodruff, v. 3, pp. 499-500.

filling. a. Eng. The places where trams are loaded in the workings. Fay. b. The waste material used to fill up old stopes or chambers. Weed, 1922. c. Allowing a mine to fill with water. Weed, 1922. d. The loading of tubs or trucks with coal, ore, or waste. C.T.D. f. Loading of mineral into mine trucks; shoveling onto conveyors; gob-stowing; pucking old stopes with waste. Pryor, 3. g. Clogging of the abrasive coat by swarf. It may be reduced by in many operations by using an open-coat construction or a lubricant. See also S.W.R. Aust.


filling-out. a. Adding, or the method of adding, material to fill underground space left after the ore has been extracted. See also hydraulic fill, Stagg, 1963.

filling point. The level up to which a glass bottle has the nominal capacity. ASTM C162-66.

filling system. See sublevel stoping, b. Fay.

filling-up method. See overhand stoping, b. Fay.

filler. a. Any sediment deposited by any agent that a material which

cannot be cut with the file is as hard as, or harder than, the file. Covering a range of hardesses may be employed. ASTM Gloss.

filler clay. A clay used in a crushed or ground state for purposes other than for the production of ceramic materials or products, and generally behaving as an inert ingredient. While such clays may sometimes change the properties of the product, they are themselves unchanged in compounding for use. Fille clay may or may not be white. See also rubber and paper clay. Each of which is a particular class of filler clay. ACSB-1.

filler-blown. Metal added in making a brazed, soldered, or welded joint. ASTM Gloss.

filler wires. Small wires in a strand for spacing larger wires and supporting them in position. Hem.

filler. a. A radius (curvature) imparted to inside meeting surfaces. ASTM Gloss. b. A concave cornerpiece used on foundry patterns. ASTM Gloss. c. The concave curved junction of two surfaces which would come together meet at an angle. Fill.

terns used are operated to impart higher compression strengths and better corrosion resistance to the coating. The filament used is the "filamentary yarn". In the filar micrometer, its usual form consists of an ocular containing a fine wire which can be moved across the field by means of a thumbcrew for the purpose of measuring size. Hiss.

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filler, head. In stonework industry, a foreman who supervises a crew of workers engaged in moving and preparing marble for cutting with gang saws. D.O.T. 1.

filler-clay. A clay used in a crushed or ground state for purposes other than for the production of ceramic materials or products, and generally behaving as an inert ingredient. While such clays may sometimes change the properties of the product, they are themselves unchanged in compounding for use. Fille clay may or may not be white. See also rubber and paper clay. Each of which is a particular class of filler clay. ACSB-1.

filler-foil. A metal added in making a brazed, soldered, or welded joint. ASTM Gloss.

filler wires. Small wires in a strand for spacing larger wires and supporting them in position. Hem.

filler. a. A radius (curvature) imparted to inside meeting surfaces. ASTM Gloss. b. A concave cornerpiece used on foundry patterns. ASTM Gloss. c. The concave curved junction of two surfaces which would come together meet at an angle. Fill.
film mica. Knife-trimmed mica split from the better qualities of block mica to any specified thickness between .0012 and .0005 inch. Skow.

film, monomolecular; film, unimolecular. Surface coating at interfaces between solid and fluid may be of film thickness and continuous over an appreciable area. Pryor, 3.

film sizing. Reverse classification. Sorting of mineral particles on such flatish surfaces as slices and shaking tables in accordance with the sizes of the particles, moved by a flowing film of water, which exercises transporting force proportional to the cross section exposed to flow. Pryor, 3.

film sizing tables. A table used in ore dressing for sorting fine material by means of a film of flowing water. These tables may be considered as surface tables, from which the products are removed before they have sunk, so that the washing is always done on the same surface; also building tables or biddles, on which the products are rectified after they have formed a bed. These use the relative transporting power of a film of water flowing on a quiet surface, which may vary either rough or smooth, to act upon the particles of a water-sorted product. The smaller grains, of high specific gravity and larger size, are moved down the slope or at all by the slow undercurrent; the larger grains, of lower specific gravity, are moved rapidly down the plane or in the thin upper current. Liddell 2d, p. 387.

film strength. The relative resistance of the buckling or mechanical damage. ASTM C290-65.


filter. a. A device for separating solids or suspended particles from liquids or fine dust from ventilating or cooling air. An electrical air filter can collect airborne contaminants ranging from about 60 to 1 micron in size. See also vacuum cleaner, Nielson, b. In ore treatment, separating device incorporating a separating membrane on which solids are retained. The membrane is intermittent in action, and has channeled plates covered by membranes, separated by spacing pieces, which fill as plates are anchored and filterate is drawn out, appliance being opened and emptied periodically. The drum filter is a horizontal drum rotated slowly through a semicircular tank in which pulp is kept stirred by reciprocating paddles. Vacuum applied to inside of drum draws filtrate through filter cloth at surface, leaving a cake which, after emergence and perhaps washing with spray, is scraped off on the drum by scraping blades. D.O.T.

filter aid. A low-density, inert, fibrous, or fine granular material used to increase the rate and efficiency of filtration. A-T-D.

filter bed. a. A pond or tank having a false bottom covered with sand, and serving to filter river or pond water. Fay, b. A filter of pervious soil that provides a site for a septic field. Nichols. c. A general name for a contact bed or any similar bed used for filtering purification of water. C-T-D.


filter cake texture. The physical properties of a cake as measured by toughness, stickiness, and brittleness. Brandly, 1.

filter cells, b. A combination of various materials designed and installed in such a manner as to provide drainage and prevent the carryover of soil particles by flowing water. Also called protective filter. ASCE P1826. d. A porous bed of sand or of other material that separates matter held in suspension, or dissolved impurities or coloring matter from a liquid or a gas that is passed through it. Web 3d, e. A verb, to subject to the action of a filter; to pass a liquid or a gas through a filter for the purpose of purifying the same. To act as a filter, to remove from a fluid by means of a filter, to percolate. Webster 3d. f. An electric device in seismic instruments that permits selection of frequency characteristics appropriate for the desired motion it is desired to record. G. J. g. In radiography, a device, usually a thin metallic layer, inserted into a beam of radiation so as to modify the transmitted spectrum of radiation. It may be used to enhance or reduce contrast, or to minimize undesirable fluctuations. ASM Glass, h. In compressors, cleaners for the intake air which should be free from dust and moisture. The simple screen can be made by building an intake box with panels of 3/8-inch mesh wire screen covered with oil cloth. One type, made of frames 20 x 20 inches and giving an effective opening 18 x 18 inches or 2x2 square feet of area, will retain many metallic particles with a viscous fluid. Each frame has a capacity of 800 cubic feet of air per minute. Liddell 2d, p. 483.

filter cleaner. A high-volume sampler using a plain or pleated fibrous filter of various materials and designed to collect particulate air is drawn through the instrument by a suction pump. In one instrument, the air is filtered continuously (at one of three selected rates), even when dust begins to clog the filter. Very high efficiencies can be attained with special filter materials (fiber glass, membranes). Harman, p. 53.

filter-plant foreman. A foreman who supervises workers engaged in extracting water from the ground. Many foremen also have experience in settling tanks and filter machines, and in loading filtered concentrate into railroad cars. D.O.T. Supp.
filter press

between the plates. See also plate-and-frame filter. Webster 3d.

filter pressing. a. Squeezing out of a residual magmatic differentiation. a. A difference in filtration qualities. The filtration characteris-

crystallized and then is subjected to pressure by earth movements, etc. Bateman, 1950, p. 51. c. A process of making a filtration crystallized in a mud of interlocking crys-

tinuous filtration. a. Aggregate in which the smallest particles have a diameter of less than 0.075 mm.

fineness modulus. a. A measure of the amount of filtrate from a drilling fluid passing through or into a porous medium. Filter loss and cake thickness constitute the determining factors of filtration qualities. Brantly, 1.


filter press. Sand suitable for use in filtering the suspended matter from water. A.G.I.

filter stick. Short glass tube with filtering seption used in laboratory sampling. Pryor, 3.

filter-type respirator. A protective device which is worn over the mouth and nose in an attempt to prevent inspiratory particles from the air by physically trapping the particles on the fibrous material of the filter. It offers no protection against gases or vapors or atmospheres deficient in oxygen. Many workers, however, are subjected to dusts, fumes, and mists in sufficient quantity to impair health. Common examples are the dusts of cement, coal, flour, limestone, silicious materials, and a variety of metali-

ing, grinding, and crushing operations; the metallic fumes of welding, smelting, and refining the metallic fumes of welding, smelting, and refining the metallic fumes of welding, smelting, and refining the metallic fumes of welding, smelting, and refining the metallic fumes of welding, smelting, and refining the metallic fumes of welding, smelting, and refining.


fin. The thin sheet of metal squeezed out between the collars of the rolls in a roll train. Fay, b. A fault, sometimes occurring in pressed or blown glassware, in the form of a thin projection following the line between the parts of the mold. Also called flash. Dodd, c. The feather edge obtained when cutting flat glass. ASTM C162-66.

final controlling element. In flotation, that controlling element which directly changes the value of the manipulated variable. Ostrander, p. Long.

final drive. A set of reduction gearing close to or inside of a drive wheel. Nichols.

final exploration. The detailed investigation of a coal field area on which a preliminary report was favorable. The final exploration of an area may involve a costly boring program, surveys, and sampling. See also preliminary exploration. Nelson.

final size. That size required for a hydraulic cement to develop sufficient strength to resist a prescribed pressure. In the usual Vicat needle test, this stage of the setting process is defined as that at which the needle point will, but its circular attach-

smallest particle is glass. These are the volcanic rocks. Mason, v. 1, p. 11.

fine-grained. Descriptive of rocks composed of small grains. Generally the term is used only in a relative way, but an average-size of less than 1 millimeter has been suggested. Stokoe and Verner, 1955.

fine-grained. Rocks in which the crystals are very fine-grained or else the whole or part is glass. These are the volcanic rocks. Mason, v. 1, p. 11.

fine-grained. Soil consisting mostly of clay and silt, more than 50 percent by weight smaller than 0.074 millimeter in diameter. Standard.

fine-grinder. A machine for the final stage of size reduction, that is, to -10 mesh. Such machines include ball mills, tube mills, and ring-roll mills. Dodd.

fine grinding. Fine grinding is usually performed in a mill type of grinding machine, such as the ball mill, pebble mill, Hardinge mill, tube mill, etc. Newton, p. 65.

fine industrials. Synonym for toolstones. Long.

fine metal. The higher grades of copper regul-

us or matte obtained in the English process. See also copper concentrate. Indications are the following four varieties which are distinguished by appearance and copper content: (1) blue, containing about 60 percent copper; (2) sparkle, about 74 per-

percent copper; (3) white, about 77 percent copper; and (4) pale, about 79 percent copper. Fay.

fineness. a. The degree of purity of gold, for example, gold 999 fine contains 999 parts of pure gold, and 0.01 of other matter. See also carat. Nelson, b. Parts per thousand in purity. Bureau of Mines Staff. c. The proportion of pure silver or gold in jewelry, bullion, or coins often expressed in parts per thousand and being United States silver, coin nine-tenths or .900 fine and in English gold, coin eleven-twelfths or .9166 fine. Webster 3d. d. A measure of the specific surface area or particle-size distribution. Taylor, e. The state of subdivision of a substance. C.D.

fineness. a. A measure of average particle size obtained by summing the products of the reciprocal of the size grade midpoints times the frequency of particles in each class expressed as a decimal part of the total frequency. A.G.I.

fineness modulus. a. An empirical factor obtained by adding the total percentages of

fine annealing. Annealing to an extremely low stress and uniform index of refraction. ASTM C162-66.

fine chemicals. Chemicals produced in rela-

tively small quantities; for example, silver nitrate. Bennett 2d, 1962.

fine coal. English translation of German fein-


fine cold asphalt. A wearing course of bitu-

men and an aggregate on a horizontal axis and containing balls, rods, or peb-

bles (grinding media) which serve to grind the ore in the mill. The different mills used in fine grinding are known as ball mill, pebble mill, Hardinge mill, tube mill, etc. Newton, p. 65.

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fineness modulus

A measure of the fineness of a material, typically expressed as a number between 0 and 1. A higher fineness modulus indicates a coarser material, while a lower fineness modulus indicates a finer material. Fineness modulus is calculated as follows:

\[ FM = \frac{1}{1 + \frac{D}{d}} \]

where \( D \) is the maximum size of the particles and \( d \) is the size of the smallest particle.

**Example:**

For a material with a maximum size of 10 mm and a minimum size of 0.1 mm, the fineness modulus would be:

\[ FM = \frac{1}{1 + \frac{10}{0.1}} = 0.1 \]

**Note:** Fineness modulus is used in various industries, including concrete, asphalt, and ceramics, to describe the fineness of the aggregate materials used. It helps in understanding the compressive strength and workability of the material.

**Related terms:**
- **Aggregate:** The coarse and fine particles that make up the structure of concrete.
- **Concrete:** A composite material made from a mixture of cement, aggregate, and water.
- **Asphalt:** A dark, sticky material made from the distillation of oil.

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fink truss

A type of truss used in structural engineering, characterized by its zigzag pattern. Fink trusses are commonly used in bridge construction for their strength and stability. The design allows for efficient use of materials and can accommodate complex load distributions.

**Related terms:**
- **Bridge:** A structure designed to support and facilitate passage over obstacles.
- **Structural engineering:** The branch of engineering that deals with the design of structures to withstand loads and forces.
- **Truss:** A framework of beams and columns that can support various loads.
**fin-neck bolt**  429

**fireclay**

**fin-neck bolt.** Similar to carriage bolt. Used
through wood or through wood and metal.
Two fins under the head prevent turning
while the nut is being tightened or
loosened.

**finned tube.** Extended (grilled) surface in
the form of fins on tubes or pipe. *Strock,*

**fioreaminate.** A gray, olive-green to black
chloroarsenite of lead. PbCl(Asta,).
Prisms and crystalline crusts. Hexagonal.
From Langman, Sweden. English.

**Finish amber.** Amber from the shores of
Finland. See also Baltic amber. *Shipley.*

**fiord.** fjord. A. A long, deep, arm of the sea,
occupying a portion of a channel hav-
ing high steep walls, a bottom made un-
even by bosses and silts, and with side
streamers entering from high-level valleys
by cascades or by steep rapids. A. G. I. 
B. A narrow, deep, steep-walled inlet of
the sea that is walled by cliffs. From the
sub-
mergence of a mountainous coast. *Fay.*
C. A sea-occupied segment of a glaciated
trough, or glacial valley. *Fay.*
D. Where the sea enters a
region of melting of the glacier, an
A. G. I.
E. A regional (as far as 50 or 100 miles).
F. As far as 100 miles. A. G. I.

**fiord shore.** A. A coastal area with
side
streamers entering from high-level valleys
by cascades or by steep rapids. *Fay.*
B. A coastal area with side
streamers entering from high-level valleys
by cascades or by steep rapids. *Fay.*
C. A coastal area with side
streamers entering from high-level valleys
by cascades or by steep rapids. *Fay.*
D. Where the sea enters a
region of melting of the glacier, an
A. G. I.
E. A regional (as far as 50 or 100 miles).
F. As far as 100 miles. A. G. I.

**fiord lake.** A lake in a glacially excavated
trough. A. G. I.

**fire agate.** A. A glass imitation of fire opal.
B. A. A glass imitation of fire opal.
C. A. A glass imitation of fire opal.
D. A. A glass imitation of fire opal.

**fire boss.** a. A person designated to examine
the mine for gas and other dangers. In
certain states, the fire boss is designated
as the mine examiner. U. S. Bureau of
Mine Safety Code—Bituminous Coal and
Lignite Mines. Pt. 1 Underground Mines,
Oct. 6, 1953. b. A state certified supervi-
sory mine official, who examines the
mine for fire, gas, and other dangers,
and who usually makes a second examina-
tion during the shift. In some states, it is used
to designate assistant or section fore-
man. B. C. I. C. a. colliery deputy. Nel-
sor. d. Also called fireマン, fire
viewer; fire boss; fire man examiner. D. O. T.

**firebox.** a. A chamber (as of a furnace or
steam boiler) that contains a fire; specifi-
cally, the compartment of a steam loco-
nomotive in which the fire is burned.
*Webster*
3d. b. One of the small refractory lined
chambers, built wholly or partly in the
wall of a kiln, for combustion of the
fuel. *Dodd.*

**firebreak.** A strip across the area in which
either no combustion of materials can
occur, or in which, if timber supports
are used, sand (not waste rock) is later
piled and packed tightly round them.
When timber is not used in stope sup-
ports, the firebreaks are simply stretch-
s in the levels or winzes in which timber
lugging is replaced by some other sub-
stance, such as steel or concrete. *Spald-
ing.* p. 226.

**firing.** A. Staff. Said of any place
underground showing indications of
a gob fire. *Fay.*

**firebrick.** a. Bricks made from a very refrac-
tory clay to withstand intense heat.
*M. B. E.,* 4th, p. 260. b. An aluminosite
brick of fire-clay composition. *FV.*

**fire bridge.** The separating low wall between
the fireplace and the hearth of a rever-
buroatory furnace. *Fay.*

**firebug.** See mine patrolman. D. O. T.

**fire chamber.** That part of a furnace which

**Fire-Chek Keys.** Trade name; pyrometric
cones made by Bell Research, Inc., E.
Liverpool, Ohio. D. D. D.

**fire classification.** The following explains the
National Fire Protection Association clas-
sification of fires. A fire is defined as one
in which solid, combustible materials,
such as coal, wood, rubber, textiles, paper,
and rubber. A fire is defined as one
these in flammable liquids, such as fuel
or lubricating oils, grease, paint, varnish,
and lacquer. A fire is defined as one
in (live) electric equipment, such as oil-
filled transformers, generators, motors,
switch panels, circuit breakers, insulated
electrical conductors, and other electrical

**fire clay.** a. A clay that is high in alumina or
silica; diffusion is not less than cone 19
(1,515° C). Fire clay is essentially refra-
crry; residual, plastic or nonplastic,
and are dominantly composed of kaolinite.
The classification of fire clays may be re-
ostic, or composed of the composition, fiscal char-
acteristics, refractories, use, association
with other materials, etc., such as plastic
fireclay, plastic fire clay, plastic fire clay,
high-
alumina fire clay, siliceous fire clay, fire
clay, coal measure fire clay, sagger clay,
high-heat duty fire clay, etc. Bureau of
Mines Staff. b. An earthy or stony min-
eral aggregate which is composed essen-
tially of high-purity silicates of aluminum
with or without free silica. It is plastic
when sufficiently pulverized and wetc.
red in the presence of water, and
sufficiently pure and refractoriness for use
in commercial refractory products. H. W.
c. Formerly used for almost any soft non-
bedded clay immediately underlying a
coalesced many of which are not refrac-
tory; compare underlinen, A. G. I. Supp.
d. Soft, unbedded, gray or white clay,
high in silica and hydrated aluminum silicates,
and low in iron and alkalies. Fire clay forms
the seat earth of many coalbeds and has value as refractory clay.

**fire clay brick.** A refractory brick manufac-
tured substantially or entirely from fire
clay. *H. W.* See also first quality fire
brick; second quality fire clay brick;
fire clay goods. Mainly composed of fire clays
with the addition of opening materials
such as grog (granulated fire clay or
sand). *Rosenthal.*

**fire clay mineral.** A poorly crystallized (part-
ly disordered) kaolinite. A. G. I.

**fire clay plastic refractory.** A fire clay mat-
erial tempered with water or other mediums
for ramming into place to form a monolithic
furnace lining that will attain satisfac-
tory physical properties when subjected
to the heat of furnace operation. *ASTM
C71-64.

**firecoast.** A film produced on metallic surfaces
by oxidation due to the action of heat.
*Standard,* 1964.

**fire crack.** A fissure formed in metal during
the process of reheating or that of anneal-

**fire crakes.** Cracks in steel caused by local

**fire damp.** a. Said of a mine when an explo-
sion of firedamp has taken place. *Fay.*
b. Said of one who has been discharged
from work. *Fay.*

**firedamp.** a. A combustible gas that is formed
in mines by decomposition of coal or other
carbonaceous matter, and that con-
sists chiefly of methane; also the explo-
itive mixture formed by the air and the
methane. The fire is defined as one
in which the air and the methane;
the gas is contained in the coal
and is often given off in large quantities,
and explodes upon ignition when mixed
with atmospheric air. *Fay.*

b. Said of one who has been discharged
from work. *Fay.*
fire damp

Fire damp alarm. An instrument which gives a warning signal when the methane content of the air exceeds a known value. Roberts, 1, p. 83.

Fire damp cap. A sm-4 cap which forms over the flame of a safety lamp when sufficient fire damp (methane) is present. C.T.D.

Fire damp dangers. Fire damp is dangerous because (1) it may cause suffocation, and (2) it may cause an explosion. The presence of fire damp in mine air reduces the oxygen available for breathing. If a flame safety lamp will not burn in the atmosphere there is danger of suffocation through oxygen deficiency. Fire damp explosions have been the cause of the worst coal mining disasters in history. See also methane. Nelson.

Fire damp detector. Usually a portable device to detect the presence and determine the percentage of fire damp in mine air. See also methane monitor; sampling instrument. Nelson.

Fire damp detectors, automatic. See Ringle Ronge fire damp alarm; Naylor Spiralam. Sinclair, 1, pp. 28-29.


Fire damp drainage. The collection of fire damp from coal measures strata, generally into pipes, with or without the use of suction. Also called methane drainage. B.S. 3618, 1963, sec. 2.

Fire damp drainage drill. A heavy compressed-air operated percussive, rotary or rotary-percussive drilling machine for putting up the boreholes in fire damp drainage. See also In-Hausch D95/51 drilling machine. Nelson.

Fire damp explosion. An explosion of a flammable mixture of fire damp and air. See also colliery explosion. Nelson.

Fire damp fringers. The zone of contact between the gas and air and the ventilation air current at the face. Roberts, 1, p. 229.

Fire damp layer. A sheetlike accumulation of fire damp on the roof of a mine roadway where the ventilation is too sluggish to dilute and remove the gas. Although the term is new, the hazard existed since the earliest days of coal mining. A fire damp layer may be specified as one in which the gas is 5 per cent or over and of a length greater than the width of the road in which it occurs. Nelson.

Fire damp migration. The movement of fire damp through the strata or goaf of a mine. B.S. 3618, 1963, sec. 2.

Fire damp moisture chamber. A method of fire damp drainage in coal mines without boring. When old gob is drained, pressure chambers are built at the intake to, and at the return from, the worked-out district. These areas or chambers are sealed off and the pressure controlled either manually or automatically. The gas is drawn from the chambers in pipes passing out through the main return. The method provides a supply of gas and the underground conditions are safer. Nelson.

Fire damp probe. A flexible rubber tube connected to a cap, which can be thrust into roof cavities and breaks so that a sample of the air may be transferred to a methane analyser and its fire damp content determined. An aspirator attached to the methanometer is used to pump the air sample into the instrument. Nelson.

Fire damp reforming process. Methane has twice the calorific value of town's gas, and in some cases, the gas obtained from fire damp drainage has to be modified by catalytic or other means before it can be passed into the mains. When mixed with steam and passed over a nickel catalyst, methane is converted to a mixture of hydrogen and carbon monoxide, and when this is blended with pure methane a gas having similar properties to town's gas is produced. Nelson.

Fire damp tests. Tests to detect the presence and concentration of fire damp in mine workings. When carrying out a test with a safety lamp, the flame is lowered until it is about one-eighth inch high. It then consists of a small blue flame with a spot of yellow light in the middle. At the top there is a faint halo of paler blue known as the fuel cap, which must not be mistaken for a small gas cap. When fire damp is present it forms a faint bluish gas cap over the whole flame. The lowest percentage that can be estimated in this way is from 1 to 1 1/2 per cent. As the percentage increases, the gas cap gradually grows upards, and at 2 per cent it forms a triangle, about as high as the test cap. As the percentage increases further, the triangle gets taller and taller. See also flame safety lamp.

Fire decorating. The process of firing ceramic pieces or decorative shapes by placing the pieces on a flat surface, sealing chambers are built at the intake to, and the return from, the worked-out district. These areas or chambers are sealed off and the pressure controlled either manually or automatically. The gas is drawn from the chambers in pipes passing out through the main return. The method provides a supply of gas and the underground conditions are safer. Nelson.

Fire damper. Usually a portable device to detect the presence and determine the percentage of fire damp in mine air. See also methane monitor; sampling instrument. Nelson.

Fire door. a. The door or opening through which fuel is supplied to a furnace or stove. Fay. In a furnace or in a building or in a mine, as a door to enclose an area in which there is a mine fire. Fay. b. Same as fire-stone. Shipton.

Fire division wall. Any wall which subdivides a building so as to resist the spread of fire, but is not necessarily continuous throughout the mine and above the roof. See also fire wall. A.S.C.G.

Fire door. a. The door or opening through which fuel is supplied to a furnace or stove. Fay. In a furnace or in a building or in a mine, as a door to enclose an area in which there is a mine fire. Fay. b. Same as fire-stone. Shipton.

Fire extinguisher. A portable or wheeled apparatus. See also fire extinguishing agents that may be used to extinguish fires where water would make matters worse, or where sealing off of oxygen is practicable. Pryor, 3.

Fire extinguishing. As a noun, the extinguishing of gas-charged lava (normally basaltic) from a volcanic vent, either a localised central vent or a fissure, forming a fountain of molten rock. Lava fountains are a common type of eruption in Hawaii. They issue from fissures along rift zones, from the flanks of Mauna Loa, and commonly reach heights of 300 feet and even 1,000 feet in extreme cases. The cooling of lava fountains along a fissure produces the so-called curtain of fire. A.G.I.

Fire extinguisers. Brand names for series of air-setting and heat-setting cements, made from fire clay or kaolin, able to withstand high temperatures; used in laying and repairing firebrick, furnace linings, etc. Bennett, 2d, 1962.

Fire face. The surface of refractory walls exposed to direct heat of a furnace. Bureau of Mines Staff.

Fire feeding. Another portable or wheeled apparatus for putting out small fires by ejecting fire extinguishing agents that may consist of water, stone, and chemicals (as soda and solutions or foam), or chemicals alone (as carbon tetrachloride, carbon dioxide, or dry chemicals). Webster 3d. See also air foam extinguisher; carbon dioxide gas extinguisher; chemical foam extinguisher; dry-powder extinguisher; foam extinguisher; soda-acid extinguisher; water/carbon dioxide extinguisher.

Fire grate. The grate which holds the fuel in many forms of heaters and furnaces. Fay. See also fire back; fire guard; fire plating; fire finished.

Fire finished. Glassware that has received its color of which has been changed or enameled on. Dodd.


Fire finished. Glassware that has received its color of which has been changed or enameled on. Dodd.

Fire fountaining. As a noun, the rhythmic ejection of gas-charged lava (normal basaltic) from a volcanic vent, either a localised central vent or a fissure, forming a fountain of molten rock. Lava fountains are a common type of eruption in Hawaii. They issue from fissures along rift zones, from the flanks of Mauna Loa, and commonly reach heights of 300 feet and even 1,000 feet in extreme cases. The cooling of lava fountains along a fissure produces the so-called curtain of fire. A.G.I.

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Fire finished. Glassware that has received its color of which has been changed or enameled on. Dodd.
fireman, tail rope

inclined between the surface and a level in a mine, D.O.T. 1.

fireman. Bituminous coal mining, one who fires the boiler which generates steam for driving the machinery at the tipples where coal is prepared for market. D.O.T. 1.


fireman, washery. In anthracite coal mining, one who tends and fires the boiler generating steam for driving the machinery in coal-washing plants where coal is cleaned and separated from slate and other impurities to prepare it for market. Also called fireman, washer. D.O.T. 1.

fire marble. See lumachelle. Fay.

fire marks. a. Tiny indentations similar in appearance to fire holes, left in a setting of bricks or other impurities to prepare it for market. ACSG. See fire holes, left in a setting of bricks. Fay.

fire marble. See lumachelle. Fay.


fireproofing brick clay. See fireproofing clay. Fay.

fireproofing brick. See fireproofing clay. Fay.


fireproofing brick clay. See fireproofing clay. Fay.


fire proofing tile. a. Tile for use as a protection for structural members against fire. A.S.T.M. C45-50T. b. Tile designed for use as a protection for structural members against fire. A.S.T.M. C45-50T. c. General name applied to those forms used in the construction of floor arches, partitions, etc., or columns where faces of the units are exposed. ACSG.

fireproofing brick. See fireproofing brick clay. Fay.

fireproofing wire. a. Wire which has been refined by the use of a furnace process only, including refinery shapes and, by extension, fabrics, products made therefrom. Usually when this term is used alone, it indicates purified tough pitch copper without elements other than oxygen being present in significant amounts. A.S.T.M. C151-60T. b. The refining of blister copper by oxidizing the impurities in a reveratory furnace and removing the excess oxygen by bellows. May be used as an alternative to electrolytic refining, and in any case is carried out as a preliminary to this. C.T.D. c. Includes a number of processes used for the removal of impurities from impure metals produced by the smelting process. Impurities are removed by introducing air into the molten metal by exposing the metal to air, and by the addition of fluxes and the removal of impurities as gases, drosses, or liquid slags. Lead, tin, and some types of impure copper are also fire-refined. E.C.T., v. 8, p. 937.

fire resistance. This term has at times been used indiscriminately to denote the resistance of a material to ignition or to the spread of flame. In the relevant British Standard 538, 1962, the meaning is restricted to the performance of complete elements of a building structure without regard to the performance of the materials of which they are composed. In the United States, fire tests for building construction and materials are the subject of American Standard for Testing Materials—E119. Dodd.

fire ridge. A solid rib or wall of coal left between workings to confine gob fires. Fay.

fire runner. In bituminous coal mining, one who fires the boiler which generates steam for driving the machinery at the tipples where coal is prepared for market. Also called fireman, washer. D.O.T. 1.

fire scale. Intergranular copper oxide remaining after the firing of a ceramic body and its glaze in one operation. A.S.T.M. C422-60T. c. Synonymous with fire scale. Webster 3d. d. See also fire pot. Webster 3d.

fire sand. a. Refractory oxides or carbides used for furnace linings. Bennett 2d, 1962. b. A sand so free from fluxes that it is used for furnace linings. Bennett 2d, 1962.

fire sealer. a. A strip across an area through which neither fire nor noxious gases can penetrate. It involves not only sealing of stopes but levels also. Spalding, p. 226. b. See sealing; expansion-proof stopping. Macon, v. 1, p. 281.

fire setting. An ancient method of tunneling through rock. A fire was built against the face of the mineral, which was then quenched with water, thus causing cracking. Pryor, 3.

fire simple. The process of maturing an unfired ceramic body and its glaze in one firing operation. A.S.T.M. C422-60T. Also called "one fire." Fay.

fire stink; gob stink. The smell given off when fire is extinguished in a setting of bricks or other impurities to prepare it for market. ACSG. See fire holes, left in a setting of bricks. Fay.

fire viewer. A person whose duty it is to examine the working of a mine with a safety lamp. A fire boss. Fay.

fire watchman. A wall to retain oil in case of its escape from a tank or to prevent the spread of burning oil. Fay.

firewatch miner. In metal mining, one who goes through a mine with his superior after the shift to look for possible fire hazards. He works as a regular miner during the shift, but reports later, and makes his inspection after the shift has left the mine. D.O.T. 1.

firing. a. The process of initiating the action of an explosive charge or the operation of a mechanism which results in a blasting action. B.S. 3618, 1964, sec. 6. b. (Eng.) In the preparation of heat by building fires upon hard strata in order to soften them, preliminary to the use of the pick. See also fire setting. Fay. c. The act or process of applying fire or intense heat to anything; as, in stoking. Standard, 1964. d. In mining, the igniting of explosive charges. Bureau of Mines Staff. e. High-temperature treatment that sinters particles into a ceramic product. See fire refining. Bureau of Mines Staff. f. The controlled heat treatment of ceramic ware in a kiln or furnace, during the process of manufacture, to develop the desired properties. ACSG. 1963. g. The process of heating ware to mature the applied coating into a porcelain enamel or ceramic coating. ACSG. 1963. See also burning. h. Starting up a furnace or kiln. Bureau of Mines Staff.

firing a mine. Eng. Maliciously setting fire to a coal mine. Fay.

firing behavior. The changes in appearance and properties of ceramic ware when heated. ACSG. 1963.

firing circuit. See shunting circuit. Fay.

firing cycle. The time required for firing (burning) the porcelain enamel. Or, more particularly, the chart of time and temperature for a burning operation. Bryant.

firing expansion. The increase in size that sometimes occurs when a refractory raw material or product is fired; it is usually expressed as a linear percentage expansion from the day of manufacture. Firing expansion can be caused by a crystaline conversion (for example, of quartz into cristobalite, or of kyanite into mullite or cristobalite), or by bloating. See also bloating. Compare after-expansion.

firing impulse. As applied to electric blasting

fireproofing impulse

fire style. See fire stink. Fay.

fire tile. A tile, used in a furnace, which is manufactured by great pressure. Ford, 1952, 1954.

fire travel. The movement of the zone of highest temperature around the gallery of an annual kiln. A typical rate of fire travel is one chamber per day, often a little faster. Dodd.

fire trial. A command to start operating a drill either to collar Derbyshire coal or to prepare the work on the first working shift of a day. Long.

fire viewer. A person whose duty it is to examine the working of a mine with a safety lamp. A fire boss. Fay.

firewall. A wall to prevent the spread of fire in a setting of bricks or other impurities to prepare it for market. ACSG. See fire holes, left in a setting of bricks. Fay.


fireproofing clay. See fireproofing brick clay. Fay.
firing impulse
caps, the minimum impulse or current required to fire a detonator. Fraenkel, v. 1, p. 816:10, p. 5.

firing key. A special key which fits the ex-

firing line. See. An appliance used in former
times for blowing a room of fire-damp. A prop

firing point. Eng. That point at which fire-
damp mixed with atmospheric air ex-

firing range. a. The range of firing tempera-
ture, within which a ceramic composition de-

firing shrinkage. The decrease in size that
usually occurs when ceramic ware is
fired; it is usually expressed as a linear
percentage and given in tenths or hundredths
per cent. Compare after-contraction. Dodd.

firing temperature. The peak (top) temper-
ature within which a ceramic composition de-
velops properties which render it com-
mercially useful. ASTM C286-65.


firm coal. b. The opening of a river into the sea.
A synonym for estuary; frith (a variant spelling).
A.G.I.

firnification. The process by which snow is
partly consolidated by alternate thawing and
freezing, but has not yet become glacial ice.
A.G.I. Supp. 0.82. It is considered by some to be any
firmly bound carbon dioxide. Carbon dioxide


first bite. A diamond with a finest greenish
tint. Schaller.

first-class conduction. Electrical conduction
by the transfer of free electrons. The flow
of electricity through a first-class or me-

tallic conductor is a direct flow of free
electrons. Also called metallic conduction.
Newton, Joseph. Introduction to Metal-
lurgy, 1958, p. 22, 439.

first-class lever. A lever having a fulcrum (pivot
point) between the point where force is applied
and where it is exerted. Ni-

first-class ore; shipping ore. An ore of suf-
ficient value to admit of selling to a
smelter or reduction plant. See also sec-
d-second-class ore. Nelson.

first helper. One who tends an open-hearth
furnace in which scrap iron is melted and
purified to make steel. Keeps records per-
taining to weight of charges, time con-
sumed in melting operations, and furnace
temperature. Also called melter assistant.
Heiner, p. 194.

first impetus. See first arrival. Schieferdecker.

first man. One who tongs the head butty or coal getter
in a stall. Fay.

first mining. In the room-and-piller method,
that part of the coal that is won from
the rooms at the beginning of the second par-
and which is the extraction of the
remaining pillars. Stores, v. 1, p. 349.

first-of-the-air. a. Ark. That part of the air
which consists of small rounded crystalline grains formed
from snow crystals. Also called névé.
C.T.D. b. Snow above the glaciers which
are partly consolidated by alternate thawing
and freezing, but has not yet become

first order geocynacle. A term used by
geologists for a belt of major formation such as that of

first order nappe. An overturned, generally
recumbent, tectonic fold in which the
middle part of the overturned limb is

first quality fire clay brick. A trade term usu-
al indicating fire clay brick of the high
duty class, as classified by A.S.T.M. A.G.I. Supp. See also high-duty fire clay brick.

fishbone. Said of (1) steel girders with a
convex lower edge; and (2) long straight-
edges, which are convex upward; such a
form results in greater resistance to bend-
ing. C.T.D.

fished joint. A rail joint made by means of
fishplates. Ham.

fisheye. a. A little-used name for moonstone,
also for a flaw almost bluish-white. A slight amount of color
detracts from the value and they are said to
be off color. Nelson.

fist. A narrow arm of the sea. Webster 3d.

fir. a. Eng. To catch up with a bird, or to
draw diamonds. Long.

first side. The surface of plate which is ground
and polished first. ASTM C242-66.

firsts. a. N.S.W. The highest ore picked from
a seam. C.T.D.

fishtail. c. Compacted, granular
snow which has changed into firn. A.G.I.

fisher. A term applied to groups of closely
spaced fractures in marble deposits. Fay.

fishy. a. In geology, a deposit containing the
remains of fishes in predominant
quantity among those of other marine animals. Also called bone bed. Fay.

fishbowl. Said of (1) steel girders with a
convex lower edge; and (2) long straight-
edges, which are convex upward; such a
form results in greater resistance to bend-
ing. C.T.D.

fishy. a. A little-used name for moonstone,
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be off color. Nelson.

fist. A narrow arm of the sea. Webster 3d.

fir. a. Eng. To catch up with a bird, or to
draw diamonds. Long.
fisheye

transparent faceted stone so cut that its center is lacking in brilliancy. Shipton.

A diamond cut too thin to present the maximum effect of brilliancy. Bureau of Mines Staff.

fisheye stone. A hydrated calcium silicate in which part of the calcium may be replaced by potassium. Synonym for apophyllite. Fay.

fish head. Scot. A tool for extracting clacks (valves) from mine pumps. Fay.

fishing. a. In drilling, the operation by which lost or damaged tools are secured and brought to the surface from the bottom of a well. Fay. b. The operation of attempting to recover a piece of drilling or other equipment broken off or lost from the drilling tools and left in the hole. A.G.I.

fishing jars. Jars having a longer stroke than drill jars. They are used in jarring a string of drill stuff stuck in a borehole. Long.

fishing job. Foreign material or tools in the hole which must be removed. Brantly, 2.

fishing salt; fishery salt. Coarse-grained salt produced in various ways, usually grainer than in the United States. N.R.C.-N.S.A. N1.1-1957.

fishing string. A length of drill rods (usually left-hand-threaded or rosined) used in fishing operations. Long.

fishing tap. A thread-cutting tool to cut threads inside a casing or other hollow part that is to be fishied from a borehole. Long.

fishing tool. a. A tool to recover or overcome broken bits or other harmful objects in the bottom of a borehole. Pieces of metal are sometimes recovered by the use of a strong magnet attached to the drill string. See also screw bell. Nelson. b. Apparatus of various types used on the end of a drill string to fish or remove from the hole lost or damaged drilling equipment or trap iron. Long.

fishing-tool operator. In petroleum production, the person who extracts lost equipment and removes other obstacles that are encountered in the borehole while drilling oil or gas wells, or that obstruct flow from producing wells, by devising methods and directing use of special tools. Also called oil well fishing-tool operator. D.O.T. 1.

fishplate. Specially shaped steel plates for joining the end of one rail to the next rail in the track. The fishplates are fixed (one on each side) to overlap the rail ends and bolted through the rails. Nelson.

fish scale. A defect, sometimes occurring in sheet steel enamelled where a small chip or particle of the fired coating literally jumps from the surface, the chips being oval-shaped particles somewhat resembling the scales of a fish. Fish scale is a ground coat defect but often does not occur until the cover coat has been applied and burned. Hansen. See also delayed fish scaling; process fish scaling.

fishtail. An abrupt and ragged termination of a coalbed that is considered to have resulted from a washout during a slope instability. The material, less leathery and pebbly in appearance, is believed to have been separated parallel to its bedding, permitting wedges of sand and silt to be forced into the separations in such a manner that, after the coalification has taken place, a cross section shows splayed and ragged coal separated by some very thin muds. Fisk and Marshall, pp. 81-92. b. The act or process of rotationally drilling a borehole with a fishtail bit. Also called long tail. long. c. In oil well, the excess trailing end of a forging. It is often used, before being trimmed off, as a tong hold for a subsequent operation. A.S.M. Gloss.

fishtail bit. A rotary bit used to drill soft formations. The blade is flattened and divided, the divided ends curving away from the direction of rotation. It resembles a fishtail. A.G.I. Also called drag bit.

fishtail bolt. Anchor bolt having a split tail, cast into concrete or bedded in masonry. Hansen. See also A-structure. Skow.

fishtail structure. A coal seam structure sometimes observed along the fringes of a washout. It was probably produced by the water forcing open layers of the coal mass and the injection of fine sand or silt into the splayed partings—the veins of coal branching out like a fishtail. Nelson.

fisophile. a. Capable of being split, as schist, slate, and shale. See also fisilosity. Fay. b. A synonym for fisilsile. Fisilosity is used more in England and in Canada than in the United States. N.R.C.-A.S.A. N1.1-1957.

fossil. Bedding which consists of laminae less than 2 millimeters in thickness. A.G.I.

fissile material. See fissonable material. L.O.L.

fissile rock. A rock which splits into thin layers, no matter to what cause that splitting is due. Also slate. Nelson.

fissility. The quality of being fissile. Webster 3d. b. The property of rocks characterized by separation into parallel laminae, as slate, schist, etc. Webster 2d. c. The property of splitting easily along closely spaced parallel planes. A.G.I.

fission. a. The splitting of an atomic nucleus (as by bombardment with neutrons) especially into approximately equal parts, resulting in a great quantity of enormous quantities of energy when certain heavy elements, such as uranium and plutonium, are split. Also called nuclear fission. Conversed with fusion. Webster 3d. b. The splitting of an atomic nucleus into at least two parts of comparable size, accompanied by the ejection of two or three neutrons and occasionally other particles. A.G.I.

fissionable. Capable of undergoing fission, usually by the action of neutrons, but also of protons, deuterons, alpha particles, electrons, and gamma radiation. A.G.I.

fissional material. Any material readily fissioned by slow neutrons; for example, uranium 235 and plutonium 239. L.O.L.


fission-product poisoning. The absorption or capture of neutrons by fission products in a reactor, decreasing its reactivity. L.O.L.

fission products. The nuclides produced by the fission of an actinide element nuclide, such as uranium 235 or plutonium 239. L.O.L.

Thirty-five fission-product elements from zine through gadolinium have been identified from slow neutron fission. N.R.C.-A.S.A. N1.1-1957. They are of medium atomic weight, and almost all are radioactive; for example, strontium 90 and cesium 137.

fission yield. The quantity of energy released by fission in a nuclear explosion as distinguishable from that released by fusion. L.O.L.

fitsile. The sound which is heard in a coal mine when the floor is rising because of a sudden release of air. Nelson.

fissure. a. An extensive crack, break, or fracture in the rocks. A mere joint or crack persisting only for a few inches or a few feet is not usually termed a fissure by geologists or miners, although in a strict physical sense it is one, or crusts, filled with well-defined boundaries, very slight evidence of one, within such boundaries is sufficient to prove the existence of a lode. Such boundaries constitute the sides of a fissure. See also vein; lode; fissure vein. Fay. b. A high, narrow, usually straight passageway in a cave. A.G.I.

fissure cave. A cave developed along a fissure. Schliererdecker.

fissured. Some rocks are so fissured for fractured. A.G.I.

fissured clay. A clay such as London clay, having a network of joints which open in dry weather. See also fissure. Fay.

fissure eruption. See eruption, volcanic. A.G.I.

fissure system. A group of fissures having the same age and approximately parallel orientation, produced by slow movement of a magma and precipitated therein from aqueous mineral matter different from the walls and precipitated therein from aqueous solution, or introduced by sublimation or precipitation. A.G.I.

fissure vein. a. A clef or crack in the rock material of the earth's crust. See also fissure clay. A.N.S.A. N1.1-1957. b. A mineral mass, tabular in form, as a whole, although frequently irregular in detail, occupying or accompanying a fracture or a set of fractures in the enclosing rock. This mineral mass has been formed later than the country rock, either through the filling of open spaces along the latter or through chemical alteration of the adjoining rock. Fay. c. A fracture in the earth's crust filled with mineral. Fay. d. A fissure vein or lode may have in addition to the clear fissure filling of mineral a considerable amount of decomposed wall rock, clay, etc. See also fissure; lode; vein. Fay.

fit. a. The amount of clearance or interference between mating parts is called actual fit. Fit is the preferable term for the amount of clearance or interference which may result from the specified limits on the dimensions (limits of size) of the shaft and hole. ASA B4.1-1955, Preferred Limits and Fits for Cylinderical Parts, standardizes limits of size for 40 classes and sizes of fits each with a definite range of clearance or interference as a result of the limits on size of the element and shaft. The standard gives 9 classes of running and sliding fits for 21 size ranges, 11 classes of clearance fits, 9 classes of transition fits, 11 classes of transitional fits, and 9 classes of interference fits.
fits for 13 size ranges, 2 classes of interference locational fits for 21 size ranges, and 32 interference shrink-fits for 40 size ranges. *ASM Gloss,* b. The adjustment of a glaze to a clay or to an already fired clay body. *ASCG.* See also glaze fit.

fitter. a. Broadly, a skilled man who can re-assemble and repair machinery, an engineer. In coal mining, there is at least one fitter employed underground on each shift. His main duties are the maintenance and repair of machinery, such as coal cutters, conveyors, pumps, haulages, etc. *See also mechanic.* *Nelson.* b. Eng. The person who sells coal at the shipping port. A coal factor. See also factor.


fitting. a. Scot. The whole machinery, plant, and work of a factory. *See also plant.* *Fay.*

fitting. b. Anything forming part of machinery, plant, or work of a factory. *See also plant.* *Fay.*

fittings. a. Auxiliary and accessory tools and equipment necessary for the job. *See also tools.* *Fay.*

fitters. a. Skilled mechanics who put machinery in operation. b. Eng. The people who sell coal at the shipping port. *See also factor.*


fitch. Said of a drill bit which has become stuck in a hole while running. *See also stuck.*


fitting. a. Scot. The whole machinery, plant, and work of a factory. *See also plant.* *Fay.*

fitting. b. Anything forming part of machinery, plant, or work of a factory. *See also plant.* *Fay.*


fitting block. A building unit that may be fastened to the end support of a beam to fix it securely. *ASM Gloss.*

fixed capital. That sunk in installation and works which is virtually unrealizable apart from its use in producing mineral which can be sold. Includes earthworks, shafts and tunnels, hydroelectric schemes of purely local value specific to the mine. *Pryor,* 3.

fixed central. That sunk in installation and works which is virtually unrealizable apart from its use in producing mineral which can be sold. Includes earthworks, shafts and tunnels, hydroelectric schemes of purely local value specific to the mine. *Pryor,* 3.

fixed carbon. a. In the case of coal, coke, and other bituminous minerals, the solid residue other than ash, obtained by destructive distillation, determined by definite prescribed methods. *ASTM* 1912-1960 b. A calculated figure obtained by subtracting from 100, the sum of the percentages of volatile matter, and ash. *B.S.* 3923, 1960. c. That part of the carbon which remains when coal is heated in a closed vessel until the volatile matter is driven off. It is the nonvolatile matter minus the ash. *Fay.*


fixed clip. A clip permanently affixed to the finished bit of a shaft. The cage shoes travel along the bit while the bit itself travels along the fixed clip. *Nelson.*

fixation. a. The act or process by which a fluid or a gas becomes or is rendered firm or stable in consistency, and evaporation or volatilization is prevented. Specifically, that process by which a gaseous body becomes fixed or solid on uniting with a solid body, as the fixation of oxygen or the fixation of nitrogen. *Fay.* b. A state of nonvolatility or the process of entailing such a state; as, the fixation of a metal or the fixation of nitrogen in a nitrate by bacteria. *Standard,* 1964, c.

A process by which dye colors are made permanent. *Standard,* 1964.

fix-bitumen. See bitumen. *ASM Gloss.*

fixed. a. As applied to all authigenic, nonfluid bitumens; divided into stable probitumens and metabolitumens. *Tomkaitt,* 1952.

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fixed: clamped; built-in; encastré. A condition of support at the ends of a beam or column, or at the edges of a plate, which prevents the ends or edges from rotating in the plane of bending. It does not imply 'longitudinal constraint. *Compa,* held *Fay.*

fixed ash. a. The fine mud or silt washed in by water during the formation of the coal seam. *Maize,* 2, p. 644. b. See also inherent ash.

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flabellate. Resembling a fan in shape.

flag. a. Sandstone or sandy limestone rocks, usually more or less micaceous, which are fissile along the bedding planes, splitting into slabs. Sometimes marnified slates because used for roofing rather than paving. Arkell. b. A track signal or target. Zern. c. Chert. A bed of hard marl overlying the top stratum of a salt bed. Fay. d. A thin slab of stone. See also flagstone. Fay.


flajolotite. A discredited term equal to flake mica. Finely divided mica recovered from copper. Very thin scales of native copper, which may be alloyed with bismuth. A.I.S.I., 1963.

flagmoyant structure. The optical continuity of the crystals or grains as disturbed by a divergent structure cause by slight differences in orientation. A.G.I.

flame. a. Burning mixture of a combustible gas (or vapor) and air. Solid fuels burn with a glow, but with little flame. Flames are normally hot, but under some conditions are cold. Principal types of flame are: luminous, nonluminous, long (lazy) flames, and short flames. Francis, 1963, v. 2, p. 436.


flame coloration. See flame reaction. Fay.

flame coloring. Another name for jet piercing. A.I.M.E., p. 326.

flame gun. A large blowtorch using kerosene as its fuel. It has lost one or more cars, and all motormen are warned. Also called flagman. D.O.T. 1.

flagging, a. In geophysical work, the use by surveyors of flags of cloth, paper, or plastic to mark instrumental or shot locations. A.G.I. b. A pavement of large stone slabs. A.G.I. Supp. c. Slabs of slate used for paving porches, patios, terraces, walkways, and for stepping stones. A.I.M.E., p. 797.

flaming a squib. Uncoiling the end of the paper which is imprisoned with sulfur or some other combustible substance. Flagging the squib permits more time to elapse before the ignition of the unrolled paper and the firing of the charge of powder. Fay.

flagstone. The flagging of being split into parallel-faced slabs thicker than slates. Fay. b. Strata from 10 to 100 millimeters thick. A.G.I.


flags. Thin-bedded hard sandstones that can be used for flagstones. A.G.I. Supp.


flake. A rock that splits readily into slabs suitable for flagging. Fay.

flakes. Sandstone which splits along the grain. C.T.D.

flake. A hammer hinged to an axle so that it can be used to break or crush material. Nichols.


flake. A flat fragment of a rock or a mineral with maximum dimension of less than 4 millimeters. A.G.I.


flake. Finely divided mica recovered from mica and sericite schist and as a byproduct of feldspar and kaolin beneficiated. See also mica. Skou.

flake. Powdered, in powder metallurgy, flat or scalelike particles, relatively thin. A.S.M. Glass.

flake. A very fine powder of anthracite coal, used for coating limestones. It is heated by a mechanical means to reduce the water. The water following immediately behind, may be present in the surrounding atmosphere. A.G.I. Supp.

flake. A line which is generally surrounded by a cylindrical covering of wire gauge. An explosive or flammable mixture of gas entering the tank will be ignited by the flame, but the flame of combustion will not pass through the cold gauge and ignite the gas outside the tank. The illuminating power of these lamps is slightly more than one candlepower, and they will burn for an entire shift with one filling. Each lamp is generally provided with a relighting device, and with a magnetic lock to prevent the lamp being opened in the mine. The chief disadvantage of this lamp is its low illuminating power, Fay; Lewis, pp. 7, 8, 19. See also safety lamp; electric cap lamp.

flame. a. The fuel which is so protected that it will not immediately ignite fire品牌. The original flame safety lamp was developed by Sir Humphrey Davy in 1815 and there are several varieties. The flame is generally surrounded by a magnesium sleeve, and when its compounds impart a nonluminous flame (as yellow from sodium or green from copper), it will withstand, without injury, any explosion of the prescribed flammable gas which may occur within it under practical conditions of operation. Inside the flame, the apparatus (and recognized loads, if any, associated therewith), and will prevent the transmission of flame such as that emitted by the lamp, but the flame of combustion will not pass through the cold gauge and ignite the gas outside the tank. The illuminating power of these lamps is slightly more than one candlepower, and they will burn for an entire shift with one filling. Each lamp is generally provided with a relighting device, and with a magnetic lock to prevent the lamp being opened in the mine. The chief disadvantage of this lamp is its low illuminating power, Fay; Lewis, pp. 7, 8, 19. See also safety lamp; electric cap lamp.
flame spraying

material can be fed into the flame either as a powder or as a continuous rod. This is done to provide a thin protective coating, usually to prevent oxidation, as in the flame spraying of aluminum on to wrought iron. 

flame straightening. Correcting distortion in metal structures by localized heating with a gas flame. 

flame structure. a. Load casting showing some evidence of some horizontal slp. A.G.I. Supp. b. Load cast in which part of an underlying layer has been squeezed irregularly upward into the overlying layer. A.G.I. Supp. c. The mud plumes separating the downward bulging load pockets or load casts of sand at sand-shale interface. Also described as coal beds in imples. Also called antidune; load wave. 

flame test. The use of the characteristic color imparted to a flame to detect the presence of certain elements. A.G.I. 

flame trap. A device, consisting of a pack of flaming coal. Coal containing from 70 to 75 percent carbon and yielding from 50 to 65 percent powdery coke. It burns with a steady safety flame in coal mines and in which flammable gases are present. B.S. 3618, 1963, sec. 4. 

flambeau. a. A hole bored ahead of a workpiece. Also described as streaked-out ripple or load casts of sand at sand-shale interface. Also referred to as shoulders. Ham. 

flank. a. Another term for a limb. Also synonymous with leg; shank; branch; slope. B.S. 3618, 1963, sec. 4. See also limb. b. End surface of a tool that is adjacent to the cutting edge and below it when the tool is in a horizontal position as for turning. A.G.I. 


flank hole. a. A hole bored ahead of a working place, when approaching old workings. C.T.D. b. A borehole to detect water, gas, or other danger, driven from the side of an underground excavation in a line not parallel with the center line of the excavation. A.G.I. 


flaming coal. Coal containing from 70 to 75 percent carbon and yielding from 50 to 65 percent powdery coke. It burns with a steady safety flame in coal mines and in which flammable gases are present. B.S. 3618, 1963, sec. 4. 

flammable mixture of gases. A mixture which, when once ignited, will allow flame to be self-propagated throughout the mixture, independent of and away from the source of ignition. In coal mines, it only when the methane and air are mixed in certain definite proportions that the mixture is flammable and explosive, and will allow flame to spread in all directions. See also limits of flammability. Nelson. 


flammable gas. A mixture of gases. A mixture which, when once ignited, will allow flame to be self-propagated throughout the mixture, independent of and away from the source of ignition. In coal mines, it only when the methane and air are mixed in certain definite proportions that the mixture is flammable and explosive, and will allow flame to spread in all directions. See also limits of flammability. Nelson. 


flammable mixtures of gases. A mixture which, when once ignited, will allow flame to be self-propagated throughout the mixture, independent of and away from the source of ignition. In coal mines, it only when the methane and air are mixed in certain definite proportions that the mixture is flammable and explosive, and will allow flame to spread in all directions. See also limits of flammability. Nelson. 

flammable nature. The term moraine originally defined an accumulation of ice-borne rock rubble, stopped at the terminus or along the sides, of an Alpine glacier. The term lateral moraine has established usage, as applied to a mountain glacier, and it should not be applied to the side- long or flanking moraines left by lobes or tongue-like projections of an ice sheet. An appropriate term is flanking moraines. A.G.I. 

flank production. Usually applied to the oil obtained around the periphery or flank of a geologic feature, as from the dragged-up and severed reservoirs on the flanks of a salt plug, A.G.I. 

flank. a. A gravity-collapse structure. A bed that has slipped to the side an anticline and bent over so that it is now upsidedown. A.G.I. b. Same as clack, a. Long. 

flank development. a. A structure developed in granitoid rocks and especially in gabbros by dynamic metamorphism. Small lenses of granular structure are set in a scaly aggregate that fills the interstices between them. It appears to have been caused by shearing that has crushed some portions more than others, and that has developed
flashe structure

a kind of rude flow structure. Fay, b. A structure developed in gneisses, gabbros, etc., by dynamic metamorphism. Small lenses of granular material are separated by streaks of finely crystalline, foliated material, usually aggregates of parallel scales in very or in bent lines. A.G.I. c. Lenticles of fine sand or silt, commonly aligned and usually crossbedded, which superficially resembles the flaser structure of some mylonites and other sheared metamorphic rocks. Fittjohn.

flash. a. Ches. A subsidence of the surface due to the working of rock salt and pumping of brine. Fay, b. In forging, the excess metal forced between the upper and lower dies in the forging press. Dodd,c. By forging, the fin of metal which results from leakage between the mating die surfaces. ASM Glass, d. In resistance butt welding, a fin formed perpendicular to the direction of applied pressure. ASM Glass, e. The formation, by suction fusion or vitrification, of a film of different texture and/or color on clay products or on glassware; in the firing of clay products, flashing may occur unintentionally; it is then a defect because of its uncontrolled nature. Bricks that are intentionally flashed make possible pleasing architectural effects. Flashed glassware is made by fusing a thin film of a different glass (usually colored) on the outside surface of the ware. Dodd, f. In structural brickwork, a sheet of impervious material or a coating with which the flashing might otherwise penetrate. Dodd, g. A fault in glassware. See also fin, b. Dodd, h. The fin of excess body formed during the plastic pressing of ceramic ware, for example, electrical porcelain; it is remembered by an auxiliary process. Dodd. i. Alternative name for casting spot. See also casting spot. Dodd.

flashed. a. Flashing or a sheet of impervious material, such as asphalt, firebrick, or sheet to produce a butt joint. After the current has been switched on, the two parts are brought together at a predetermined rate so that the continuous arcing occurs between the two parts to be joined. This arcing produces violent explosion of small particles of metal (flashing) and a positive pressure in the weld area excludes air, minimizing oxidation. When sufficient heat has been developed by flashing, the parts are pressed together so that all fused and oxidized material is extruded from the weld. Ham.

flashing. a. The minimum temperature at which a liquid is released by a solid or liquid to form a flammable vapor-air mixture at atmospheric pressure. I.C., 8137, 1963, p. 76, b. The temperature to which an oil must be heated in a specified instrument for sufficient vapor to be given off to form a flammable mixture with air under the prescribed conditions. Francis, 1965, v. 1, p. 271. c. The temperature at which petroleum, being heated, begins to evolve vapor in such quantity that on the application of a small flame a momentary flash occurs due to the ignition of the vapor. Also called flashing point. Fay.

flash manga. A very thin final electrodeposited film of metal. ASM Glass.

flash wall. A continuous wall refractory brick, usually built inside the kiln in front of the fireboxes; its purpose is to direct the hot gases towards the roof of the kiln and to prevent the impingement directly on the setting. Dodd.

flash welding. A resistance butt-welding process in which the weld is produced over the entire abutting surface by pressure and heat, the heat being produced by electric arcs between the members being welded. ASM Glass.

flash. a. A tinned vessel in which a miner carries oil for his lamp, or beverage for his lunch. Fay, b. In foundry work, a molding box which holds the sand into which molten metal is poured. Top half or part is its cope, bottom in drag, fused with a glass opal. Pryor, 3. c. An iron bottle in which quicksilver is sent to market. It contains 97% pounds. Fay, d. A necked vessel for holding liquids; especially a broad, flattened vessel of metal or sometimes glass. Webster 3d.

flaring. A German term for a texture found in gneisses, gabbros, etc., and caused by dynamic metamorphism. Short layers or small lenses of granular texture alternate with still thinner (flaser) layers composed of aggregates of parallel scales in wavy or bent lines. Stokes and Varnes, 1955.

flatt. a. Eng. In the Derbyshire coalfield, a district or set of workings separated by faults, old workings, or barriers of solid coal. Fay, b. N. of Eng. A siding or station underground; a parting. Fay, c. In Arkansas, a railroad car of the gondola type for shipping coal. Fay, d. In mine timbering, horizontal crosspiece or cap used in roof support. Pryor, 3. e. Of a mining lode, one less than 15° from horizontal in its dip. Pryor, 3. f. A flat coal seam. Korson, g. N. of Eng. In single place workings, the area served by the full tubs. SMRB, Paper No. 61. i. Eng. The area of working places under the supervision of a deputyorman. SMRB, Paper No. 61. j. Eng. The area of working places where coal is brought to the same passby. SMRB, Paper No. 61. k. Eng. The area of working places under the supervision of a deputyorman. SMRB, Paper No. 61.

flat-back arch. a. An arch in which both outer and inner surfaces are horizontal planes. H.W. b. In furnance construction, a flat structure spanning an opening, and building up by abutments at its extremities; the arch is formed by a number of special tapered bricks, and the brick lining is held in place by their keying action. Also called a jack arch. H.W. See also suspended arch.

fast-back arch. a. 9- by 6-inch special arch brick, one large face of which makes an
flat-back arch
angle other than 90° with the edge faces.

flat-back stope. An overhand stope method in which the ore is broken in slices parallel to the levels. Also called longwall stope. Fay.

flat belt conveyor. A type of belt conveyor in which the carrying run of the conveyor belt is supported by flat belt idlers or by a flat surface. ASA MH4.1-1958.

flat belt type. A flat-bottomed belt conveyor consisting of one or more rolling supports the belt in a flat position. ASA MH4.1-1958.

flat bit. A dull diamond or percussive-type bit. Long.

flat bottomed crown. See flat-face bit. Long.

flat course. A course of brick laid in a wall parallel with the floor. Fay.

flat cut. A manner of placing the boreholes, or at a low angle of inclination. Fay.

flat coal. Coal that is flat and hence not suitable to trim the part. ASM Gloss.

flat drill. A rotary end-cutting tool constructed to span in two directions. Mansfield.

flat drawn. Sheet glass made by the vertical drawing process. Dodd.

flat drum. A drum with notched edges on shells. The slide is cam driven and causes a brief dwell at the bottom of the stroke, at which time the die, sometimes called a shimmie die, oscillates to trim the part. ASM Gloss.

flat-end. Thin cleavages from the faces of a diamond crystal. Bureau of Mines Staff.

flat-face bit. Long.

flat-face cut. A cut made in a flat position. Fay.

flat-face cutting edge. Compare with a cutting edge. Fay.

flat-face point. A cutting point. Fay.


flat fin. A condition wherein the ten minute girth is approximately equal to the initial girth. Brandy, 1.


flat-fitting. A fitting, usually with a II-shaped cross section, used to provide a smooth floor for shoveling the broken rock into tubs. Nelson.

flat-floor. Said of deposits and coal seams which lie at a moderate inclination. Fay.

flat-floor type of hogback ridge. Often occurring in the lead and zinc district the term is applied to some fragmented dolomite. Fay.

flat feet. The flexible part of the sole of a flat shoe. Fay.

flat-fitting mill. A rolling mill for breaking up and flattening, a. A man who uncouples empty tubs or trucks and couples on full tubs, to make up sets at the inbye siding or putter's flat. T.C.T. b. A kind of hammer used by blacksmiths. Brandy, 1.

flat glass. A general term covering sheet glass, flat glass, plate glass, and various forms of rolled glass.

flat gravel. The gravel obtained as a by-product from the mining of traprock or whin. Fay.

flat grade. A section of horizontal or inclined connecting rods, running up upon rollers, or supported at their joints by rocking arms, to convey water to a steam engine or water pipe to pump rods at a distance. Fay.

flat-grit. A short-term deposit not associated with other ore bodies. Fay.

flat hole. A borehole following a nearly horizontal course. Fay.

flat idler. A flat idler that supports the belt in a flat position. NEMA MB1-1956.

flat iron. A triangular-shaped, sloping-mesa type of hogback ridge, often occurring in series on the flank of a mountain. A.G.I.

flat jack. A hollow steel cushion formed of two almost flat discs, welded around the edge, which is inflated under controlled pressure. Jacks of this type were used by Freymint in the construction of the Flou-gastet bridge. See also jack, Ham.

flat joint. In igneous rocks, a joint dipping at 45° or less and randomly oriented with respect to other joints. G.S.A. Mem. 5, 1937, p. 39.

flat joint point. A point in which the mining face is parallel with the surface and lined with the point of the towel. Standard, 1964.

flat lead. Same as craneman, a. Fay.

flat lode. A lode which varies in inclination from the horizontal to about 15°. Fay.

flat-lying. Said of deposits and coal seams with a dip up to 5°. Stoes, v. 1, p. 56.

flat-laying gravity fault. See plane of stretching, A.G.I.

flat-laying joints. Joints occurring in some igneous rocks, such joints is somewhat uncertain. Lewis, p. 603.

flatman. N. of Eng. One who looks (couples) the cars together at the flats, or levels. See also flat, b. Fay.


flatness. a. A measure of the shape of a pebble given by the ratio of the long and the intermediate diameters of the pebble divided by the short diameter. A.G.I. b. A measure of the shape of a pebble given by the ratio of the diameter of curvature of the most convex portion of the flattest face to the mean radius of the pebble. A.G.I.

flat nose. See flat-face bit. Long.

flat profile. A cylindrical tool with a valve at the bottom, for boring through soft clay. Fay.

flat of ore. An horizontal ore deposit occupying a bedding plane in the rock. See also flat, Fay.

flat positioning. Welding from the upper side, the face of the weld being horizontal. Also called downhand welding. ASM Gloss.


flat rods. A series of horizontal or inclined connecting rods, running up upon rollers, or supported at their joints by rocking arms, to convey water to a steam engine or water pipe to pump rods at a distance. Fay.

flat roofing. A steel rope made up of a number of loosely twisted four-strand ropes placed side by side, the lay of the adjacent strands being in opposite directions to secure uniformity in wear and to prevent twisting during winding. The strands are sewn together with a steel wire. For one period, flat ropes were widely used but round strand ropes are now preferred. Nation.

flats. a. Eng. Subterranean beds or sheets of traprock or whin. Fay. b. Eng. Tracts of coal seams which lie at a moderate inclination in districts containing highly inclined beds, North Staffordshire coalfield. See also flat, Fay. c. Narrow decomposed parts of limestones that are mineralized. Fay. d. Flattens. Zern. e. Thin, flat pieces of diamond crystal. Hess. f. Small flat areas on diamonds inset in a bit crown caused by abrasion during contact with the rock drilled. Long. g. Synonym for macules. Long. See also stria.

flats and pitches. a. In the Upper Mississippi lead and zinc district the term is applied to the nearly horizontal solution openings in the Galena Formation (Flats) and the interconnecting inclined joints or fractures (pitches) in which the ore has been deposited. A.G.I. b. Applied to certain ore bodies of characteristic form that occur in regions of bedded sedimentary rocks. Such ore bodies have a steplike form with the flats following nearly horizontal bedding planes and the pitches following steeply dipping fractures or fractures. Stokes and Varnes, 1955.

flat sheet. a. An iron sheet, laid at rail junctions, crossings, and ends underground, on which tubs are placed and which can be turned. C.T.D. b. A steel plate laid on the floor at the face of a tunnel or heading before blasting for shoveling the broken rock into tubs. Nelson. c. Synonym for blanket deposit. A.G.I. Supp.

flat slab. Reinforced concrete slab designed to give a greater wearing surface than ordinary round ropes and yet have about the same strength and flexibility. They have roughly some 50 percent more wearing surface than ordinary round ropes, owing to the Lang lay of wires. They are made in several forms. Lewis, p. 249.

flattened-strand triangular rope. A wire rope of the flattened-strand construction in which the strands are triangular in shape. Zern.

flattener. One who takes a cylindrical piece of glass like a wide tube, cracked longitudinally, and, after heating it to softening in a furnace, flattens it out to form a sheet. An old process used for making special types of sheet. C.T.D.

flattening-furnace. A furnace in which split cylinder glass is flattened out into sheets. Standard, 1964.

flattening, plane of. In structural petrology, the planes of cleavage or grains or fragments perpendicular to the greatest principal stress axis. The plane of schistosity is called a plane of flattening, plane of.

flattening test. A quality test for tubing in which a specimen is flattened between parallel plates that are closed to a specified height. ASM Gloss.

flatter. a. A man who uncouples empty tubs or trucks and couples on full tubs, to make up sets at the inbye siding or putter's flat. C.T.D. b. A kind of hammer used by blacksmiths. Brandy, 1.

flattening fish. Same as craneman, a. Fay.


flattened ripple mark. Ripples with flat, wide crests separated by narrow troughs. Pettijohn.

flattened-tile pressman. One who tends a battery of automatic presses that form flat
flat-wall-tile pressman

wall tile from tempered clay. Also called tile-press tender, automatic. D.O.T. 1.

flatware. Plates, saucers, dishes, etc. Compare hollowware. Dodd.

flatware presser. One who presses clay by flatware. Plates, saucers, dishes, etc. Also called wood presser. D.O.T. 1.


flatwork finisher. One who smooths plates, dishes, and other ware by setting piece on whirler which revolves it, and holding knife against it to remove rough marks. D.O.T. 1.

flatworking. Scot. A working of moderate inclination. See also flat 1, flat logo.

fly. a. A crack or inclusion in a diamond; also, internal twinning in a diamond. Long. b. A steep, transverse fault along which a dike is cut oblique to the strike of the fault. That is, a steep, transverse strike-slip fault. Compare tear fault, slip fault. A.G.I. c. In dry process enameling, a defect of the ware that is cause for rejection. ASTM C266-65.

flow fault. A rare type of fault, described by Sevier, in which the displacement has been parallel to the strike of the rocks, the dip is high and varying from one side to the other in the same fault, and the relative movement is practically horizontal and parallel with the strike of the fault. See also anticline.

flawless. Used to describe a diamond which is free from all internal and external blemishes or faults of every description under skilled observation in normal, natural, or artificial light with a 10-power lens, corrected for chromatic and spherical aberration. Hess.

flaxseed ore. An oolitic iron ore in which the mineral magnetite is assumed to have been transformed into a brown incrustation, the size of a pea, which is the chief ore deposit of iron in the northeastern United States. Fay.

flawless. Used to describe a diamond which is free from all internal and external blemishes or faults of every description under skilled observation in normal, natural, or artificial light with a 10-power lens, corrected for chromatic and spherical aberration. Hess.

flexible ventilation ducting. An adjustable pressure-control cam made of spring steel strips used to vary the pressure while turning, bowed, or twisted without breaking. Webster 3d.

flexible cam. A self-contained breathing apparatus, which is used by petroleum drillers, and miners, the angle between the two ends of a hoisting rope as a base and the headframe pulley as the apex. Fay.

flexile. a. As applied to the characteristic of tenacity in minerals, it means that the mineral will not bend without breaking, and will remain bent, as tale. Fay. b. The property of bending, as shown in some minerals by experimenting upon their plates or laminae. A flexible mineral remains bent after the pressure is removed, as in tale, selenite, etc. Nelson.

flexible. a. As applied to the characteristic of tenacity in minerals, it means that the mineral will not bend without breaking, and will remain bent, as tale. Fay. b. The property of bending, as shown in some minerals by experimenting upon their plates or laminae. A flexible mineral remains bent after the pressure is removed, as in tale, selenite, etc. Nelson.

flexible coupling. A coupled to connect shafts of adjacent rotating machines where flexibility is desirable, as in making a connection between a motor and a centrifugal pump. A rigid coupling, or a universal joint, permits of being turned, bowed, or twisted without breaking. Webster 3d.


flexible guides. See winding guides. Sinclair, V, p. 46.

flexible joint. Any joint between two pipes that permits one or more turns without disturbing the other pipe. Fay.

flexible mineral. A mineral which yields to the bending stress without breaking, as anthracite, asbestos, Stites and Barnes, 1955, p. 149.

flexible pavement. A waterproof top layer for a road or aircraft runway made of bituminous material which is assumed to have no tensile strength. Hum.


flexible silver ore. Same as stembergite. Fay.

flexible-type carrying idler. Consists of one or more idler rolls arranged to form a continuous trough. This may be accomplished by mounting a single roll on a flexible shaft or by linking a series of rolls with individual rigid shafts. NEMA MB1-1961.

flexible ventilation ducting. Flexible tubes made from fabrics coated with rubber or polyvinyl-chloride (P.V.C.) for auxiliary ventilation. The ducting is made in lengths of 25, 50, and 100 feet, every length having a spring steel wire coupling ring sewn or welded into each end, and can be supported from a wire running along the roof. The advantages of flexible ducting over
flexible ventilation ducting

metal tubes are: (1) can be stored in a much smaller space; (2) less weight; (3) can conform to moderate bends much easier than metal pipes, and (4) cost of fixing is only a fraction of that incurred with metal pipes. See also ventilation tubing.

flexible wall. Reinforced concrete retaining wall having a stem designed as a cantilever, as a beam or as both. Ham.

flexing. The bending of the conveyor belt which takes place as it wraps around the pulleys. The ply nearest the face of the pulley is under the minimum stress and the ply farthest from the face is under the maximum stress. Flexing stresses increase with a decrease in pulley diameters. ASA MH4.1-1958.

flexok. A patented circle brick, with book ends, used in domestic furnaces, cupolas, and acid tank linings. Bureau of Mines Staff.

flexural center. Shear center. With reference to a beam, the flexural center of any section is that point in the plane of the section through which a transverse load, applied so that section, must act if bending deflection only is to be produced, with no twist of the section. Compare torsional center. Stoney.

flexural modulus of elasticity. The modulus of elasticity of a material in the flexural test. It may be calculated from a load-deflection diagram, as follows:

\[ E_p = \frac{P}{b^2} \left( \frac{L}{d^2} \right) \]

where \( E_p \) = flexural modulus of elasticity, psi

\( P \) = load of initial straightline portion, pound/inch

\( L \) = span, inch

\( d \) = specimen width, inch.

flexural rigidity. Second moment of the section of a beam multiplied by Young's modulus. Ham.

flexural strength. A measurement of the resistance of rocks in which the bending of layers dominates over the slip between them. G.S.A. Mem., 6, 1938, p. 152.

flexural strength. See modulus of rupture; transverse strength.


flexure correction. A correction applied to pendulous observations of gravity. The vibrating pendulum produces oscillations of the receiver case, of the pillar, and of the bob. Rather complex coupled vibration phenomena arise and the period of the pendulum itself changes. Numerous means have been proposed to correct for this influence or to eliminate it. Since the correction is of the order of 10- to 40 x 10^{-6} in solid rock or cement and may increase to as much as 5 x 10^{-5} sec. on sandy ground, it must be determined accurately. AGI.

flexure fold. See fold, flexure. AGI.

flexure folding. See folding.

flexure-slip folding. a. Folds in which the individual strata not only bend but also slip past one another. Billings, 1954, pp. 89-90. b. Movement in a layered rock in which competent bands are folded but slipping occurs along deepened s-planes in which the most common type of deformation. G.I. Supp.

flicker photometer. A photometer consisting of a plater of Paris disk with the edges bevelled. The disk is rotated by clockwork inside a box placed on the photometer bench between the lamps under test. The eye sees the two sides of the disk in rapid succession and if one is more brightly lit than the other, a flickering effect is produced. By altering the position of the instrument until this flickering disappears, the point where the illumination on the two sides of the disk is equal may be found with considerable accuracy. Mason, n. i., P. 1.


flight conveyor. A type of conveyor comprising one or more endless propelling media, such as chain, to which flights or attached bands of material is pushed by the flights. ASA MH4.1-1958.


flight line. In an aeromagnetic survey or in other airborne geophysical surveys, a line drawn on a map or a chart to represent the course over which an airplane has been flown, or the course over which it is being flown. AGI.

flight loader. Lambton flight. A standard coal cutter which has been modified to enable it to load prepared coal on to a face conveyor. The flights are short plates or boxes fitted into special holders in the ordinary cutter chain. The flights are articulated and held in position by loose pins to allow easy attachment and detachment. When loading the jib is angled forward 10 to 30 degrees and the flights push the coal along the floor on to the conveyor. For jib 4 to 6 inches long, four flights are commonly used. Face lengths up to 200 yards can be loaded by this method. Degradation of coal is high. Nelson.

flight pattern. In an aeromagnetic survey or in other airborne geophysical surveys, the planned flying route used. AGI.


flint clay. a. A flintlike clay which when ground develops no plasticity. AGI. d. A hard refractory clay which is largely composed of well-crystallized kaolin which breaks with a conchoidal fracture, similar, flint, hence the name. Bureau of Mines Staff.

flint-enameded ware. Rockingham-type pottery with a glaze flecked in yellow, brown, and blue; patented at Bennington, Vermont. AGSd, 1963.

flint fire clay. A hard or flintlike fire clay occurring as an unstratified massive rock, practically devoid of natural plasticity and showing a conchoidal fracture. AGI. C71-64. See also flint clay.

flint glass. a. A glass in which lead and potash replaces a considerable part of the lime and soda of ordinary glass. This gives a softer, more fusible, more lustrous and brilliant glass with high dispersion and therefore of use as an optical glass. CCD 6d, 1961. b. A term used by the container industry for colorless glass. ASTM C162-66.

flint. A term sometimes applied to the body of a rock in which consists of natural clay to which no flint or quartz or other form of free silica has been added. Dodc.

flint mill. a. A device in which flints on a revolving wheel produce a shower of sparks incapable of igniting firedamp, and once used to light miners at work. See also steel mill. b. In pottery works, a mill in which flints are ground. Webster 2d. c. Floating instrument platform in use in the Pacific Ocean. Similar in design to seaplane launching platforms and is used as a base for oceanographic research. Flit is manned and can drift with currents. Hy.

flint optical glass. An optical glass with high dispersion and high index of refraction, usually forming the refracting elements of an optical system. Any optical glass possessing a Nu-value less than 50.0 or any optical glass with a Nu-value between 50.0 and 55.0 having a refractive index less than 1.60. ASTM C162-66.


flinty. An alternative name for stone ware. C.G.D.

flinty crush rock. A black flinty product of

440 flinty crush rock
floaty crush rock

dynamic metamorphism associated with mylonite, and representing a flitted or partly fused variety of mylonite. It is generally structureless, but occasionally shows traces of foliation or lineation. Buchite; bastite, mylonite; pseudobrookite; talc, talc schist; trap spherulite; gneiss; ultramylonite.

floaty slate. A common slate containing more stable state, and which undergoes a completely structureless, but occasionally shows traces of incipient crystallization. See also fritted gneiss; trap-shotten gneiss.

flip-flop. a. A trigger circuit which has one stable or quasistable state and one unstable state, and which undergoes a complete cycle of change in response to a single triggering excitation. NCB. b. A glass decanter with a thin base. Dodd.

flipping turn. System of pulleys incorporated in the return-side tracking of belt conveyor, which turns it through 180°, so that any adhering material do not come in contact with idler pulleys. Pryor, 3.

float. a. To move, dismantle, or re-erect conveyors. Sinclair, V, p. 386. b. N. Eng. Move or transport (applied to coal-cutting equipment. T.I.M.E.

filter. a. A trigger circuit which has one stable state, and which undergoes a complete structureless, but occasionally shows traces of incipient crystallization. See also flinty slate. NCB. b. Of glass so fine that they float on water. Fay. b. Of quartz sand grains more or less completely disseminated in limeslime. A.G.I. Supp. c. The total spreading of plaster, stucco, or cement work by means of a board called a float. Gripsn.

floating agent. As used in the vitreous enameling industry, this term is the equivalent of the English term suspending agent. See also suspending agent. Dodd.


floating cable. In seismic operations in water-covered areas, a cable connecting geophone recording devices which can be floated or submerged by means of air chambers as required for ship repairs. Ham.

floating control system. As used in flotation, a system in which the rate of change of the manipulated variable is a continuous function of the actuating signal. Puert. 3.

floating dock. An open-ended structure built up of small calcite rhombohedral slabs. Fay.

floating control system. As used in flotation, a system in which the rate of change of the manipulated variable is a continuous function of the actuating signal. Puert. 3.

floating harbor. A system of floating docks moored so as to give breakwater protection against wave action. Ham.


floating oil pan. Small pieces of gem opal, placed in glycerin in a transparent, drop-shaped or spherical glass container, for use principally as a drop on a neck ornament. Skipp.


floating pipe. A pipe placed on pontoons which are used for removing spoil from a suction dredger. Ham.

floating reef. Masses of displaced bedrock lying among alluvial detritus. See also float. Fay.

floating sand grain. An isolated sand grain, particularly in limestone, that is not in contact with other scattered sand grains. A.G.I. Supp.


floating strain. A buoyant pump suction end which draws its water from near to the surface of the free-water level and thus pumping almost clear water. A floating strainer may be used in dealing with masses of water other than in properly constructed sumps. Nelson.
float, a. A piece of sea ice, other than fast ice, from 10 meters in diameter to ice field size. Schiefferdecker. b. An area of ice other than fast ice, the limits of which are within sight, as distinct from an ice field. Also called a sea floe. A.G.I. c. A man of floating ice some 100 feet to 5 miles across, that is not fast to any shore, that was formed by the breaking up of the frozen surface of a large body of water. A.G.I. Supp. d. Loose ganister or other rock, accumulated at the base of a slope. Bureau of Mines Staff.

floeberg. a. The great stratified masses of salt ice that lie grounded along the shores of the Polar Sea. There are nothing more than fragments broken from the edges of the perennial floes. We called them floebergs, in order to distinguish them from, and yet express their kinship to, icebergs. A.G.I.

floe ice. Floating ice of much greater thickness is sometimes seen, but it is doubtful if these great pieces of ice represent the ice formed by the freezing of undisturbed seawater. The ice formed in winter is often broken up in the summer into small floating pieces, floe ice; and the floe ice is sometimes crowded together in ice packs. A.G.I.

floe rock. Rock occurring in or taken from a body of talus; usually refers to ganister. A.R.I.

floc. a. till. See till. Fay.

floc. b. a. A bed or stratum. As used by Werner, means a layer or bed enclosed by soils of different ages. Fay. c. A mass of floating ice some 100 feet or more in diameter, often broken up in the summer into floes. Fay.

floc. e. A rock that contains biotite together with the typical minerals of the green-schist facies. A.G.I.

floc. f. As a verb, to cover or to cause to be covered with water or some other fluid. To fill an oil sand with water to displace and to expel the oil. Webster 3d.

floc. g. A term implying the occurrence of a particular kind of rock, such as granite or limestone, as to constitute almost a pure concentrate. A.G.I. f. As a verb, to cover or to cause to be covered with water or some other fluid. To fill an oil sand with water to displace and to expel the oil. Webster 3d.

floc. h. The flowing in of the tide. The semidiurnal swell or rise of water in the ocean. Opposite of ebh. The highest point of a tide. A.R.I.

floculent. a. As a verb, to cause to aggregate or to coalesce into small lumps or loose clusters or into a floculent mass or deposit. Especially applicable to colloids, clay, and soils. A.G.I. c. A mass of material formed by flocculation of a suspension by adding an electrolyte. A.G.I. Supp. A.G.I. d. A term implying the occurrence of a particular kind of rock, such as granite or limestone, as to constitute almost a pure concentrate. A.G.I. f. A term implying the occurrence of a particular kind of rock, such as granite or limestone, as to constitute almost a pure concentrate. A.G.I. f. A term implying the occurrence of a particular kind of rock, such as granite or limestone, as to constitute almost a pure concentrate. A.G.I. f. A term implying the occurrence of a particular kind of rock, such as granite or limestone, as to constitute almost a pure concentrate. A.G.I. f. A term implying the occurrence of a particular kind of rock, such as granite or limestone, as to constitute almost a pure concentrate. A.G.I. f.

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flood casting  443
tary ware industry for the process of slip casting in which excess slip is removed from the mold by draining. In other sections of the pottery industry, the process refers to merely casting slip. In the United States, the process is known as drain casting. Dodd.

flood plain. A flat, low-lying land area in which the water level is even with the surrounding area during periods of high water. SACB-I.

flood plain. The whole area flooded is called the flood plain.ACS-B-1.

flood plain. 1. A low-lying area adjacent to a stream. 2. The flat ground along a stream, covered by water at the flood stage. Fay. 3. Any low-lying ground surface. Fay. 4. The flat ground along a stream, flooding point. The limiting flow rate in two-sided migration of the channel. Schieferdecker.

flood plain. The flat ground along a stream, flooded at the flood stage. A.G.I.

flood plain. That part of any underground gallery upon which a person walks or upon which a tramway is laid. Fay. c. A plank platform under ground. Fay. i. The upper surface of the stratum underlying a coal seam. C.T.D. g. The bottom of a coal seam or any other mineral deposit. Arkell.

flood plain. f. A flat, low-lying area adjacent to a stream. g. Flood-plain clay. Any clay underlying the flood channel. Tidal channel in which the flood currents are stronger than the ebb currents. Schieferdecker.

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certain definite horizons in the strata. Arkell 1, loc. cit. 1930. Certain branches of this method branch off laterally, Alston Moor lead mines. Arkell.


flotation. a. The method of mineral separation in which ore is broken in water by a variety of reagents and floaters so finely crushed minerals, whereas other minerals have a variety of reagents and floaters to control the pH of flotation solutions. Bennett 2d, 1962.

flotation time. The time necessary to make the separation into concentrate and tailing depends on such factors as particle size and reagents used, and must be known for determination of the size and number of flotation cells in the plant. Fuertesena, p. 365.

flood. A synthetic reagent of the general nature of pine oil, used as frother in flotation process. Pryor, 3.

floe. See float. Fay.

floc copper. A very finely scaly native copper that floats on water and is very difficult to save in milling. Need, 1922. See also float copper. Fay.

flour. The finely granulated condition of quicksilver, produced by a greater or lesser extent by its agitation during the amalgamation process. The coating of quicksilver with what appears to be a thin film of some sulfide, so that when it is separated into globules these refuse to reunite. Also called thickening; thickening. Fay.

flour mercury. A finely divided mercury. Fay.

flour gold. The finest size gold dust, much of which will float on water. See also float gold. Fay.

flour gypsum. Same as ypsite. New South Wales, p. 56.

flour. Float. Fine-grained soil having the appearance of a flour when wet, but powdery when dry. Fay.

flow. a. That which flows or moves in a fluid state; that which flows or moves in a liquid state. Fay. b. Load casts modified by the sand or mud containing the water, or even by the movement of the fluid in which the objects are suspended. Pettijohn.

flowage differentiation. The retarding effects produced by relatively narrow walls on the movement of individual particles. See also floatation. Fay.

flowable. A characteristic of a foundry sand mixture which enables it to move under pressure so that it makes intimate contact with all surfaces of the pattern or corebox. ASM Gloss.

flowage fold. a. A minor fold that is result of the flowage of rocks toward a central axis, towards which the minor folds are overturned. A.G.I. b. A fold in which the layers of rock are thinned at the crest of the fold and are thickened at the trough of the fold. A.G.I. Supp.

flow banded. A structure of igneous rocks that is especially common in silicate flows. It is due to the movement or flow of magma or lavas. It exists at an alternation of mineralogically unlike layers. Fay.

flow blue. A deep cobalt blue which was used for underglaze printing on pottery. As the name indicates, the color tended to thicken into the glaze, giving a bluer effect; this result was obtained by placing flow powder in the same glaze containing the ware, chlorine evolved from the powder and combined with some of the cobalt, therefore rendering it slightly soluble in the glaze. See also flow powder. Dodd.

flow bog. A peat bog, the surface of which is likely to rise and fall with every increase or decrease of water. The water may come from rains or springs. Fay.

flow casting. Baking by pouring molten filler metal over a joint. ASM Gloss.

flow channel. The portion of a flow net bounded by two adjacent flow lines. ASCE Field Book.

flow characteristics. The rate at which a metal powder will flow through an orifice in a standard instrument, such as a cylinder, according to a standardized procedure. Rolfe.

flow cleavage. a. Cleavage that depends on the parallel arrangement of the mineral surface of a mass of crystals in a magmatic liquid, which may give rise to magmatic differentiation and so the concentration of the minerals. Schieferdecke.

flow cleavage fold. A minor fold that is the result of the flowage of ground. Nickols, 1920.

flowing. a. That which flows or moves in a fluid state; that which flows or moves in a liquid state. Fay. b. Load casts modified by the sand or mud containing the water, or even by the movement of the fluid in which the objects are suspended. Pettijohn.
flow cleavage

constituents of the rock and which developed during rock flowage. Compare fracture cleavage. See also conjugate fracture cleavage. G.A.I. Supp. b. That variety of rock cleavage that is the result of the solid flow of the rock. See also foliation. G.A.I. flow. c. A process of movement of a liquid, gaseous, or solid medium through a porous medium or metal shape by causing the drop to flow over its surface and allowing it to drain. ASTM C286-63.

flow curve. A graph of points obtained in a test for liquid limit. This shows number of blows on the horizontal, logarithmic scale and moisture content on the arithmetic scale. The point of intersection between the flow curve and the 25-blows vertical line is the liquid limit. The flow curve takes the form of a straight line. Ham.


flow failure. Failure in which a soil mass moves and slides along long vertical distances in a fluidlike manner. ASCE P1826.

flow folding. Folding in incompetent beds which offers to little resistance to deformation that they assume any shape impressed upon them by the more rigid rocks surrounding them or by the general stress patterns of the deformed zone. System for pygmatic folding. G.A.I.

flow gneiss. A gneiss, the structure of which was produced by flowage in an igneous mass before complete solidification. G.A.I. Supp.

flow gradient. A drainageway slope determined by the elevation and distance of the inlet and outlet, and by required volume and velocity. Nickell.

flow hole. See throat. ASTM C162-66.

flowing film concentration. In metallurgy, a concentration based on the fact that liquid films in laminar flow possess a velocity which is not the same in all depths of the film. There is a flow at the bottom but maximum at or very near the top resulting from the internal friction of one layer upon another. By this principle lighter particles are washed off while the heavier particles accumulate and are intermittently removed. This is the gravitational settling of elements. Yarrow and round tables have been developed from this basic principle, whereas bumping and shaking tables jointly utilize flowing film and other principles. Gaudin, p. 260.

flowing furnace. A reverberatory with inclined tuyères. Armstrong, Cornwall, England, for treating roasted lead ores by the pre-cipitation process. Fay.

flown, v. See exhaustion. G.A.I.

flowing well. a. A well in which pumping is not necessary to bring the fluid to the surface. Fay. b. A well that discharges water or oil at the surface without the aid of a pump or some other lifting device. Stokes and Varne, 1955. c. A well in which the fluid is flowing to the surface because of pressure or entained gas. G.A.I.

flow, lava. See lava flow. G.A.I.

flow layer. A rock layer, differing mineralogically or structurally from the adjacent layers, and which was produced by flowage before the complete solidification of the magma. G.A.I. Supp. b. A parallel orientation of flow elements in an igneous rock that results in a banded structure. Certain minerals are segregated into such layers or into very flat lames of contrasting appearance. Stokes and Varne, 1955.

flow line. a. Any internal structure in an igneous rock produced by the orientation of crystals. See also flow structure; flow texture. G.A.I. Supp. b. The path that the particle of water follows in its course of seepage under laminar flow conditions. ASTM P1826. c. A conduit, as a pipe, through the hydraulic gradient. Seeley, 1. f. Flowline. Seeley, 1.

flow-line arch. A structure in massive igneous rock similar to a schlieren arch but indicated by more or less obscure flow lines rather than by flow layers. G.S.A. Mem. 5, 1937, p. 1440. 7*4

flow machine. A machine used in glassmaking; molten glass flows into it from a feeder under the action of gravity. Dodd.


flow meter. a. A device installed in a drilling-fluid circulation system that registers the number of rambles, fluid circulated per minute and also indicates when the flow past the bit ceases. Long b. A device which registers the quantity entering the tank, such as quantity of gases, liquids, and fluid pulps. Used in mining dressing and compaction under overburden load. A.G.I. Supp. b. A pillow-sized and pillow-shaped bodies of sandstone which characterize certain strata. Presumed to form by deformation, perhaps a product of large-scale load-casting or of subaqueous slump. See also balland-pillow structure; flow structure; slump block; pseudonodules; storm roller. Pettijohn.

flow, plot. A diagram showing the progress of coal or ore from the preparation or treatment plant. It shows the crushing, screening, cleaning, or refining processes to which the material is subjected from the raw-mine state to the clean and sized products. The size range at the various stages may also be shown. Nelson.

flowsheet, liquids. A flowsheet to indicate the flow liquids throughout a series of operations. B.S. 3532, 1962.


flow, weighted. A materials flowchart including a statement of the capacity in tons per hour at principal points in the plant. B.S. 3532, 1962.


flow rate. a. Weight of dry air flowing per unit time. Measured in pounds per hour. Hastings, p. 8. b. In powder metallurgy, the time required for a powdered sample of standard weight to flow through an orifice in a standard instrument according to a specified procedure. ASM Gloss.

flow rock. Ganister found loose on the side of a mountain. A.I.S. No. 24.

flow, round. A rounded mass of sandstone projecting into underlying argillaceous sediment either lining an eroded depression or produced by differential settling and compaction under overburden load. A.G.I. Supp. b. Pillow-sized and pillow-shaped bodies of sandstone which characterize certain strata. Presumed to form by deformation, perhaps a product of large-scale load-casting or of subaqueous slump. See also balland-pillow structure; flow structure; slump block; pseudonodules; storm roller. Pettijohn.

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flow structure

are revealed by alternating bands or layers of differing composition, of differing crystallinity, or of differing texture, or by a subparallel arrangement of prismatic or tabular crystals. Holmes, 1920. b. A structural feature found when a magma is solidifying into an igneous rock and while it is sufficiently liquid to flow. See also linear flow structure; planar flow structure. A.G.I. c. A structure due to the alignment of the minerals or the inclusions of an igneous rock so as to suggest the swirling curves, veins, or bands of a flowing stream. Fay. d. An oriented structure that developed in rock during flow. Webster 3d. e. A structure of igneous rocks which is caused by flow in a magma during crystallization. The flow may produce alternating bands or layers of different composition, crystal habit, and texture, or by a parallel orientation of prismatic and tabular crystals. Synonym for fluidal structure; fluxion structure. Schieferdecker.

flow velocity of water in soil. The vector function used to indicate the rate and direction of movement of water through soil, the volume moving per unit of time, and the area normal to the direction of net flow. A.G.I. Supp.

flow surface. The plane separating adjacent flow layers. G.S.A. Mem. 6, 1938, p. 44.

flow symmetry. The symmetry of movement corresponding to the symmetry, and interchangeable parts located with reference to a center or one or more axes or planes. See also axial symmetry; isotropic symmetry; monoclinic symmetry; orthorhombic symmetry; polar symmetry; tetragonal symmetry; triclinic symmetry. A.G.I. Supp.

flow test. A test for the consistency of concrete in terms of its tendency to spread when placed on a metal table and jolted under specified conditions. Dodd.

flow texture. A texture common in the glassy groundmass of extrusive rocks, especially lavas, in which a stream of liquid flows. Flow lines of the once molten rock are revealed by a subparallel arrangement of prismatic or tabular crystals. Synonym for fluidal texture; fluxion structure. A.G.I.

flow unit. One of the nearly contemporaneous subdivisions of a lava flow (usually basaltic) which consists of two or more parts which were poured one over the other during the course of a single eruption. In cross section, a typical flow unit has a lenticular form, ranging from about 100 feet to 300 feet wide and from 10 to 30 feet thick. Longitudinally, the flow unit may be as much as one-half mile long. A.G.I.

flow velocity of water in soil. The vector function used to indicate the rate and direction of movement of water through soil, the volume moving per unit of time, and the area normal to the direction of net flow. A.G.I. Supp.

F.L.P. In Great Britain, tests of every type of apparatus are made in explosive atmospheres before they are approved and allowed to use the official letters F.L.P. (flameproof). Maton, v. 2, p. 432.

floc: A lode having flocan on one or both walls, and sometimes in the center. Fay. 

flocan. See Flocan, Priory, 3.

floculate. In tidal information, generally refers to variations of sea level due to tides, producing forces and are not included in the prediction heights of tide. Hy.

floc, a. S. Wales. A furnace, such as a large coal upfist at or near the bottom of an uptfist for producing a current of air or vapor, or for ventilating the mine. Fay. b. A tube or passageway in a steam boiler for hot gases or water (depending on whether boiler is a fire-tube or water-tube boiler). Bureau Mines Staff, c. Lanc. Shale Arkell. d. A British term used in the same sense as the term tube is used in the United States. Edgell. A passage or channel through which the products of combustion of a boiler or other furnace are brought to the chimney. Fay.

floc bridge. The separating, low wall between the flues and the laboratory of a reverberatory furnace. Fay.

floc brush. a brush made of pieces of wire or steel used to clean the interior of a flue from scales and soot. Fay.

floc clinder. Iron oxide from the reheating furnace, so called because it runs out from the lower part of the flue. Fay.

floc dust. Dust passing into the flues of a smelter or metallurgical furnace and which, unless caught, passes out of the chimney. It is composed of particles of unchanged ore, volatilized lead that has been converted into oxide, carbonate and sulfate ash, and fuel, volatilized products of arsenic, zinc, bismuth, etc. Hets.

floc liner. A fire clay shape for use in the flues and chimneys of domestic heating appliances. Dodd.

floc lining. Low-grade fire clay pipe of cylindrical or rectangular cross section used for lining flues. Fay.


flocillate. Superglacial debris (ablation moraine) that moved laterally as a mass from one indistinct cleavage, having an adjacent lower surface. A.G.I. Supp.

floc unit. One of the nearly contemporaneous subdivisions of a lava flow (usually basaltic) which consists of two or more parts which were poured one over the other during the course of a single eruption. A.G.I.

floc velocity. The vector function used to indicate the rate and direction of movement of water through soil, the volume moving per unit of time, and the area normal to the direction of net flow. A.G.I. Supp.

fluid. a. As an adjective, having particles of a fluid, or relating to or characteristic of a fluid, or containing a fluid. Fay. b. The physical property of a substance that enables it to flow and that is measured by a force at which it is deformed by a shearing stress as contrasted with viscosity: the reciprocal of viscosity. Webster 3d. c. A liquid which, in the broad term, not confined to liquids and slurries, but also used for finely divided solids which flow readily in a current (as a ball-and-pillow reactor, or through dry ball mills. Priory, 3.

fluid catalytic cracking. A cracking process that is fractionally distilled to separate out motor-spirit fractions, fuel-oil blending components and gases. The latter can be used as feedstocks for the manufacture of petrochemicals. See also fractional distillation. Nelson.

fluid circulation. See drill fluid. Long.

fluid clutch. A hydraulic coupling which does not increase torque. Nicholls.

fluid column. The number of feet of drilling fluid standing in a borehole while the drill is operating and/or the number of feet of drilling fluid remaining in a borehole with the drill string withdrawn. Long.

fluid contact. The surface of a formation separating two regions characterized by predominant differences in fluid saturation. Because of capillary and other phenomena, the fluid-saturation changes is not necessarily abrupt or complete, nor is the surface necessarily horizontal. A.G.I.

fluid conveyor coupling. A device for overcoming the starting resistance of a conveyor fed from a fluid clutch. It is used to allow the motor to reach full speed before starting the conveyor. Nelson.

fluid cut. See fluid wash. Long.

fluid drive; fluid clutch. An automotive power coupling that operates on a hydraulic turbine principle, the flywheel being having a set of turbine blades connected directly to it and driving them in oil thereby turning another set of turbine blades attached to the transmission gears of the automobile. Webster 3d.

fluid energy mill. A size reduction unit designed for grinding for its grinding action on the particles being ground, the energy being supplied by a compressed fluid, for example, air or steam (that enters the grinding chamber at high speed. Such mills will give a product of 5s or less; they have been used for the fine grinding of felds, etc., zircon, titania, and calcined alumina, but the energy consumed per ton of milled product is high. Dodd.

fluid flow. See Raleigh's law. Lewis, p. 709.

fluid-fuel reactor. A type of nuclear reactor (for example, a fused-air reactor) for the purposes of which is in fluid form. L.S.I.

fluidimeter. An instrument devised by J. Joshua Phillips for determining the fluidity of oils at various temperatures. Fay.

fluid inclusion. See inclusion, fluid, A.G.I.

fluidity. a. The quality, state, or degree of being fluid: a liquid or gaseous state. Webster 3d. b. The physical property of a substance that enables it to flow and that is measured by a force at which it is deformed by a shearing stress as contrasted with viscosity: the reciprocal of viscosity. Webster 3d. c. A liquid which, in the broad term, not confined to liquids and slurries, but also used for finely divided solids which flow readily in a current (as a ball-and-pillow reactor, or through dry ball mills. Priory, 3.
fluidization. A masting process in which finely divided solid materials are kept in suspension by a rising current of air (or other gas). This produces a fluid bed, which provides an ideal condition for gas-solid reaction because each solid particle is in constant motion and in contact with the moving gas stream on all sides. The solid material must not contain pieces so large that they will not stream. Oxidation of finely ground fluidized bed dryer. A cool dryer which of the principle used in reflection prospecting is withdrawing from the opposite annular space between the tubing and well down to the surface of the fluid. The problem of oxygen entry, a desired exothermic level by control of between mineral and air is maintained at rents of air, blown through a reaction vessel with sufficient force to cause the fluidization, intense turbulence is created in the mass including which is generally in the form of slabs; a current of air or hot gases which is forced up through the material. The principle is used as a method of conveying powders along a slightly inclined porous ceramic trough; the powder can be simultaneously dried and/or calcined. Fluidized bed dryer. A cool dryer which depends on suspension of particles being fluidized by passing a stream of hot air through it. As a result of the fluidization, intense turbulence is created in the mass including a rapid drying action. The coarse dry coal is withdrawn from the opposite side of the bed by a pump, usually expressed in pounds per square inch. Long. b. The forced, expressed in pounds per square inch, exerted by the weight of the column of fluid measured at any given depth in a borehole. Fluid volume. The amount of drilling fluid circulated through the drill string, generally expressed in gallons per minute. Long. fluid wash. The wearing away of core and parts of a drill string or bit exposed to the erosive forces of the rapid passage of the circulated drilling fluid. Also called fluid cut. Long. Fluid volume. The amount of drilling fluid circulated through the drill string, generally expressed in gallons per minute. Long. fluid wash. The wearing away of core and parts of a drill string or bit exposed to the erosive forces of the rapid passage of the circulated drilling fluid. Also called fluid cut. Long. phukan. South Appalachian. Flucan. Fay. Fluke. A rod used for cleaning drill holes before they are charged with explosives. Fluken. a. Corn. Gouge clay. Arkell. b. A crossvein composed of clay. Arkell. Flume. a. A sloping channel or trough usually of wood and often supported on a trestle, for conveying water from a distance to be utilized for power, transportation, etc., as in placer mining, logging, etc. Fay. c. A milltail. Fay. d. To transport in a flume, as log. Fay. d. To divert by a flume, as the waters of a stream, in order to form the bare auriferous sand and gravel forming the bed. Fay. e. An open trough or channel, made of wood or other material, used for conveying water. Also called launder; sluice; race. B.S. 3618, 1963, sec. 4. f. A ravine or gorge with a stream running through it. Fay. Flumed. The transportation of solid by suspension or flotation in flowing water. ASTM STP No. 148-D. Flume man I. In metal mining, one who lays and repairs wooden pipes or flumes used to convey water in and about a mine. D.O.T. 1. Flume man II. In metal mining, a laborer who patrols flume line (usually a wooden structure along a hillside) used to convey water to the mine for washing and separating the gold, platinum, or other metals from the gravel in which it is found. Also called flume tender. D.O.T. 1. Fluorescent lamp. a. Commonly and improperly designates an electric lamp device emitting ultra-violet radiation or black light. Long. b. A glass globe or tube the inner surface of which is coated with a fluorescent substance that produces visible light by a substance exposed to ultraviolet light. It is a useful property in examining well cuttings for oil shows and in prospecting for some minerals. A.G.I. Supp. The absorption of radiation at one wavelength, or a range of wavelengths, and its re-emission as radiation of longer, visible wavelengths. ASTM STP No. 148-D. Fluorescence. Having the property to produce fluorescence. Long. fluorescent penetrant. See fluee man II. D.O.T. 1. Fluorite. See flume man II. D.O.T. 1. Fluorite. A mineral, artificial NaCaMg3Si3Al(OH)6F2, Spencer 21; M.M., 1958. Fluorometry. See fluorimetry. Pryor, 3. Fluorite. A mineral, artificial NaCaMg3Si3Al(OH)6F2, Spencer 21; M.M., 1958. Fluorometry. See fluorimetry. Pryor, 3. Fluorine. An organic compound, CaH4, found in burning of pyritous shale in Bohemia, Czechoslovakia. Later renamed kroptocline. Tomkeiiff, 1954. Fluorite. A trade name for fluo.

fluidity factor

The fluidity factor is the ratio between the fluid's viscosities in two different temperatures. It is a measure of the fluid's resistance to deformation and is used to determine the best conditions for transportation of mud-laden fluid. The fluidity factor is important in understanding the behavior of mud in pipelines, and in predicting its flow characteristics. It is also used in calculating pumping rates and estimating the costs of mud transportation. The fluidity factor is defined as the ratio of the apparent viscosity at the designed temperature to the apparent viscosity at the higher temperature. This factor is used to calculate the flow rate of mud in pipes, and to determine the necessary size of the pipeline. The fluidity factor is also used to calculate the cost of pumping mud, and to determine the most economical method of mud transportation. The fluidity factor can be calculated using the following equation:

\[ \text{Fluidity Factor} = \frac{\mu_T}{\mu_S} \]

where \( \mu_T \) is the apparent viscosity at the designed temperature, and \( \mu_S \) is the apparent viscosity at the higher temperature. The fluidity factor can range from 1 to infinity, with a fluidity factor of 1 indicating no change in viscosity, and a fluidity factor of infinity indicating a change in viscosity of 0. The fluidity factor is also used to calculate the flow rate of mud in pipes, and to determine the necessary size of the pipeline. The fluidity factor can be calculated using the following equation:

\[ Q = \frac{\pi d^4}{128 \mu T L} \]

where \( Q \) is the flow rate, \( d \) is the diameter of the pipe, \( L \) is the length of the pipe, and \( \mu T \) is the apparent viscosity at the designed temperature. The fluidity factor is also used to calculate the cost of pumping mud, and to determine the most economical method of mud transportation. The fluidity factor can be calculated using the following equation:

\[ C = \frac{P}{Q} \]

where \( C \) is the cost of pumping mud, \( P \) is the pressure required to pump the mud, and \( Q \) is the flow rate. The fluidity factor is also used to calculate the flow rate of mud in pipes, and to determine the necessary size of the pipeline. The fluidity factor can be calculated using the following equation:

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fluorescent penetrant

the ultraviolet light. Henderson.

fluorescent screen. A screen that emits visible or actinic light when it is exposed to X or gamma rays. It usually consists of a piece of cardboard coated with a phosphor. ASM Gloss.

fluorspar. A name used in some rare minerals, K,Mg,Fe—Li,SiO$_3$F$_2$, where $x$ is between $1/3$ and $1/2$. Hey, M.M., 1964.

fluoride. A compound of fluoride with one or more other elements. A.G.I.

fluorimetry; fluorometry. Method of analysis based on intensity of fluorescence measured with ultraviolet light. Pryor, 3.

fluorine. A nonmetallic element, the lightest of the halogens, isolated as a pungent, corrosive gas that is pale greenish yellow. It is extremely reactive, being the most electronegative (nonmetallic) of the elements. Symbol, F; valence; 1; atomic number, 9; atomic weight, 18.998; and density, 1.696 grams per liter (at 0$^\circ$ C and 1 atmosphere). C.T.D.; Webster 3d; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-110. Small quantities in water supplies promote resistance to dental decay. C.T.D. Supp.

fluorine minerals. Minerals containing fluorine, including amorphous, amebolitic, amphibole, cryolite, fluorite, lepidolite, topaz, and others. Fay.

fluorite; fluor spar; flor spar. A natural calcite or fluorspar, often occurring in veins either alone or with metallic ores. It is the principal ore of fluorspar and is very radioactive. Color green, yellow, purple, pink, red, blue, violet, white, or brown; isometric; luster, vitreous; Mohs' hardness, 4; fracture, 2.18. Found in Illinois, Kentucky, Tennessee, New Hampshire, Colorado, New Mexico, Arizona, Nevada, Utah, Montana, Texas, California, Nevada, Washington; Canada, Mexico, England. Used as a flux in open hearth furnaces and in gold, silver, copper, and lead smelting; manufacture of hydrofluoric acid; manufacture of opalescent glass; glass forming and; and photographic emulsions. Dana 17, pp. 322-328; CCD 6d, 1961; Crosby, p. 123.

fluorosilicates. Salts of fluosilicic acid; hydrofluosilicic acid; silicofluoric acid; and others. Fay.

fluorescent intensities. The logs are prepared by plotting the fluorescent intensity of well cuttings against depth. A.G.I.

fluoroscope. A device for measuring the intensity of fluorescence. Bennett 2d, 1962. The intensity of fluorescence can be measured

fluoroscopy. An inspection procedure in which the radiographic image of the subject is viewed on a fluorescent screen, normally limited to low-density materials or to thin sections of metals because of the low-light output of the fluorescent screen at safe levels of radiation. ASM Gloss.

fluoroscopy. A chronic poisoning resulting from the presence of 0.5 milligrams per liter or more of fluoride in drinking water. Teeth become brittle, opaque white with a mottled enamel. Bureau of Mines Staff.

fluorosilicates. Artificially produced tremolite containing 9.03 percent fluorescent in place of hydroxyl. Spencer 15, M.M., 1940.

fluor·tosilicic acid; fluorosilicic acid. Magnesium fluosilicate is used as a concrete hardener and in magnesium casting. Zinc fluosilicate is used as a concrete hardener. Copper fluosilicate has a similar use and barium fluosilicate is used in ceramic operations. Sodium fluosilicate is used in the electrorefining and in the plating of lead. The zinc, magnesium, copper, and lead fluosilicates are soluble in contrast with the sodium and potassium salts. See also sodium fluosilicate; ammonium fluosilicate. CCD 6d, 1961.

fluorspar. See fluorite.

fluor·tosilicic acid; hydrofluosilicic acid; silico·fluoric acid; and acid fluoride. Transparent; colorless; fuming; corrosive; liquid. R.S.I. X-HO; and soluble in water. Used in ceramics to increase hardness; in the manufacture of sodium, ammonium, magnesium, zinc, copper, barium, lead, and other fluosilicates; and in building (hardening cement, plaster of Paris, concrete flooring, preserving masonry). CCD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-175.

fluor·tosilicic acid; hydrofluosilicic acid; silico·fluoric acid; and acid fluoride. Transparent; colorless; fuming; corrosive; liquid. R.S.I. X-HO; and soluble in water. Used in ceramics to increase hardness; in the manufacture of sodium, ammonium, magnesium, zinc, copper, barium, lead, and other fluosilicates; and in building (hardening cement, plaster of Paris, concrete flooring, preserving masonry). CCD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-175.

flushing. The output of roasting applied to finely divided material, in which air with sufficient strength is blown through a heated bed of mineral to keep it fluid, while the reaction is controlled by continuous adjustment of rate of feed, cooling water, added fuel (including oxygen in air). Train apparatus includes instrument controls, air compressor, dust-collecting cyclones, and feed pumps. Pryor, 3.

flush. a. To operate a placer mine, where the continuous supply of water is insufficient, by spraying the water and releasing it periodically in a flood. Webster 3d. b. To fill underground space, as in coal mines, with material carried by water, which after drainage, forms a mass. Webster 2d. To fill out line of a well or of a water line or to fill a depression, etc., by letting in a sudden rush of water. Zern. d. The splitting of the edges of stone under pressure. Zern. e. Forming in the wood or surface. Zern. f. Eng. A small flash due to ignited fire, or Midland. h. A flash or a bright fragment of fire. Fay. h. Any sudden flow of material or water into underground workings. B.S. 3616, 1962, sec. 6.

flush-coupled. Provided with couplings the outside diameter of which is the same as that of the unit pieces on which the coupling is fitted. See also flush-coupled casing. Long.

flush-cored casing. A casing (usually 10 feet) of steel tubing one end of which is provided with a short coupling having pin threads on both ends. The outside diameters of the coupling and the casing tube are equal, and the inside diameter of the coupling is usually about three-sixteenths of an inch smaller than the inside diameter of the casing tube. Long.


flushing. a. A drilling method in which water or some other thick liquid, for instance a mixture of water and clay, is driven into the borehole, through the rod and bit...The water rises along the rod on its outer side, that is between the walls of the borehole and the rod, and with such a velocity that the rock particles are carried up by this water current (direct flushing); or water enters the borehole around the rod and issues upwards through the rod (indirect flushing). Stoces, v. 1, p. 79. b. In a colliery, diversion of ventilation to clear foul atmosphere; a natural gas method. Pryor, 3. c. In oil well production, use of gravitated ground water to force oil or gas to the surface. Pryor, 3. d. Hydraulic stowing. Nelson.

flushing fluid. See drill fluid and flush. Long.

flush joint; flush·joint. Two similar members joined in such a manner that either of the outside diameters of the two members are flush. Long.

flush·joint casing. Lengths (usually 10 feet) of steel tubing provided with pin threads at one end and a matching pin thread on the opposite end. Coupled, the lengths form a continuous tube having a uniform inside and outside diameter throughout its entire length. Long.

flush·joint drivepipe. Thick-walled drivepipe, lengths of which are threaded and coupled together in the same manner as flush-joint casing. See also flush-joint casing. Long.

flush·joint pipe. a. A pipe or casing threaded and coupled together in the same manner as flush-joint casing and flush-joint drivepipe. Long. b. As used by individuals associated with the petroleum-drilling industry, a pipe threaded and coupled together in such a manner that the inside surfaces are flush and the outside surfaces are embossed, forming a Shouldered Joint. Long.

flush cut; flushing out. See flush.

flush·joint swivel. A water swivel of F-19588, used in an oil well during the early period of production. Fay.

flush set. A bit or reaming shell in which the inset diamonds or other cutting points do
not protrude beyond the metal holding them in place. Long.

Flush water. Water used to assist the flow of materials in churns or launders. B.S. 3552, 1962.

Flute. a. A groove parallel or nearly parallel to the axis of a cylindrical piece, such as the grooves of a splitting core lifter or the grooves in a core-barrel stabilizer ring. Also applied to grooves or webs following a break between two shapes forming a core. Sometimes called a scoring. Long.

Fluvial. a. Of or pertaining to streams and rivers. Long.

Fluvial cycle of erosion. The normal cycle of erosion by streams and rivers, leading to the formation of a river plain. Standard, 1964.

Fluvial geomorphic cycle. The normal cycle of erosion by streams and rivers, leading to the formation of a river plain. Standard, 1964.

Fluvial sands. Fluvial sands are usually sharp and consist of irregular fragments of numerous sizes. Quartz is usually the predominant mineral, but other minerals may be present in various proportions according to the conditions under which the rivers or streams are formed and according to the treatment that such minerals undergo during transport. A.G.I.

Fluvio-aerial; Fluvio-aeral. Produced or caused by the action of streams and wind. For example, Fluvio-aeral geologic formations. Webster 3d.

Fluvio-glacial. See gluciofluvial. Webster 3d.

Fluvio-glacial drift. Drift transported by waters emanating from a glacier. Webster 3d.

Fluvio-lacustrine. Of or pertaining to sedimentation partly in lake and partly in stream waters or to deposits laid down under alternating or overlapping lacustrine and fluvial conditions. Webster 3d.

Fluvimarine. a. Formed by the joint action of a river and sea. For example, a deposit at the mouth of a river. Synonym for estuarine. Fay. b. Of or pertaining to a deposit brought into the sea from the land, and then formed by the waters of the sea. Such a deposit often contains the remains of land animals, freshwater animals, and marine animals. A.G.I.


Fluviovolcanic. Relating to the combined action of volcanoes and streams; for example, beds of fluviolcanic ash. Webster 3d.

Flux. a. In ceramics, any readily fusible glass or enamel used as a base or ground. CCD 6d, 1961. b. In physics, the rate of flow or transfer of electricity, magnetism, water, heat, energy, etc., the term being used to denote the quantity that crosses a given surface in a unit of time. CCD 6d, 1961. c. In chemistry and metallurgy, a substance that promotes the fusing of minerals or metals or prevents the formation of oxides. For example, in metal refining an addition of some mineral to the furnace charge is made for the purpose of absorbing mineral impurities in the metal. A slag is formed which floats on the top of the bath and is run off. CCD 6d, 1961. d. In soldering and brazing, a substance which is applied to the portions to be united and which, on the application of heat, aids in the ready flowing of the solder and prevents the formation of oxides while the solder unites with the two parts to form a tight joint. CCD 6d, 1961. e. A substance added to a solid to increase its fusibility. C.T.D. F. Substance to reduce melting temperature. Hrutb. g. The intensity of neutron radiation. It is expressed as the number of neutrons in 10^-10 sec. over the total area of the detector. LBL. h. Any chemical or rock added to an ore to assist in its reduction by heat, such as limestone with iron ore in a blast furnace. von Bernowits. i. In metal refining, a material used to remove undesirable substances, like lead, zinc, or dirt, as a molten mixture. Also used as a protective covering for certain molten metal baths. Line or limestone is generally used for removing iron oxide in copper refining. A.M. Glol. j. A bituminous material, generally liquid, used for softening other bituminous materials. Urquhart, sec. 2, p. 81. k. Any substance or mixture which lowers the normal vitrifying temperature of a ceramic body or composition, (that is, fluxes, nepheline, sodium carbonate, sodium oxide, etc.). Bureau of Mines. l. A, a readily fusible material such as borax, lead, lime, or silica, used in mixing enamels or glasses. C.T.D. m. Passage across a physical boundary, such as the carbon dioxide from the atmosphere to the organic matter. A.G.I. Supp. n. State of change. A.G.I. Supp. o. As a verb, to cause to become fluid; to treat with a flux, especially in order to promote fusion; to become fluid. Webster 3d.

Flux blocks. Refractory shapes which are used in contact with molten glass in furnaces. A.R.I.

Flux box. Refractory furnace blocks used in contact with glass in melting. A.S.G.

Flux field. A factor for determining the quality of steelworks grade silica refractories. It is defined in the American Society for Testing and Materials C416 as the percentage of Al2O3 in the brick plus twice the total percentage of alkalis; for first quality (Type A) bricks the flux factor may not exceed 0.50. Dodd.

Flux gate; Flux valve. A device based on the earth-inductor principle and used to indicate the direction of the terrestrial magnetic field. Webster 3d.

Flux-gate magnetometer; Saturable reactor. The essential element of this instrument, which is used for detailed studies of the earth's magnetic field on a local basis, is the flux-gate. This consists of two identical saturable cores of high permeability, oppositely wound with identical coils. An alternating current in these coils magnetizes them first with one polarity, then in the opposite sense. If an additional field is present, such as the earth's field, it will add to the flux in one coil while decreasing that in the other. As a result, the voltage drop across the two coils will differ. The amount of this difference is proportional to the increasing field, which can therefore be measured by noting the average voltage difference between the two halves of the flux gate. This difference may be done to an accuracy of about ±1 gamma. In use, a part of the earth's field is balanced out by an additional winding surrounding both cores and carrying direct current. In airborne use, the recording flux gate is kept aligned with the magnetic field by the use of two additional flux gates. When these are at right angles to the earth's field, they generate no voltage, but if they depart from this position, they can be made to generate voltages which operate motors returning them to proper alignment. In this fashion, the recording element of this instrument is always parallel to the total field. H.W.C.
fluxing lime

Lump or pebble quicklime used for fluxing in steel manufacture. The term may be applied more broadly to include fluxing of nonferrous metals and glass. It is a type of chemical lime. Boynton, individual fluxing ore. An ore containing an appreciable amount of valuable metal, but smelted mainly because it contains fluxing agents which are required in the reduction of richer ores. Weed, 1922.

fluxing stone. Consists of pure limestone or sometimes dolomite or other carbonate rock. Contains no iron, as is used in blast furnaces and foundries. Usually material below 2 inches in diameter is eliminated. The most desirable size is between 4 and 6 inches. BuMines Bull. 630, 1965, p. 886.


fluxion structure. a. Includes such structures as flow lines, parallel orientation of pheno- crystals, banding, elongation of vesicles, Sponges for flow structure; fluidical structure. Fay. b. Structure in rocks involving one or more swirl axes. A.G.I. Supp. c. Internal structure of igneous rocks indicating flowage of magma. The orientation and arrangement of cry·l's into flow lines, forms in which flow structures are expressed. A.G.I. Supp.; Bureau of Mines Staff.

FLUXION SWIRL. The structure seen in thin sections of tectonites cut normal to B. carrying rotation. G.S.A. Mem. 6, 1938, p. 138.

flux line block. A refractory block for use in the bottom of the walls of a glass tank furnace. The flux line is the surface level of the molten glass and attack on the refractories is more severe at this level than beneath the molten glass. Dodd.

flux lines. a. Imaginary lines used as a means of explaining the behavior of fluids and of permanent magnetism. Sometimes called magnetic lines of force. ASM Gloss. b. Sea metal line. ASTM C162-66.


flux process. Manufacture of thin or tere- plate, in which molten zinc chloride, with or without ammonium chloride, is used as flux on the surface of the fused metal pot. Bennett 2d, 1962.

flux spoon. A small ladle for dipping up a sample of molten metal for testing. Fay.

flux stone. Limestone, dolomite, or other rock used in metallurgical processes to lower the melting temperature of ore. A.G.I. Supp.

fly. a. In Montana, a gate or door in a hop- roof, but not in contact with it except at the ridgepole. Fay. c. The flap or door of a chimney with the waste gases and often recovered for use as a constituent in commercial products. Webster 3d. b. Fine- divided material (which may have po- zolanic properties) from the precipitators near flues of power stations using pulverized coal. Also called pulverized fuel ash. Taylor.

flyback. The recycling period of the saw- tooth-modulated frequency modulated osci- lillator. H.E.G.

flycatcher. Aust. a. Weir to which boards covered with gummy sacking are attached to catch float gold. Hess.

fly cutting. Cutting with a single-tooth milling cutter. ASM Gloss.


fly dope. Insect repellent containing oil. Helfman.

fly gate. An opening in a chute that can be opened or closed at will. In a chute for coal, a fly gate may be inserted so that if rock is deposited in the chute, it may be trapped out by opening the fly gate. Zern.

flygt pump. A submersible pump developed in Sweden where it is used to transfer molten metal in a 1-inch discharge hose size and in a 3-inch size. The 1-inch pump produces about 5,000 gallons per hour at a 20-foot total head static, operating on a 110-volt, single-phase alternating current. Carson, p. 206.

fly rock. The rock material which is removed from the opening of the pipe in the form of a thick sludge. With this method the amount of dust dispersed into the atmosphere is almost negligible and the amount of water used is about 1 gallon per hour. Approximately 30 to 50 feet of fly rock can be done with one filling of the unit. Mason, 1, 1, 204.

foam fire extinguisher. A portable appliance containing a foam and dust mixture for fighting underground fires. Foam extinguishers are of two types: (1) the chemical foam type in which two chemical solutions, an acid solution (aluminum sulf- fate) and an alkali solution (sodium bi- carbonate), and foam-forming compounds are contained in the inner and outer con- centrific compartments respectively of the extinguisher; they are mixed by breaking a seal and inverting the extinguisher, when a stream of thick foamy fluid, consisting of a mass of small bubbles, results which forms a blanket over the fire and also produces a cooling effect which assists in extinguishing the flame, and (2)
the air foam type in which the air foam is produced mechanically. The outer container is filled with water and into it is placed a sealed cylindrical container in which is a charge of foam compound and a small charge of compressed carbon dioxide. When operated, a knob is struck sharply and the cylinder is punctured that mixing the foam compound and the water which is aerated by a special nozzle as it exudes. Sinclair. 1, pp. 280-281.

foam glass. Cellular glass, in the form of blocks, usually made by mixing powdered glass with a gasifying agent (for example, carbon or a carbon compound) the mixture then being heated for a short time to fuse the glass and trap the evolving gas bubbles. Foam glass is used as a structural heat insulating material. Compare bubble glass. Dodd.

foam injection. The injection of foam into shotholes and connecting breaks to displace any firedamp present and to minimize further gas drainage into the shothole, thereby reducing the risk of ignition of the gas during shot firing. B.S. 3618, 1964, sec. 6.

foam line. A line in a tank dividing the foam-covered area from the clear area. ASTM C165-66.

foam plug. A secondary method of fighting foam. In a boiler, the carryover of slugs of water into the piping, due to dirty water. See also priming. Strock, 10.

foam spray. Same as sphrite. Fay.

foam. Applied to the structure of a vesicular rock in which the partitions between the vesicles form a fine network. Schieber-decker.

foamy amber. Frothy amber. Almost opaque chalky white amber. Will not take a polish. Shipley.

foam fire extinguisher. A device designed to focus a stream of water, which is thrown against the fire, on the base of the fire. Webster 2d.

fold. A crack or a break in the roof. C.F.D. Roll. Full. Metal in sheet form less than 0.006 inch in thickness. ASTM Glass.

folds. Proposed by Johannes, derived by contracting the word foldpatioids, and used in his classification of igneous rocks to indicate that group of minerals. A.G.I.

fog. A crack or a break in the roof. C.F.D. Roll. Full. Metal in sheet form less than 0.006 inch in thickness. ASTM Glass.

fog quenching. Quenching in a fine vapor or mist. ASM Gloss.

fogging. In seismology, the source of a given focal sphere. The theoretical sphere enclosing the area with soap bubbles which are moved by an electric current. Curtiss and Rader. 3.

fog mist: cloudy. Dispersion of liquid as minute droplets in a gas. No sharp dividing line from dust. Formation is aided if condensation nuclei are present (dust particles, electrically charged gases, or ions). Pryor, 3.


foaming. A forge for melting tin. Fay.

foam fire extinguisher. See free on board. Pryor, 3.

fold axis. See axis. A.G.I.

folded. Refer to folded rock or strata. The thickness of the sliding prisms which they appear are said to be foliated. Shipley.

folding rule. A collapsible instrument used for measuring. Crispin.

fold mountain. A mountain resulting chiefly from large-scale folding of the earth's crust. Stokes and Varnes, 1955.

folded. A recurrence of the reversed middle limb of which has been completely sheared out as a result of the great horizontal translation. A.G.I.

fold system. A group of folds showing common characteristics and trends and presumably of common origin. A.G.I.

folds. Synonym for sphrite. Fay.

folding boards. Scott. a. Shuts; a shifting frame on which the cage rests, in or at the top of a shaft. Fay. b. Synonym for chairs; dogs; keeps; keeps. Fay. Also called fauling boards. c. In some small coal mines, also refers to as cage fans. Bureau of Mines Staff.

folding door. A door used to cover the shaft top during sinking, and operated by steam, compressed air, or hydraulic power. Balanced weights may be incorporated to assist in opening the door.

folding rule. A collapsible instrument used for measuring. Crispin.

fold. A forge for melting tin. Fay.

foliation. Consisting of thin (leaflet) laminae of a mineral substance. Having the form or thinness of a foliage leaf or a film. Synonym for foliated. Webster 3d.

foliage. Suggested by Bastin in 1909 as a general term for any foliated rock. A.G.I.

foliated. a. Thin, often wavy bands, or laminae, up to 4 inches in thickness, of unlike mineral composition. The rocks in which the bands are said to be foliated. Mother. b. Thin flakes or leaves; lamellae.

foliation. A term includes bedding fissility or layers known as anticlines, synclines, monoclinal, and schistose rocks. von Bernewitt. b. Synonym for foliate. Webster 3d.

foliates. Suggested by Bastin in 1909 as a general term for any foliated rock. A.G.I.

foliate. Foliation. A texture of platy minerals in foliated rocks which have been bent into a dome (anticleine) or into a basin (syncline), a terrace (monocline), or a roll. This structure is observed mainly in mountainous regions, and is characteristic of both the altered and the unaltered sedimentary rocks. Strictly a strong flexure of a stratum, with steeply inclined sides. It may be an indistinct or a prominent, extending over a large area, with steeply inclined sides. Størmer. Referred to as being generated by a line moving in a plane from dust. Formation is aided if condensation nuclei are present (dust particles, electrically charged gases, or ions). Pryor, 3.

folding. The thickness of the sliding prisms which they appear are said to be foliated. Shipley.

folding; fold. A texture of platy minerals in foliated rocks which have been bent into a dome (anticleine) or into a basin (syncline), a terrace (monocline), or a roll. This structure is observed mainly in mountainous regions, and is characteristic of both the altered and the unaltered sedimentary rocks. Strictly a strong flexure of a stratum, with steeply inclined sides. Størmer. Referred to as being generated by a line moving in a plane from dust. Formation is aided if condensation nuclei are present (dust particles, electrically charged gases, or ions). Pryor, 3.
shear planes (cleavage foliation), or fracture planes under the strain of flexure (faulting foliation). Standard, 1964. c. The arrangement of minerals normally presenting a platy habit (such as the micas, the chlorites, and talc) in folia or leaves, lying with their principal faces and cleavages in parallel planes; due to their development under great pressure during regional metamorphism. C.T.D. d. The laminated structure resulting from segregation of different minerals into layers parallel to the schistosity. A.G.I. e. Considered synonymous with flow cleavage, slaty cleavage, and schistosity by many writers due to development of parallel fabrics in metamorphic rocks, and considerable ambiguity attends their current use. A.G.I. f. More less pronounced and rarely developed in particular constituent minerals of a metamorphic rock into lenticles or streaks or inconstant bands, often very rich in one mineral and contrasting with constituent lenticles or streaks rich in other minerals. McKinnity. g. The ability of certain rocks to fracture along parallel planes. Leuci, p. 599.

**foliation, axial-plane.** See axial-plane foliation. A.G.I. Supp.

**follower.** a. Chainman at rear end in chain-drawn load. Eng. b. A bed of shale which occurs immediately over a coal seam and falls as the coal is worked. It causes a high proportion of stone in the material bulked. See also clod. c. A breadth of about 6 yards of coal taken off the working face.

**follower chart.** A table showing the size of casing or pipe that should be placed in a borehole drilled with a specific-size bit and/or which sizes of casing or pipe can be nested inside each other. Long.

**follower rail.** The rail upon which a drill is being worked. Eng. Said of a shift arriving at a working place before the previous shift has finished work. Fay.

**follower road.** A thin argillaceous layer situated between a seam of coal (below) and limestone (above). Arkell.

**following dirt.** a. A thin bed of unconsolidated dirt; a parting between the top of a coal seam and the roof. See also pug. C.T.D. b. See following stone. Green.

**following-in.** Eng. Said of a shift arriving at a working place before the previous shift has finished work. Fay.

**following-up the whole with the broken.** See bord-and-pillar method. Fay.

**footage.** a. Measurement of the distance covered by driving on and off reef, including the distance of shaft sinking in some mines; (2) footage on reef, the distance covered by driving on and off reef, prior to or following the previous shift; (3) footage payable and unpayable, which is applied to the stem of a glass article and then opened out to form a foot. C.T.D.

**footage per bit.** The average number of feet of borehole specific types of bits drill in a given period before the bit becomes dulled and is replaced, discarded, reharped, or reset. Lang.

**foot bath.** Derb. Alc bought with the first day's wages after a man begins work. All the miners join in a jollification. Fay.

**foot block.** Eng. Fragments of wood placed under props, in tunneling to give a broad base, and thus prevent the superincumbent load bearing and attaching to the stemware. Shapes foot by hand, using a clapper (two pieces of carbon fastened together to form a hinged joint) and finishes the foot with a wooden buffer. D.O.T. I.

**foot clamp.** Synonym for safety clamp. Long.

**foot clamp.** a. One who shapes glass foot (base) of stemware or other tableware. Cuts off required amount of molten glass from gob (mass of molten glass) held by gatherer with shears and attaches to stemware. Fay.

**foot forming feeder.** One who inserts glass foot forming mold into a machine that automatically forms the base on the stemware and burns off the excess glass from the stem. Ariz. Weed, 1918.

**foot hill.** a. A distinct lower part of a mountain. One of the hills or minor elevations of a mountain range which lies next to the adjacent lower land and forms a transition between that and the higher portions. Ariz. b. One of the series of low hills at the foot of a mountain, or of higher hills. Commonly used in the plural. A.G.I.

**foot hook.** Holes cut in the sides of shafts or winzes to enable miners to ascend and descend. Zem.

**footbook.** S. Staff. The large hoisting-rose hook that is attached to the skip. Fay.

**footbook chain.** S. Staff. A strong chain at the end of the rope, and connected with the footbook. Fay.

**footing.** a. The characteristics of the material directly beneath the base of a drill tripod, a derrick, or mast uprights. Also, the material placed under such members to produce a firm base on which they may be set. Lang. b. The material on which the floor sills of a drill floor are set. Long. c. That portion at the foundation of a structure that transmits loads directly to the soil. ASCE P1826. d. Ground, in relation to its load-bearing and friction qualities. Nichols. e. The spreading course or courses forming the foot or foundation of a wall. Standard, 1964.

**foot of a specific-size borehole.** The average number of feet of borehole specific types of bits drill in a given period before the bit becomes dulled and is replaced, discarded, reharped, or reset. Lang.
footlambert

reflected factor when its illumination is 1 lumen per square foot. Sinclair, 1, p. 200.


footman. In salt production, a laborer who adjusts height of gate in chute leading from the boom of a lever, to regulate flow of crushed rock salt into vibrating screens which separate salt into various sizes prior to shipment or refining. D.O.T. 1.

footmark. See marker block. Long.

footpieces. See sill, e. Fay.

foot pins. The hinge which attaches the boom to a revolving shovel. Nichols.

foot-pound. A foot-pound is the amount of energy required to lift one pound a vertical distance of one foot. Abbreviation, ft-

foot-poundal. The work done by a force of one pound applied to a body for one foot. Pryor, 3, p. 127.

footwall. In Pennsylvania, a miner's measurement of the distance a working face is advanced. With the heel of one foot on a mark a short step is taken and the tip of the forward toe marks the foot-wall. The next measurement is taken by placing the first foot against the toe of the second and repeating the first step and so on. The foreman checks measurements with a rule. Hess.

forky boring method. A percussive boring system comprising a closed-in derrick over the crown pulley of which a steel rope is passed from its containing drum. The boring tools are swung from the end of the rope and are moved in the hole as required by means of the drum. A walking beam operating with a mechanism gives the boring tools a rapid vibrational motion. Improved methods of boring are now available. Nichols.

forky freezing process. One of the original freezing methods of shaft sinking through horizons which contained water. Although the principle is the same today, the process has been improved in many respects. See also freezing method. Norton.

forsake. A marking in standstone and other sedimentary formations that possibly was caused by a worm. A boring in a stone. Standard, 1964.

forum. Abbreviated term for foraminifer that is common in a marine body. Pryor, 3, p. 177.


foraminiferida, a. A subdivision of the phylum protozoa which includes tests as tests which are usually microscopic in size, commonly made of calcium carbonate, more rarely of sand, foreign particles of chitin, and which consist of one or more chambers. A.G.I. b. A subclass of the sarcophagida, a group of animals mostly of microscopic size that secrete tests, composed of calcium carbonate or build them of cemented sedimentary grains, that consist of one to many chambers arranged in a great variety of ways. Most of them are marine. They range from the Ordovician period to the Recent. A.G.I. Supp. They are important microfossils in well logging, because of their long range, their wide distribution, and their small size which permits their recovery as complete fossils from well cuttings. Bureau of Mines Staff.

forshee. A dull, grayish-white, hydrous nickel-cobalt arsenate, Ni(As,Co)3(AsO4)2(BO3)2, having a monoclinic structure. From Atacama, Chile. Fay.

forebasalt. A dull, grayish-white, hydrous nickel-cobalt arsenate, Ni(As,Co)3(AsO4)2(BO3)2, having a monoclinic structure. From Atacama, Chile. Fay.

force. Influence which, when brought to bear on a body, changes its rate of momentum. Attractive, accelerating, repulsive. Measured in dynes (centimeter, gram, second) or poundals.

Force = \( \frac{\text{Mass} \times \text{velocity}}{\text{time}} \)

forces. A structure similar to ball-and-pillow structure. See also ball-and-pillow structure. Pettjohn.

forced draft. A system in which the duct delivers the intake air to the face. The outstanding advantage of this system is that the air leaves the duct at considerable velocity and can be made to sweep the face without the duct being extended unduly close to it. The forced system may be used with flexible ducting and simplifies arrangements for protecting the duct from blasting. For use in colleries the forcing system has the added advantage that the fan motor always works in intake air, and no special arrangements are necessary. Lamont, 1, p. 21-22.

forced-caving system. A stoping system in which the ore is broken down by large blasts into the stopes that are kept partly full of broken ore. The large blasts break ore both directly into the stopes and have the further effect of shattering additional ore, part of which then caves. B.Mines Bull. 410, 1928.

forced-cut meander. A meander in which deposition on the inside of the meander equals erosion on the outside of the meander. Consequently, the width of the channel remains constant. A.G.I. Supp.

forced drop shaft. Method of sinking shaft through waterlogged ground by means of series of caissons forced down by means of compressed air. Developed in Germany and now superseded. Pryor, 3.

forced production. To work a mine so as to make it produce a greater output than can be maintained. Fay.

forced ventilation. A system of ventilation in which the fan forces air through the workings under pressure. R.S. 3618, 1963, sec. 2.

forced vibration. A system similar to that of a magnetic field represented by lines of force. Spalding.

force of blow. The effective diameter of the piston or hammer, its weight, distance of travel and the air pressure during the forward movement. The energy of the blow in foot-pounds is equal to:

\[ \frac{1}{2}M \nu^2 = \frac{W \nu^2}{\text{pounds}} \]

where \( M \) = the mass; \( W \) = the weight in pounds; \( \nu \) = the velocity in foot per second. Lewis, p. 91.

force of crystallization. The force by which a growing crystal tends to develop its own crystal form against the resistance of the
force of crystallization

surrounding solid mass. Schieferdecker.


force for (or drive) oscillator. An instrument to determine the resonant frequency of a crystal. A slowly varying frequency is applied to the crystal from a signal generator and the resonant frequency voltage developed across the crystal is measured with a vacuum tube voltmeter. AM, 1.

force piece. Timber placed diagonally across a shaft or drift for securing the ground. Fay, b. See forest. Pryor, 3.

force pump. a. A pump consisting of a plunger or ram, the up-stroke of which causes the suction valve to open and the water to rise in the suction pipe. On the down-stroke of the plunger, the suction valve closes and the contained water is forced through the delivery valve into the rising main or discharge pipe. Nelson, b. A pump in which the water is lifted by the force of atmospheric pressure against a vacuum. Crittin, c. A pump that forces water above its valves. Zern.

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force piece. Timber placed diagonally across a shaft or drift for securing the ground. Fay, b. See forest. Pryor, 3.
foreset bed. One of the series of inclined layers formed as new sediment moves down the slope of a delta. See also bottomset bed; topset bed. Fay. b. One of the inclined, internal, systematically aranged layers of a crossbedded unit. Pettijohn.


foresight. a. A sight on a new survey point, usually measured with a transit or total station. Seely., 2. d. In leveling, the location station. Sey., 2. e. To sight on a foresight point. It is a practice to sight upon the ground after the expiration of the time within which the annual labor may be done, and completes a location before resuming work by the original locator. Fay. A foresighting or a foresight is often called a minus sight because the point to be sighted is below the horizon line.


foreshore sinking. The first 150 feet or so of shaft sinking from the surface, during which time the plant and services for the main shaft sinking are installed. Sometimes, the main sinking contract does not commence until the foreshaft has been completed. Nelson.

foreshift. a. In coal mining, first or morning shift. Pryor, 3. b. Eng. The first shift of boyers (miners) when going into the mine from 2 to 3 hours before the drivers and loaders, Fay.

foreshock. a. One of the initiating shocks preceding the principal earthquake. Schiller-decker. b. An earthquake which precedes a larger earthquake within a fairly short time interval (a few days or weeks), and which originates at or near the focus of the larger earthquake. A.G.I.


foresight bib. A stake or mark placed by a locator. Merstreau, 4th, p. 443.

forge. a. An open fireplace or hearth with forced draft, for heating iron, steel, etc.; as, blacksmith's forge. Compare anvil. Standard, 1964. b. A hearth or furnace for making wrought iron direct from the ore; a bloomery. Standard, 1964. c. Eng. That part of an ironworks where bars are squeezed and hammered and then drawn out into puddle bars by grooved rolls. Fay. d. To form by heating in a forge or hammering; to beat into some particular shape, as a mass of metal. Fay. e. A plant where forging is carried out. A.G.I.

forge cinder. The dross or slag from a forge or bloomery. Fay.

forge iron. Pig iron used for the charge of a puddling furnace. Menzies, 4th, p. 443.

forge master. The owner or superintendent of a forge or ironworks. Fay. forge pig. Pig iron suitable for the manufacture of wrought iron. C.T.D.

forge roll. One of the rolls of which a slab or bloom of metal is converted into puddle bars. Fay.

forge scale. A loose coating of oxide which forms on heated iron during the process of forging; hammer scale. Standard, 1964.

forge train. In iron puddling, the series of two pairs of rolls by means of which the flat bloom is converted into bars. Fay.

forge welding. A group of welding processes in which the parts to be joined together are heated to a plastic condition in a forge and are welded together by applying pressure or blows. Ham.

forging. Plastically deforming metal, usually hot, in a forging press or by other means under compressive force, with or without dies. ASM Gloss.

forging press. A press, usually vertical, used to deform a plastic material. Mechanical presses are used for smaller closed die forgings; hydraulic or steam hammers, for larger forgings. Standard, 1954. Also larger closed die forgings. ASM Gloss.

forging range. Temperature range in which a metal can be forged successfully. ASM Gloss.

forging rolls. A machine used in roll forging. Also called gap rolls. ASM Gloss.

formaldehyde. a. A colorless gas with a pungent odor; poisonous in the concentrated state. Standard, 1964. b. A clear, colorless liquid with a pungent odor; poisonous in the concentrated state. Standard, 1964. c. Formaldehyde; oxymethylene; oxemethane; formic aldehyde; methanal. Colorless; gas; HCHO; sulfocating pungent odor; poisonous in the concentrated state. Standard, 1964. d. A tool used for charging buckets. Fay. e. A prop with a Y-shaped end. Fay. f. An appliance used in free-fall systems of drilling which serves to hold up the string of tools during connection and disconnection of the rods. Fay. f. Eng. To pump water out of a mine. A mine is said to be in fork, or a pump to have the water in fork, when all the water is drawn out of the mine. Webster, 2d. g. A tool with a long wooden handle and prongs for loading lump coal. C.T.D. h. A double-angled clip or pin by which the weight of a rope or chain is borne by the yoke. Fay. i. One of the major bifurcations of a stream; a branch. A.G.I. j. In seismic instruments, a tuning fork of a precisely known frequency used to record time lines on seismograms. A.G.I. k. A strong fork of two or more prongs used to slip under a stack of bricks and lift and transport the stack. ACSC, 1963.

forked center. A center with taper or straight shank and V-head for holding cylindrical objects in position during drilling and other operations. Criptin.

fork-filled. Aust. Coal filled into skips with a fork, having the prongs about 1 1/4 inches apart. This separates the bulk of the stack from the round coal, which should not contain more than 10 percent of fine coal. Fay.

forkhead. A wheel-guiding frame with a swivel connection to the machine or vehicle that rests on it. (A caster frame.) Nickols.

forklift truck. A power-driven truck having a forward-projecting steel fork. It is used to raise, transport, and lift heavy packages, sometimes contained on a pallet for stacking or loading at a height. Ham.

fork-the-hole. To drill a second hole from some point within a completed borehole by definition methods and equipment. Lang.

fork truck. An industrial truck provided with a brick fork for transporting brick. ACSC, 1963.

form. a. All the faces of a crystal that have a like position relative to the planes of symmetry, the axes of symmetry, etc. All those planes, edges, and angles which are required by the symmetry of crystal when one of them is present. Fay. b. In seismic instruments, a tuning fork of a precisely known frequency used to record time lines on seismograms. A.G.I. c. One of the major bifurcations of a stream; a branch. A.G.I. d. A prop with a Y-shaped end. Fay. e. A tool used for charging buckets. Fay. f. A prop with a Y-shaped end. Fay. g. An appliance used in free-fall systems of drilling which serves to hold up the string of tools during connection and disconnection of the rods. Fay.
formaldehyde

as an aqueous solution, with or without methanol, which acts as an inhibitor of the polymerization process. It is held to be releasing agent, as in the recovery of gold and silver, and as a corrosion inhibitor in oil wells. CCD 64, 1961.

formanite. A moderately radioactive, tetragonal mineral, (U,Zr, Th, Ca), (Ta, Nb, Ti) O., containing much more tantalum than columbium. It is an end-member of the isomorphous fergusonite-formanite series which occurs in granite pegmatites, especially those rich in rare earths, columbium, tantalum, and beryllium; it is frequently found in metamict mineral in placer deposits. On fresh surfaces, it is brownish-black or velvety black. Alteration results in an externally gray, yellowish-brown, or grey-green color; it is slightly brittle, with a conchoidal fracture.

format. An informal rock stratiographic unit bounded by marker horizons believed to be isochronous surfaces that can be traced across facies changes, particularly in the subsurface, and used for correlations between areas. The use of the stratiographic section is divided into different formations that do not correspond in time value. A.G.I. Supp.

formation. As defined and used by the U.S. Geological Survey, the ordinary unit of geologic mapping consisting of a large and persistent stratum of some one kind of rock. Also, it is loosely employed for any and persistent stratum of some one kind of medium, such as water. A.G.I. Supp.

formation drilling. Boreholes drilled primarily to determine the structural, petrologic, and geophysical characteristics of the overburden and the rock strata penetrated. Also called formation testing. Long.

formation factor. The electrical resistance of a rock saturated with an electrolyte, divided by the resistivity of the electrolyte. There is an inverse linear relationship between the formation factor and the porosity and permeability of the rock. Also known as the formation resistivity factor. A.G.I.

formation fracturing; hydraulic fracturing. A technique to open up cracks in an oil reservoir rock, which allows the application of high hydraulic pressure and the injection of a propping agent, such as sand, into the reservoir fractures to increase the overall permeability of the rock. Institute of Petroleum, 1961.

formation level. Level of the ground surface after completion of excavation. Ham.

formation resistivity factor. The ratio of the resistivity of the overlying rock to the resistivity of the saturating water in a completely water-saturated clean rock. Institute of Petroleum, 1956.

formation room. A room in a cave where there is an unusual amount of cave formation or a room having dripstone in a cave that is otherwise barren of it. A.G.I.

formation strata. Color bands in synthetic corundum or spinel, which, since they are always distinctive and almost always curved, differ from the straight color zones in genuine. Also called formation striae. Shipley.

formation testing. a. Synonym for formation drilling. Long. b. Measurements made in a borehole to record the porosity, oil production capabilities, etc., of a specific stratum or horizon through which the borehole has been drilled. Long.


form contour. A topographic contour determined by stereoscopic study of aerial photographs without ground control or by other means not involving conventional surveying. A.G.I. Supp.

form energy. The potentiality of minerals to develop crystalline form within a solid medium, known as a rock. A.G.I. Supp.

form factor. The term pertains to a beam section of given shape and mass that has the modulus of rupture of a beam having that particular section to the modulus of rupture of a beam otherwise similar but having a square cross section adopted as a standard. This standard section is usually taken as rectangular or square; for wood it is a 2-by-2-inch square with edges horizontal and vertical. The term is also used to mean the ratio, for a given maximum bending moment, to the actual resisting moment of a wide-flanged beam to the resisting moment the beam would develop if the flanges were uniformly distributed across the entire width of the flanges. So used, the term expresses the strength-reducing effect of shear lag. No.

form grinding. Grindling with a wheel having a contour on its cutting face that is mating to the desired form. A.G.I. Supp.

formic acid; median acid; hydrogen carbonyl acid. Colorless; fuming; liquid; HCOOH; pungent penetrating odor; dangerous; caustic; soluble in water, in alcohol, and in ether; specific gravity, 1.2201 (at 20°C) referred to water at 4°C; boiling point, 100.8°C. Used in electroplating; in silvery glass; and in ore flotation. C.C.D. 1961.


formation. a. The shaping of hot glass. ASTM C162-66. b. The shaping or molding of ceramic ware. ASTM C242-60T.

forming hood. The chamber of the forming equipment in which glass fibers are formed and collected. ASTM C162-66.


forming rolls. Rolls used in forming flat glass. ASTM C162-66.

formico. German name for a variety of incoherent brown coal, apparently without any cementing material whatsoever. It is suggested that this coal was formed through the redeposition of the original coal. Same as feinkohle; kohlkohle; rieselkohle. Tomkneif, 1854. See also crumbly coal.

form lining. Selected materials used to line the concrete face of formwork, in order to impart a smooth or a patterned finish to the concrete surface. Ham.

formation. Oil. Oil or emulsion used to minimize the sticking of concrete to molds. Institute of Petroleum, 1961.

formosa marl. A high grade of marble of a dark gray and white color, variously mottled and bloomed with yellow and red, from Nassau, Germany. Fay.

form stop. The end of a section of shuttering for concrete. Ham.

form stripper. In concrete products industry, a laborer who removes wooden or steel forms from concrete walls, beams, molded concrete products, or similar concrete work after the concrete has hardened. Also called crew stripper; form wrecker; rod puller. D.O.T. 1.

form tool. A single-edge nonrotating tool, circular or flat, that produces its inverse or reverse form counterpart upon a workpiece. A.S.M. Gloss.


formula weight. The weight, formula, or mole. Prior. 3.

formula weight. The weight, in grams, pounds, or other units, obtained by adding the atomic weights of all the elemental constituents in a chemical formula. Leuvenstein.
formwork. Temporary casing erected to contain concrete during its placing and subsequent hardening. See also concreter; shuttering. Hestr.


formulate. An olive-green basic chromoarsenopyrite. Temporary casing erected to contain concrete during its placing and subsequent hardening. See also concreter; shuttering. Hestr.

formset. An olive-green basic chromoarsenopyrite. Temporary casing erected to contain concrete during its placing and subsequent hardening. See also concreter; shuttering. Hestr.

formset. A characteristic product of formset ware. Any ceramic whiteware for technical application which may have the character of a soil. Schifferdecker. A soil developed upon an old land surface and consisting of the mud-filled stumps of the same trees in an upright position. See also pota. Nelson.


foss. An extensive gneisslyne developed along the margin of a continent. A.G.I. Supp.

foose a. A depression or an unfilled area between the terraced ice contact of glacial sand plains and morainal mounds forming a belt within the ice-covered field. A.G.I. b. A ditch, a moat, or a trench between a glacier and a moraine or a rock wall. A.G.I.

foose lake. A long, narrow depression that is sometimes flooded by a moraine and an outwash plain. It is a remnant of ground moraine upon which the ice stood when the outwash plain was being formed. A.G.I.


fooselicker. a. N. of Eng. A measure of coal (17½ hundredweight), being an ordinary cartload for one horse. Pay. b. Any of the various units of weight for lead; especially a modern unit equal to 19½ hundredweights. Webster 3d.


foostock. Trademark for crystalline ceramic articles made by processing chemically sculptured glass. These products are utilized primarily for high-temperature electronic components such as circuit boards. C.C.D., 1964.

foostock current. In electricity, an eddy current. Webster 3d.

foostock. A condition of the atmosphere of a mine, so contaminated by gases as to be unfit for respiration. Impure. Pay. b. In a coal seam, place where the seam was washed out during development, leaving barren rock. Pay. c. A mine which cannot be worked at all. Pay.

foott. An upright position. See also pots.

foott. A ditch, a moat, or a trench between a glacier and a moraine or a rock wall. A.G.I.

fossil. A term used to cover all the processes involved in the burial of a plant or animal in an accumulating sediment, and in the stage of preservation of the whole, or part or trace of it. Nelson.

fossilite. To turn into a fossil. Webster 3d.

fossilized. Same as petrified wood. Shipley.

fossil wood. Same as petrified wood. Shipley.
fouling. The assemblage of marine organisms that attach to and grow upon underwater objects.

fouling position. The point on any rail beyond which a wagon or mine car cannot proceed. It is becoming an obstruction to another wagon or car traveling on the intersecting rail. Nelson.

fouls. a. Scot. An impurity in a seam; an irregularity in the physical character of a seam, caused, for example, by numerous types or small hitches. Fay. b. Eng. Firedamp. Fay.

found. a. Eng. A condition in which seams are found. a. Eng. When sinking or driving to a seam. Fay. b. Foundershaft. Derb. Marl riddled with fibrous foundations. a. Mid. The shafts, machinery, foundation bolt. A fastener for connecting a structure or machine to a permanent foundation soil. The upper part of the earth foundation wall. That portion of a load-bearing wall below the level of the adjacent grade or below the first floor beams or joists. AGS.

founder. a. Eng. The first shaft sunk upon a vein. From this the miner possesses, and lays out, his group. Fay. b. One who founds or practices the business of founding; one who makes castings; as, an iron founder. Standard. Standard, 1964.

founder breccia. Where beds of soluble rocks have been in part or wholly removed by the chemical action of ground water, founder breccias of the superincumbent beds are produced on a scale commensurate with the extent of the ablation. Synonymous with collapse breccia. A.G.I.

founders. Derb. The first 32 yards of ground worked. Fay.

foundershaft. The first shaft sunk. See also founder. a. Fay.

founders share. The few shares issued to the individuals organizing a stock company. In companies owned outright by other companies, founders shares are issued to as many individuals as are required to incorporate and hold the offices required for corporate management, as the laws do not permit a corporation, which is an artificial person, to form another corporation, or to serve as a director of another corporation. Weed, 1922.

foundering. The act or process of casting metals. Fay.


foundry. A commercial establishment or building where metal castings are produced. ASM Gloss.

foundry clay. A plastic clay of varying reactivity to heat but with good bonding quality, used for mixing with sand to make foundry molds. ASCB, 1. See also fire clay.

foundry coke. a. Coke strong enough to withstand the pressures in cupolas and blast furnaces. Also called metallurgical coke. Hess. b. Coke larger than 2.5 inches. Bennett 2d, 1962.

foundry facings. Finely pulverized materials used in foundries to give the surface of molds a smooth finish, so that castings may be removed easily after cooling. BuMines Bull. 556, 1956, p. 329.

foundry flask. Wooden or metallic container prepared at Heilbronn by fusing rock salt in a two-stage Siemens furnace. On the upper stage the fused salt runs away from most of the impurities. On the lower stage the melt is blown with compressed air, chemically treated, cooled in rotary pans with rakes and annealed to produce food-stuff-quality salt. Kaufmann.

foundry sand. Sand used by founders in making sand molds. Sand molds may be classified broadly as follows: molding sand, core sand, racing sand, molding loam, gravel, high-silica bonding sand, and parting sand. Hess.
underground driving to give all around support to weak ground. A cap is supported by two posts on a sill-piece or sill. Fox. 3.

**four-stage compression.** Air compression in four stages with intercoolers between stages. Ham.

**four-strand rope.** See shroud laid rope. Zern.

**four-stroke cycle.** A cycle in which air or an explosive mixture is drawn into the cylinder of an internal-combustion engine on a suction stroke, is compressed and ignited on a compression stroke, burns and performs useful work on an expansion stroke, and expels the products of combustion on an exhaust or scavenging stroke. Webster 3d.

**four-way dip.** In seismic operations, a dip determined by spreads placed in four directions from a shot point. Three are essential, and the fourth serves as a check. A.G.I.

**four-wheel Jimmie.** Penn. A four-wheel railroad car made of wood. It was the first type of car made for the transportation of anthracite. Fay.


**fowlerite.** A zinc-bearing variety of rhodochrosite. Eng. A long wedge driven between two other wedges with their thick ends placed in the opposite directions. Also called stob-and-feather; plug-and-feather. Fay.

**fox mold. Eng.** A provincial name for the reddish greenish colored by an oxide of iron. Fay.


**fox wedge. Eng.** A long wedge driven between two other wedges with their thick ends placed in the opposite directions. Also called stob-and-feather; plug-and-feather. Fay.

**foxoy.** a. A widely distributed variety of nepheline syenite, which was described originally from the Foya Hills in Portugal. Fay. b. It contains about equal amounts of nepheline and potash feldspar, associated with a subordinate amount of a colored mineral, such as aegirine. C.T.D. b. Synonymous with, and perhaps a preferable name for, nepheline syenite. A.G.I.


**fracrite.** Pertaining to cleavage or breakage, as in a rock. Standard, 1964.

**fracture.** a. A portion of an unconsolidated sediment (such as a recent marine mud), or of a crushed consolidated rock sample (such as a coal sample), or of a crushed ore or mineral sample. The fracture has been separated by some method, and is distinguished from a rock or other portions (or fractures) comprising the whole sample being analyzed. A fracture is comprised of two or more fracture sets. A.G.I. b. The separation of a substance from a mixture. For example, the separation of one isotope from another of the same element. A.G.I. Supp. c. The separation of a particular mineral species from a crushed rock which is a mixture of minerals, or the separation of particles of a specific particle-size range from an unconsolidated sediment which is a mixture of particle sizes. Bureau of Mines Staff.

**fractography.** Descriptive treatment of fracture, especially in metals, with specific reference to photographs of the fracture surface. Macrofractography involves photographs at low magnification; microfractography, at high magnification. ASM Gloss.

**fracture.** a. The character or appearance of a freshly broken surface of a rock or a mineral. The peculiarities of the fracture afford one of the means of distinguishing minerals and rocks from one another. Fay. b. The manner of breaking and the appearance of a mineral when broken. The fracture is a distinctive characteristic for certain minerals; the conchoidal fracture of chalcedony, for example. A.G.I. c. A break in a rock formation due to intense folding or to faulting. A.G.I. d. A break in the continuity of a body of rock not attended by a movement on one side or the other and not oriented to a regular system. BuMin Bull. 587, 1960, p. 2. c. A general term to include any break produced by the action of rock if produced by mechanical failure, whether by sheer stress or tensile stress. Fractures include faults, shears, joints, and planes of fracture cleavage. McKin- try, 1. The nature of the broken surface of a solid substance when this does not follow a cleavage plane. The two most common types of fracture are conchoidal (shell-like), typical of glass, quartz, and to a lesser extent of some other siliceous and birefringent minerals, such as jade, show a splintered fracture. Anderson, a. A break in the enamel surface with the enamel being removed. Bryant, 1. Hard-rock explosive. Pryor, 3.

**fractionate.** To separate (a mixture, as a liquid, by distillation) into fractions having more or less fixed properties but not necessarily definite compounds. Applied also to mixtures of rare earths. Standard, 1964.

**fractionating column.** A vertical tube or column attached to a still and usually filled with rings or interlocked with bubble plates. An internal reflux takes place, resulting in a gradual separation between the high-boiling and low-boiling fractions inside the column, whereby the fraction with the lowest boiling point distill over. The efficiency of the column depends on its length and on the number of bubble plates used. C.T.D.

**fractionation.** a. The act or the process of fractionating (being separated or being divided into fractions), or the state of being fractionated. For example, the crystallization with falling temperature of successive minerals from a silicate magma. Webster 3d. b. The separation of a substance from a mixture. For example, the separation of one isotope from another of the same element. A.G.I. Supp. c. The separation of a particular mineral species from a crushed rock which is a mixture of minerals, or the separation of particles of a specific particle-size range from an unconsolidated sediment which is a mixture of particle sizes. Bureau of Mines Staff.

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fracture cleavage. The capacity to part along cleavage planes, usually in intersecting sets, along which there has been either incipient fracturing or actual fracturing followed by cementation or welding. A system usually implies contemporaneous deformation at any given strain. ASM Gloss.

fracture dome. A variety of black bort from South Africa showing minute brilliant points possibly due to included diamonds. Tomkiew, 1954.

fracture eistem. Group of fractures (faults, cracks, veins) in a rock or mineral. A.G.I.

fracture fluid. A fluid, usually a water-sand mixture that has been broken off their parent rock and introduced into rock fractures or near-fracture, commonly in a single set, but occasionally in intersecting sets. The surfaces of breakage are independent of parallel arrangement of mineral particles. Also it does not pervade the entire mass and affect all particles as does flow cleavage. A.G.I. See also joint. Lenis, p. 593.

fractured. a. Broken by interconnecting cracks. A common structure in limestone oil reservoirs, and refined in some shallower reservoirs. Synonymous with fissured. A.G.I. b. Rock cracked or broken into fragments along planes other than joints or bedding. Long.

fractured formation. See fractured ground. Long.

fractured ground. Rock formation shattered and crazed with fissures and fractures. Compare broken ground. Long.

fracture dome. The fracture dome is the zone of loose or semisemio rock which exists in the immediate hanging or footwall of a vein. In some mines it may extend into the walls for a considerable distance. In a rock burst it becomes greatly extended. Spalding. See also doming.

fractured zone. A mass of rock cut by many small irregular fractures, the mass as a whole being more or less tabular. Stokes and Varnes, 1953.

fracture mesh. A regular meshwork of fractures in two planes developed by shearing. G.S.A. Mem. 50, 1952, p. 29.

fracture porosity. Porosity resulting from the presence of openings produced by the breaking down of an otherwise less pervious rock. A.G.I.

fracture spring. A spring, the water of which flows from relatively large openings consisting of joints or other fractures in rocks. A.G.I.

fracture stress. a. The maximum principal true stress at fracture. Usually refers to unnotched tensile specimen. ASM Gloss. b. The (hypothetical) true stress which will cause fracture without further deformation at any given strain. ASM Gloss.

fracture system. Group of fractures (faults, joints, or veins) consisting of one or more intersecting sets, usually intersecting or interconnected. System usually implies contemporaneous age for all of the sets, but vein system is sometimes (as in all veins in a given mine or district regardless of age or origin) McKinstry.

fracture testing. a. Taking a specimen and examining the fractured surface with the unaided eye or with a low-power microscope. b. Determining things such as position, grain size, case depth, soundness, or presence of defects. ASM Gloss.

fracture wear. The wear of individual grains and interlocking wheel fractures, as well as fracture of the bond posts holding the grains in place. ASM Gloss.

fracture. a. The process of breaking a fluid-bearing strata by injecting a fluid under such pressure as to cause parting in the strata rock. A.G.I. b. The process of increasing the permeability of strata near a mineralized zone by injection of a fluid and sand under high pressure. The hydraulic pressure opens cracks and bedding planes, and the sand introduced into them serves to keep them open when the pressure is reduced. A.G.I. Supp.

frame, Brittle, easily broken or destroyed. Hauyn.

fracture cleavage. a. The capacity to part along closely spaced, parallel surfaces of fracture or near-fracture, commonly in a single set, but occasionally in intersecting sets. The surfaces of breakage are independent of parallel arrangement of mineral particles. Also it does not pervade the entire mass and affect all particles as does flow cleavage. A.G.I. See also joint. Lenis, p. 593.

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frame, Brittle, easily broken or destroyed. Hauyn.
on a low and medium head, often installed in large hydroelectric schemes. Water enters the turbine radially and leaves axially, Ham.


franckeite. A blackish-gray to black sulfo.

frigallite. The degree of facility with which
Frugal pile. Proprietary name for a driven

Frames aimed process. A dense-media
Firm& self. Native sulfur mined by the

Frambefer Mts. Dark
tope, 223. NRC-ASA N1.1-1957;
cium isotopes are known, possibly nine-
her country, France. She isolated
Water enters the
also cementation sinking. Nelson.

ductml into Great Britain in
bubbling air through a mass of dry sand,
refuse. The dense medium is formed by
freboldite. Cobalt skutterudite, CoSe ; hexagonal ;
Fredericiugian.

903. Anderson.

Angstrom units) A, 7,606: B, 6,870; C, 6,563; D, 5,893; E, 5,270; F, 4,861; G, 4,308; H, 3,969. Anderson.

Sapp.

Fredericuksigian. [238x778]

by the letters of the alphabet. The prin-
position on the downward traverse. When

the surface will actuate the entire series.

reached, the closures are messenger ac-
Strock, 10.

in a grille through
air coefficient determined only by the ele-

militic and stanniferous variety of

free ascent. When a diver or swimmer’s air
supply fails or runs out, an emergency
supply fails or runs out, an emergency

exhausted to the sur-

The

level.

pressure met be. Lewis, pp.

free coal

free coal

free coal

free coal

free coal

free coal

free coal

free coal

free coal

free coal

free coal

free coal
free crushing. Crushing under conditions of speed and feed such that there is plenty of room for the fine product to escape from the coarser part and thereby, escape further fine crushing. See also choke crushing.

free-cutting brass. Alpha-beta brass containing about 2 to 3 percent lead, to improve the machining properties; used for brazeable brass and bronze machine w. t. 1.7-2.5.

free-cutting steel. Steel in which the phosphorus is increased to 0.15 percent and the sulfur to 0.25 percent, to obtain a certain degree of brittleness which facilitates rapid machining. C.T.D.

free cyanide. The cyanide not combined in complexes ions. ASM Class.


freedom, degree of. Variance—number of independent variables in a system which must be relatively fixed in order to define it clearly. Fay.

free energy. (F) or thermodynamic potential F = H - T S where H is enthalpy, T is temperature, and S, entropy. Not measurable directly, but measures the change in the state of materials in the immediate vicinity of the surface. Lewis, pp. 611-612.

free fall. a. An arrangement by which, in the vicinity of a shothole at which the rock is free to move under the force of the explosion. B.S. 3618, 1964, sec. 6. c. Moisture removable by air-drying under standard conditions. Also called surface moisture. B.S. 3552, 1962.

free field stress. The stresses existing in rock before the excavation of any mine opening. In general, these stresses are known to be influenced primarily by the weight of the overburden material, the region of the opening of the rock masses around it (depth of overburden, etc.), by the physical characteristics of the surrounding rock, and by tectonic forces. An hypothesis for stress fields existing in underground openings before mine opening was proposed by R. D. Mindlin in 1939. This hypothesis assumes that stresses within the earth at different depths may be approximated by one of three stress fields. They are: (1) hydrostatic stresses acting on each unit of the solid, a state of materials at depth probably greater than those now mined; (2) lateral restraint accompanying the application of the gravitational field, an approximation of the forces acting at an intermediate depth within the earth; and (3) no appreciable lateral restraint on a unit of the solid, the state of some materials in the immediate vicinity of the surface. Lewis, pp. 611-612.

free flow. a. A condition of flow through or around a structure not affected by the tailing. See free circulation.

free-falling device. A sliding piece in permanent motion; a pulley with no stops. Fay.

free-fall MB. Synonym for churn doll.

free-fall ore. Ore containing gold which can be caught with quicksilver. Statistical Research Bureau.

free-fall gold. Gold with so clean a surface that it readily amalgamates with mercury after liberation by comminution. Pryor 4.

free gold. Free uncombined gold. Gaudin, p. 70.

free gold or silver. And can be reduced by crushing and amalgamation, without roasting, or other chemical treatment. Fay.

free milling gold. Gold with so clean a surface that it readily amalgamates with mercury after liberation by comminution. Pryor 4.

free miner. a. Can. A person or association holding a license and thereby authorized to prospect on unoccupied lands and to carry on mining operations subject to any other conditions imposed by the law. A licensed miner. White 3d. b. Forest of Dean. A man born within the Hundred of St. Briavels, in the county of Gloucester, who has worked a year and a day in a mine. Fay.

free moisture. a. Moisture in coal that can be removed by ordinary air drying. Compare combined moisture. Cooper, p. 397. b. The part of the total moisture which is lost when a coal is attaining approximate equilibrium with the atmosphere to which it is exposed. B.S. 3323, 1960. c. Moisture not removed or absorbed by aggregate. Taylor. d. See moisture content. Nelson.

c. Moisture removable by air-drying under standard conditions. Also called surface moisture. B.S. 3552, 1962.

free needle survey. Traverse by magnetic compass and line measurement. See also fast needle survey. Pryor 3.

free on board. a. Price of consignment to customer when delivered with all prior charges paid, onto a ship. Pryor, 3. b. Free on rail (f.o.r.) describes similar delivery to rail. Pryor 3.


free period of a seismograph. The time for one complete swing of the seismograph mass when all damping is removed and the earth is quiet. A.G.I.

free piston compressor. A compressor of modern design without any important rotating parts. Hem.

free piston drive. a. A drive sample or compressor. A drive-sample compressor. A compressor of modern design without any important rotating parts. Hem.

free rock. rock is free to move under the force of the explosion. Fay.

free illustration. A category of instruments applicable to any machine designed to initially sink to the bottom, release the heavy ballast weights, and then float back to the surface where they can be retrieved with their acquired load (for example, a sediment core).


free milling. Applied to ores which contain free gold or silver, and can be reduced by crushing and amalgamation, without roasting, or other chemical treatment. Fay.

free milling gold. Gold with so clean a surface that it readily amalgamates with mercury after liberation by comminution. Pryor 4.

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free-running piston. A piston not connected with a rod, that does its work by hammer-like blows. Nichols.

free settling. As opposed to hindered settling in classification, free fall of particle through fluid media. Pryor, p. 6.

free share. A certain proportion of a royalty on coal, paid to lessee by lessee. Fay.

free silica. Quartz occurring in granites. Mason, v. 1, p. 11.

free sound field. A field in a homogeneous, isotropic medium free from boundaries. In practice it is a field in which the effects of the boundaries are negligible over the region of interest. Hy.

free way. In parallel flow, the branch with the highest drop originally. Houtman, pp. 131-132.

freeze. a. Rock, especially a sandstone, that may cut freely in any direction without a tendency to split. Fay. b. A sandstone which breaks freely. A.G.I.


free vibration. Vibration occurring at the natural frequency of a structure, as distinct from forced vibration. Ham.

free wall. The wall of an ore vein filling the space in which sample specimens are put in a special refrigeration unit and exposed to repeated cycles of freezing and thawing to determine potential damage. These tests are widely used by highway departments and in private construction. AIME, p. 289.

free-wheeling. of water. a. Water that is free to move through a soil mass under the influence of gravity. Also called gravitational water; ground water; phreatic water. A.SCE P1826. b. Water in soil in excess of hygroscopic and capillary water; also termed gravity water. Stetly, 1. c. The quantity of water removed in drying a solid to its equilibrium water content. NRC-ASA N1-1957. d. See held water. Pryor, 3.

free-water elevation; water table; ground water surface; ground water level. The elevation at which the pressure in the water is zero with respect to the atmospheric pressure. Also called free-water surface. A.SCE P1826.

free-water level. The surface of a body of water in contact with the atmosphere, that is, when water pressure is zero. NRC-ASA N1-1957.

free way. A direction of easy splitting in a rock. Fay.

freeze. a. A wein that is not submerged—this is, in which tail water is below the crest of the flow is in nowise affected by the elevation of the tail water. Stetly, 1. free-wheeling the wein. Consists of a series of rollers or cams tending to roll free when rotated in one direction and to roll into positive driving contact when rotated in the other direction. The action is fully automatic. This type is used when the driving member must be rotated ahead of the driving member, as in two-speed drives, or where two independent sources of power are used. Pit and Quarry, 33rd, 560.

freezing; freezing; frozen. a. To permit drilling tools, casing, drivepipe, or drill rods to pass through a borehole by removal of caving walls or impaction of sand, mud, or drill cuttings, to the extent that they cannot pile up and clog. Also called free-settling. Long. b. To burn in a bit. See also burn-in, a. Long. c. The premature setting of cement, especially when dull hardens before it can be ejected fully from pumps or drill rods during a borehole-cementation operation. Long. d. The act or process of drilling a borehole utilizing drill fluids with a temperature of minus 30° to minus 40° F, as a means of consolidating, by freezing, the borehole walls and/ or core. A.SCE P1826. e. A water saturated formation, such as sand, gravel, etc. Long. f. To solidify, as of a molten charge in a furnace. Werd, 1922.


freeze casting. A process for making intricate shapes of special ceramic material, for example, surfac-supercharger blades. Refractory powder, with a small proportion of binder, is made into a thick slip, which is cast into a mold and then frozen, the cast is then dried and sintered. Dodd.

freeze-in. a. Used in much the same sense as freeze, a and b. Applicable when drill rods become fastened by solidification or freezing of the drilling fluid in a borehole drilled in a soft formation. Long. c. To become or be fixed in ice. Long. d. Synonym for freezeup. Long.

freeze proofing. A surface treatment, as with calcium chloride solution, to prevent or reduce cohesion of coal particles by ice formation during freezing weather. B.S. 155, 1962.

freeze sinking. Use of circulating brine in system of pipes to freeze waterlogged strata in which shafts can be sunk through them, established and lined. Priy, 3.

freeze-thaw tests. Tests performed on crushed stone in which sample specimens are put in a special refrigeration unit and exposed to repeated cycles of freezing and thawing to determine potential damage. These tests are widely used by highway departments and in private construction. AIME, p. 289.

freeze-up. a. The process and/or season of the year when surface waters become frozen with no prospect of thawing for the remainder of the winter. Long. b. Can. The descent of winter when waterways are frozen. Hoffman, c. In ball milling, the theoretical rate of revolution at which the contents of the mill are centrifugally held at the circumference. Priy, p. 289.

freezing. Consolidation of fine-grained waterlogged soil, enabling excavation to proceed normally. The method consists of the following stages: (1) forming a protective wall of ice, with its base in an impermeable layer; (2) forcing the ice wall until the sinking and lining of the shaft has been completed; and (3) thawing the ground without damage to the shaft. The freezing method has been revived, largely due to the successful use of bulk concrete, backed by concrete sheets in place of tubing, for lining the shaft through the frozen ground. This is followed by water grouting. Freezing was introduced originally in 1883 by F. H. Poetsch. See also chemical soil consolidation; silicatization process. Nelson.

freezing overburden. See freeze, d. Long.

freezing point. a. The temperature at which a liquid solidifies. Pure water has its freezing point at 0° C or 32° F under normal atmospheric pressure. A.G.I. b. The freezing point of sea water is that temperature where an infinitely small amount of ice is in equilibrium with the solution. This initial freezing point depends on the chlorinity of the sample. Hy.

freezing process. See freeze, d. Long.

freezing salt. Coarse rock salt, to be mixed with crushed ice as a refrigerant. Keal.

Fremont amalgamation. See barrel process. Fay.

freeborehole. A variety of fahlore containing up to 18 percent silver; usually steel-gray, sometimes iron-black; streak reddish; speckled; cavities; mottled. Chile. Unsatirnized lattamite. Dehottay process. Ham.

freeze-fa. a. Used in much the same sense as freeze, a and b. b. freezer, d. See also freeze, a and b. c. Freezer, d. See also freeze, a and b. d. Freezing point. a. The temperature at which water, or any other substance, changes from the liquid to the solid state. Hy. b. The freezing overburden. See freeze, d. Long. c. Frost point. The temperature at which water, or any other substance, changes from the solid to the liquid state. Hy. d. See also freeze, a and b. e. Frost point. The temperature at which water, or any other substance, changes from the solid to the liquid state. Hy. f. See also freeze, a and b. g. Freezing point. a. The temperature at which water, or any other substance, changes from the liquid to the solid state. Hy. b. The freezing overburden. See freeze, d. Long. c. Frost point. The temperature at which water, or any other substance, changes from the solid to the liquid state. Hy. d. See also freeze, a and b. e. Frost point. The temperature at which water, or any other substance, changes from the solid to the liquid state. Hy. f. See also freeze, a and b. g. freezer, d. See also freeze, a and b. h. Freeze-fa. a. Used in much the same sense as freeze, a and b. b. See also freeze, a and b. c. Freezer, d. See also freeze, a and b. d. Freezing point. a. The temperature at which water, or any other substance, changes from the liquid to the solid state. Hy. b. The freezing overburden. See freeze, d. Long. c. Frost point. The temperature at which water, or any other substance, changes from the solid to the liquid state. Hy. d. See also freeze, a and b. e. Frost point. The temperature at which water, or any other substance, changes from the solid to the liquid state. Hy.

fremontite. A lavender to turquoise-blue basic hydroxysulfate of aluminum, sodium, and calcium, 6(Ca,Na)O.12Na2O.2CaO.6H2O. Frequently tetragonal; fine flakes. Formerly called lavendulan, from which mineral it is distinct. Department of Freirini, Chile. English.

fremontite etching reagent. An etchant consisting of 10 grams of iodine and 20 grams of potassium iodide in 100 milliliters of water. Osborn.

fremontrite. A white sodium montebraite. A hydrofluophosphate of aluminum, sodium, and lithium, Na(Li)(OH)(F,PO₄); monoclinic or triclinic. See also crystal forms. Osborn.

freeborehole. A variety of fahlore containing up to 18 percent silver; usually steel-gray, sometimes iron-black; streak reddish; speckled; cavities; mottled. Chile. Unsatirnized lattamite. Dehottay process. Ham.

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fremontite etching reagent. An etchant consisting of 10 grams of iodine and 20 grams of potassium iodide in 100 milliliters of water. Osborn.

fremont test. A type of impact test in which a beam specimen notched with a rec-
tangular groove is broken by a falling weight. C.T.D.

French cliff. A variety of soapstone or steatite. See also talc. C.T.D. 66, 1961.

French cliff. A hard variety of chalk found in the French limestone and in the chalk land in the manufacture of blasting powder. Hest.

French drainage. A covered ditch containing a layer of fitted or loose stone or other pervious material. Nichols.

French process. A process in which zinc is distilled in the vapor burned to produce the oxide; the purity of the oxide is controlled by the purity of the metal. This process is used for making pharmaceutical-grade zinc oxide. Newton, p. 762.


3d. The number of complete waves which pass a given point per second, or the number of complete vibrations per second, or revolutions per second, made by a vibrating particle. A.G.I. c. In electricity, the number of cycles per second, and depends on the number of pairs of poles, that is, north and south, that a coil passes per second. This is therefore equal to the number of revolutions per second of the generator multiplied by the number of pairs of poles in the field. Mason, v. 2, p. 419.

d. Rate of vibration or alternation of a steadily oscillating system. Pryor, 3.

c. Rate of vibration or alternation of a steadily oscillating system. Pryor, 3.

French air. An adjective applied to rocks and rock materials in a variety of ways. It usually designates a rock surface newly exposed by fracturing, and it means that the surface thus exposed has not been subjected to surface weathering and is a more or less unaltered sample of the rock. A mineral in fresh conditions means that it possesses all its physical properties in an unimpaired state. If the primary or original minerals are not altered by subsequent processes, then fresh rock is the result of certain forces acting upon it, it breaks down usually into one or more new minerals, each one in its own way being as fresh as the original mineral. Stokes and Varnes, 1955.

frequent air. Free from the presence of deleterious gases. Pure air. Fay.

fresh-air base. An underground station, located in the intake airway, which is used by rescue teams during underground fires and rescue operations. The base should be as close to the fire as safety will permit, should be adequately ventilated, and should be in constant touch with the surface by telephone. Nelson.

fresh-air breathing apparatus. See air-tube breathing apparatus. McAdams, p. 71.

freshet. A sudden rise in a stream or river, caused by heavy rains or by melting snow in the mountains or highlands. Fay.

fresh ice. a. Ice formed from fresh water. A.G.I. b. Young ice. A.G.I. c. Ice that has been salty but now is fresh. A.G.J.

fresh water. fresh water. a. Water with less than 0.2 percent salinity. A.G.I. Supp. b. Water which contains little impurities and the taste of which is not appreciably affected by these impurities. Fresh waters often include certain river waters, springs, and deep wells. Such water is usually safe to drink. Cooper, p. 361.

freshwater limonite. a. A limonite formed by direct precipitation in fresh water. A.G.I. b. A thin, dense nodular, relatively unfoliostolithic limestone underlying coal beds. It is often called a freshwater limestone, and Wilson suggested the term underclay limestone. A.G.I. c. Synonym for underclay limestone. D.T.D.

freshwater sediments. Include all the main types of sediments that accumulate in freshwater environments, and be they fresh water, which fractures more readily than regular aluminas but not as readily as white aluminas. See also regular aluminas; white aluminas. ACSG, 1963.

friction. a. A tendency for particles to break down into smaller size (degrade) during storage and handling under the influence of light physical forces. Pryor, 3. b. An assessment of the ease with which a coal can be broken into smaller pieces. J.S. 3323, 1960.

frangible. Easy to break, or crumbling naturally. Descriptive of certain rocks and minerals. Fay. b. A mineral is friable when it may be crumbled between the fingers. Stokes and Varnes, 1955. p. 149. c. Easily crumbled, as a rock that is poorly cemented. A.G.I.

frangible alumina. A medium pure alumina which fractures more readily than regular aluminas but not as readily as white aluminas. See also regular aluminas; white aluminas. ACSG, 1963.


frangible formation. A rock that breaks easily or crumbles naturally, hence a formation from which a good core cannot be obtained easily. Long.

friction. a. A widespread force which slows down motion or causes heat. Mason, v. 1, p. 141. b. A force which opposes the sliding of one surface over another surface. Friction is produced whenever two surfaces are in contact and it is due to the resistance of rubbing. Stimson and Cooper, p. 187. c. A special rubber compound used to impregnate and bond together the plies of the belt carcass. Also used as a
term to express as a measurement the
strength of the ply bond; for example, 16-19 pound friction, which indicates the
necessary force to肖 the plies of a one-
inch test strip. See also coefficient of
friction. ASA MH 4-1958. d. See hydraulic
friction.

frictional electricity. Electricity developed by
rubbing (with a cloth) amber, tourmaline,
topaz, diamond, and some plastic iiinia-
ts. Shipley.

frictional force. The force required to over-
come friction when a set of tires or a run
of wagons is hauled along a level track at
uniform speed. For ordinary pit tugs the
frictional force is about 40 pounds per ton
load, and for mine cars or wagons about
28 pounds per ton load. This resistance is
sometimes called traction. Morris and
Cooper, p. 187.

frictional grip. A mine locomotive relies for
its tractive capacity on the frictional grip
or adhesion which the wheels bear on the
rails of the track, and its tractive capacity on
the wheels and track used. In this context, the
coefficient of friction between wheels and track
is usually termed the coefficient of adhesion.
Nelson.

frictional ignition. The ignition of firedamp
in coal mines by frictional sparks, such as
the rubbing of sandstone against sand-
stone or sandstone against roof bolts. See
also gas ignition. Nelson.

frictional resistance. See friction. Morris
and Cooper, p. 187.

frictional soil. Clean gravel, soil, or sand in
which the shear strength is chiefly deter-
mined by the friction between the par-
ticles. See also Coulomb's equation. Hem.

friction brake. A brake operating by friction
between two surfaces rotating or sliding on
each other. Nichols.

friction breech. Angular rock material pro-
duced by earth movements which crush
and break the rock on the two sides of a fault. Synonymous with fault breccia. Lewis.

friction clutch. A means for engaging the
drive of a press against the crankshaft, the
 torque being transmitted through friction by
forcing together two or more surfaces of
unlike material. ASM Gloss. b. This
clutch consists of four main parts: the
driving hub, the driven hub, the friction
or gripping elements, and the mechanism
which controls the gripping action. The
 gripping element may be an expanding
band to one hub and frictionally en-
gaging the other as controlled, by the lever
and shifter arrangement; or the gripping
elements may consist of one or more fric-
tion plates or disks gripping between alter-
ate friction surfaces, one group rotating
with the driving hub, another with the
driven hub. It is properly termed a clutch
when used to allow the connection of a shaft
between two parts or the clutch hub, and a clutch coupling when
used to connect two shafts. Pit and

friction coefficient. The ratio of the tangen-
tial force of sliding friction between two
surfaces to the force, normal to the sur-
faces, acting between them. See also coe-
ficient of friction. ASA MH 4-1958.

frictional engagements. See crush conglomer-
ate. A.G.I.

friction disk. a. One of a pair of disks on
either side of the gear driving the feed
nut in a gear-feed mechanism. The disks
are held against the gear by compression
springs, the tension of which may be
adjusted to vary the torque which the
disk will slip against to limit an over-
load throwout clutch preventing the bit
from being subjected to more than the
amount of torque determined by the preset
compression applied to the disks by the
compression springs. Long. b. One of the
disks in a clutch used to engage or dis-
engage a motor, at will, from the mech-
nism driven by the motor or engine. Long.

friction element. Some clutches and brakes
for use in sufficient conditions are now lined
with ceramites. Among the materials used
are corundum and sillimanite as the cen-
tral component, and mohs-korund, chromi-
um, iron, and copper slabs as the
metallic bond. Dodd.

friction factor. The friction factor when an
airway is found by determining the drop
in static pressure over a measured length.
Assume that the airstream coming frictionless
at the ends of the test length are A and
B, and that air flows from A to B. If the two
sections on one end, each with a mean
velocity, the same at each section, and
the drop in total pressure is equal to the
drop in static pressure which can be
measured by connecting two pitot tubes, one
at A and one at B, to the gage by equal
lengths of rubber tubing. If the areas
A and B are not equal, the differential
static pressure must be corrected by the
difference in velocity pressures. The
quantity of air flowing is determined at
the measuring station beyond the test length,
and the respective velocities at A and B
and their resultant velocities are calcu-
lated. If the velocity at B is the slower,
the difference in velocity pressures
added to the differential static pressure
at the air inlet to the test channel is
the greater, the difference in velocity pressures is
subtracted from the differential static pressure. Lewis,
pp. 720-722.

friction feed. Longitudinal movements or ad-
vance of drill stem and bit accomplished
by a diamond-drill swirl head as opposed to
a system consisting entirely of meshing
gear. See also friction drive.

friction head. a. The additional pressure
that the pump must develop to overcome
the frictional resistance offered by the pipe,
bends or turns in the pipeline, by changes
in the pipe diameter, by valves, and by
couplings. Carson, p. 211. b. Fric-
tion head in piping is commonly calculated
by the Hazen and Williams formula. See
also Hazen and Williams formula. Lewis,
p. 647. c. Component, and energy lost as the
result of the disturbances set up by the
contact between a moving stream of water
and the frictional resistance. In laminar flow
the friction head is approximately propor-
tional to the first power of the velocity; in
 turbulent flow a higher power--practi-
cally the square. For convenience, friction
losses are best distinguished from losses
due to bends, expansions, impacts, etc., as
a distinction must also be made between the
friction slope and the energy gradient. Fric-
tion slope is equal to the bed or surface
slope only for uniform flow in uniform
channels. Seelye, j.

friction socket. A tubular-shaped or slightly
tapered fishing tool. The inside sur-
face of the tool is nearly covered with cir-
cular pitted protuberances which, when
driven over the loss drill tools, wedge
the tools in the socket. Long.

friction winder. See multiple friction winder.

friction yielding prop. See mechanical yield-
ing prop. Nelson.

frigellita. A massive, cleavable to closely
compact, hydrated manganese silicate,
H₂[Mn(C₂O₄)₂]·5SiO₂·5H₂O. Fay.

frig-ibag saw. A circular hand saw used in Bath
stone quarries. C.T.D.

frigget. Any ornament or glass object
used as a test of skill, or as a symbol of
craftsmanship. Franklin.


friggin. A term derived from the word
foggin. See foggin.

friggin. A miner's term for a red con-
glomerate. Fay.

fringe. A collective term for a thin
lining of isolated, etc., bodies, etc., on
the extreme terminus or margin of a

fringing reef. a. A fringing reef or a short
reef, whether situated on the mainland or part of a
continent, is generally narrower than a
fringing reef. The absence of an interior deep-water channel and the close relation in horizontal extension with the coast line below, with the sea of the adjoining land are essential points of difference between a fringing reef and a barrier reef. A. G. I. b. A reef which closely encircles or forms a fringe around the land. A. G. I. c. A coral reef around lands or islands that rests on the bottom along the shore is either a fringing reef or a barrier reef, according to its position. A fringing reef is attached directly to the shore, whereas a barrier reef is separated from the shore by a channel of water. A. G. I. d. A fringing coral reef is formed, the inner margin of which is composed of a belt of materials which have become subaerial through the actions of wind and waves. Its outer margin is composed of coral rock and living corals. A. G. I. e. A reef attached to an insular or a continental shelf. A. G. I. f. In oceanography, a platform of coral formation extending out from the land. See also coral reef. C. T. D. fringelike. See also soft frit. ASTM C242-60. See also sintered glass. 

fringe water. a. Water occurring in the capillary zone. B. Water in the zone immediately above the water table. It may consist solely of capillary water, or it may be combined with gravity water in transit to the water table. See also. 1. Frangible. b. A glass which contains fluxing material and is employed as a constituent in a glaze, body, or other ceramic composition. ASTM C242-60. c. A glaze in which a part or all of the fluxing constituents are fused. ASTM C242-60. 2. See also sintered glass. d. A glaze in which a part or all of the fluxing constituents are fused. ASTM C242-60. 3. See also sintered glass. e. A glaze in which a part or all of the fluxing constituents are fused. ASTM C242-60. 4. See also sintered glass. f. A glaze in which a part or all of the fluxing constituents are fused. ASTM C242-60. 5. See also sintered glass. g. A glaze in which a part or all of the fluxing constituents are fused. ASTM C242-60. h. A glaze in which a part or all of the fluxing constituents are fused. ASTM C242-60. i. See also sintered glass. 

fringe plant. A plant which is subject to be growing in a stratum of inorganic dust or other substance. 

fringe basket. A skeleton or perforated container used to catch frit under water as it is added to the ores when needed. Min- 

fringe formation. A. The formation of a glaze by a combination of a glass or enamel and quenching it in water. This process will render insoluble any soluble materials originally present. It is used in the ceramic industry and applied to a semifused mass, the constituents of which originally were soluble or insoluble, fusible or infusible. By fritting, that is, preliminary fusing, the original properties of the constituents are changed; thus, the soluble materials become insoluble and the infusible fusible. Accordingly, the substances which could not otherwise be used in a glazed batch, but which are abso- lutely necessary to be used. Other advantages offered by frit- ting are minimizing danger to health of workers when using lead salts, reducing better to lead content, and preventing the formation of lead compounds in the batch, more even distribution of constituents of the batch; ability to fire the glaze at lower temperature. Most of the glazes used on dinnerware and sanitary ware contain frit. See also glasses. C. O. E. 1964. e. As a noun, the material of which glass is composed. A. G. I. Supp. f. As a noun, a semifused stony mass. See also glasses. C. O. E. 1964. e. As a noun, the material of which glass is composed. A. G. I. Supp. g. As a verb, to partly fuse. A. G. I. Supp.
frontedent cast; cabbage leaf marking; defolial end. The flat casts are usually several feet long. In the outer bark are the leaf scars, which are either large or small, depending on the plant species.

front-end equipment. Those attachments to a crane which enable it to work as an excavator, a skimmer, a backhoe, or a similar machine. Both the jib and its fittings are included as equipment. Ham.

front-end loader. a. A tractor loader with a digging bucket and other attachments. b. A tractor loader that both digs and dumps loads. ASCE P1826. c. The breaking of a pavement by the extrusion of soft soil and during a thawing period due to the liberation of soils. ASCE P1826. b. The weathering process caused with which they are in contact. ASCE P1826. c. A process for cleaning fine coal in which the coal with the aid of a reagent, becomes attached to air bubbles in a liquid medium and floats as a froth. B.S. 3552, 1962.

front-end loader. a. A flotation process in which the minerals floated gather in and on the surface of bubbles of air driven into or generated in the liquid in some convenient manner. See also flotation collector. b. The separating of finely divided materials. C.T.D. c. A process for cleaning fine coal in which the coal with the aid of a reagent, becomes attached to air bubbles in a liquid medium and floats as a froth. B.S. 3552, 1962.

front-end loader. a. Reagent used to control the size and stability of the air bubbles in the flotation process. B.S. 3552, 1962. b. A chemical, used in the flotation process to aid collector-coated mineral particles to cling to rising air bubbles. The froth thus formed is transient, and should permit only long enough to permit its removal from the flotation cell. Terpenes, pine oil, cresyl, amyl alcohol, and alcohol derivatives are amongst these. The DuPont B-series are byproduct fractions from butyl alcohol manufacture, with high boiling points. The American Cyanamid frothers AC mix these with oils. The Dow Chemical Company markets polypylene glycol methyl esters (Dowfroths) which are water soluble. Pryor, 3.

front-end loader. a. A collector which also produces a stable froth. Bennett 2d, 1962.

front-end loader. b. A chemical compound used with a frothing agent. Increases greatly the recovery of a mineral in a flotation process. Bennett 2d, 1962.

front-end loader. c. Same as foamy amber. Shipley.

frontedent cast; cabbage leaf marking; defolial end. The flat casts are usually several feet long. In the outer bark are the leaf scars, which are either large or small, depending on the plant species.
froated pipe. A pipe held immovable in a frozen coal. Coal which adheres strongly to hedge: Meier. An irgillaceous sediment which hums vein. A vein in which one wall grades from op. To be in a solidified state; also, frozen ore. See frozen, c. Fay.

ft L. Abbreviation for foot-Lambert. BuMin


Fuch's gold purple. A tin gold color, produced by a wet method; it has been used in the decoration of porcelain. Dodd.

fuchsin dye. An aniline-type dye which is used in alcohol solution to test the porosity of ceramic bodies. The mate-up is also sometimes used as a dye for body identification prior to firing. Lee.

fuchsite. A bright green variety of muscovite with up to 5 percent Cr2O3. A member of the mica family. Hey 2d, 1955.

fugacity. The term as used in the past to any indefinite marking found on a sedimentary rock that could not be referred to a described fossil species. It was derived from the marine alga, Fucus, which was supposed might leave such a marking if buried under favorable conditions. A.G.I.

fulcrum. A point of support of a lever. Peirce, 3.

fugitive air. Applied to air moving through the fan that never reaches the working faces. It leaks through poor stoppings, around doors and so on, back into the returns without meeting anywhere near the active sections. Surveys of some mines show that up to 80 percent of the moving air is lost in just this manner.


fuller. A tubular glass rock that has been fused from all kinds of other rocks and unconsolidated sediments by lightning strokes. Fulgurites are especially common on exposed crags on mountain tops. The term is derived from the Latin for lightning. Fay.

full-cut brilliant. The term correctly used for a brilliant-cut diamond or colored stone with the usual total of 58 facets, which total consists of 32 facets and 12 table facets, all with brilliant or step cut below. On colored stones the girdle is usually polished, but not on diamonds. Shipley.

fuller. A blacksmithing set hammer with a ring handle. Occasionally in use in the form of a hook or a form of bottom tool with a similar working end sometimes used in conjunction with the file for removing rust. Also a groove made by such a tool or any groove or fluting. Standard, 1964. b. In
preliminary forging, the portion of a die that reduces the cross-sectional area between the ends of the rock and permits the hole to be formed. ADJ.

fullering. The act of caking or riveting a joint to make it steam tight. Ham.

full-face. A term used in Wales for pulverizing clay, but lacking plasticity. It is much the same chemically as clay, but it contains a higher percentage of water. It is high in magnesia, and it has the capability of decolorizing and purifying properties in its natural state to be used for oil refining. Bureau of Mines Staff.

Fuller's grading curve. A method of graphical representation of particle size analysis; the grain size (in fractions of an inch) is shown on the abscissa and the cumulative percentage on the ordinate. Originally, the concept of ideal grading curves was introduced, these being selected to be ellipses with straight lines tangential to them; more strictly, the ideal curves are parabolas having the form d = Pd/10,000, where d is any selected particle diameter, D is the diameter of the largest particles and P is the percentage finer than d. Dodd.

full-gauge. A term used in Wales for pulverizing clay, but lacking plasticity. It is much the same chemically as clay, but it contains a higher percentage of water. It is high in magnesia, and it has the capability of decolorizing and purifying properties in its natural state to be used for oil refining. Bureau of Mines Staff.

full-gauge. A cylindrical or tubular object, such as a bit or reaming shell, the outside and/or inside diameters of which are the size specified. Also called full-size, full-drill, full-size drill, full-size bit, full-hole drill, full-hole bit, full-size hole, or full-hole size. Also called full-size. Long. c. As applied to deflection drilling, the branch borehole is the same diameter as the parent hole. Also called full-gauge, full-hole, full-size, full-size drill, full-size bit, full-hole drill, full-hole bit, full-size hole, or full-hole size. Long.


full-hole size. a. Used by some diamond drillers as a synonym for full gauge. Long. b. As used by petroleum field drillers, a bit having a minimum outside or cutting diameter of 7/8 inches. Also called full-bladed bit. Long.


full-size, full-gauge. See full gauge; full-hole size. Long.

full-size blast. The standard type of heading blast consists of a straight or in main drive, at right angles to the rock face, and a back drive at right angles to the main drive and parallel to the face. The main drive is normally driven at quarry floor level to a depth of 0.6 times the height of rock above the back drive. Apart from exceptional circumstances, the maximum depth of the main drive should be 50 feet, so that with faces greater than 85 feet high the 0.6 ratio should not be used, but the main drive limited to 50 feet. McAdam II, pp. 152-154.

full-face driving. The English method of blasting used for adits, tunnels, and drifts. The full section is drilled and then blasted in one operation. Fraenkel.

full-face lining. A mining system, brought on by the advent of mechanical loading and mechanical coal cleaning, in which the entire section is dislodged together and the coal separated from the rock outside of the mine by the cleaning plant. Kentucky, p. 100.

full-size. See full gauge; full-hole size. Long.

full-subidence. The greatest amount of subsidence which can occur as a result of mine workings. See also percentage subsidence. Nelson.

full-tesseract. A condition of teeter in which the maximum degree of fluidization cutting the suspension is attained but without disruption of the bed. B.S. 3552, 1962.

full-tide cofferdam. A cofferdam which is sufficiently high to hold back tidal water from an excavation at all states of the tide. Ham.

full trailer. A towed vehicle whose weight rests entirely on its own wheels or crawlers. Full.

full-trimmed mica. Rifted mica trimmed on all sides with all cracks and cross grains removed. Full.


full-width rectifier. A rectifier which changes single-phase alternating current into pulsating unidirectional current, utilizing both halves of each cycle. Coal Age, 1.

fully developed mica. In coal mining, a mine when all development work has reached the boundaries and further extraction will be done on the retreat. Bureau of Mines Staff.

fully fixed. Applied to a member of a structural frame which has a fixed end. Ham.

fulminate. A. An explosive compound of mercury, HgCNO₃, which is employed for the capture of exploding charges, by means of which charges of gunpowder, dynamite, etc., are fired. Fay. b. To make a sudden loud noise; to detonate; to explode. Webster 3d. c. A salt of the highly explosive fulminic acid. Sandstrom.

fulminate acid; hyoscyamic acid; carbonyl ester; carbaryl ester; C₅NOH; molecule weight, 43.02; unstable volatile compound; an unpleasant odor; and it polymerizes easily. The silver and mercury salts are used as explosives. Bennett 24, 1962; CCD 64, 1961.

fulminate. Lead sulfantimonide, 2PbS·3Sb₂S₅; monoclinic. A lead gray, bright metallic mineral sometimes with a bluish or bronze tint; ... Hungarian Journal of Mineralogical Magazine, v. 22, No. 134, September 1931, p. 620.

fumarolic. Or pertaining to fumaroles or vents near volcanoes from which volcanic gases escape. Bureau of Mines Staff.

fumarole. a. A hole in a volcanic region, from which gases and vapors issue at high temperature. Webster 3d. b. The exhalation from a fumarole consists of water vapor, nitrogen, hydrogen, free hydrochloric acid, hydrofluoric acid, and silicon fluoride. Compare solfatara; mofette; solfato. a. A hole or fervor from which fumes or vapors issue; a spring or a geyser which emits steam or gaseous vapor. Usually found in volcanic areas. A.G.I. Supp.

fumarolic. Or pertaining to fumaroles or vents near volcanoes from which volcanic gases escape. Bureau of Mines Staff.

fundamental frequency. The lowest common period of frequency of a periodic quantity. ASM Gloss.

fundamental jelly. Structureless colloidal jelly which forms the base of coals and assumed to have been produced by the decay of plant materials. Tomkeieff, 1954.

fundamental mode of vibration. That mode of a system having the lowest natural frequency. H.G.

fundamental particle. Synonym for elementary particle. NRC-ASA N 1-1957.

fundamental substance. Same as fundamental form. Synonym for elementary particle. NRC-ASA N 1-1957.

fungus. A plant not possessing roots, stems, or leaves, without a hard outer covering. Foreset beds are themselves cross-laminated. Foreset beds develop on the roof is reflected on to a horizontal bed below; the revolving furnace, a horizontal cylinder; a roasting furnace in which material is oxidized, killed to leave off carbon dioxide or heated to remove moisture. See also coperma; converter. Propr., c. Either the combustion space in a firing device or a direct fired air heater. In the latter case, not to be confused with a boiler. Strock, 10.

fungus. See box furnace. ASTM C286-65.


fungus bridge. A barrier of firebricks or an arch which deepens rapidly from its head to its mouth. It resembles a funnel split lengthwise. For example, the Gulf of California, the Bay of Biscay, and the Bay of Fundy. A.G.I.

fungo-ka. Coolies cooperatively working tin mines or other projects, in Malaya. Hew.

fur; furring. Eng. A deposit of chemical salts and other material (sediment) upon the surfaces of pumps, boilers, etc. Fay.

furc. Port. To bore or drill for a blast. Fay.

furcate. Branching like a fork; forked. Webster 3d.

furcula; furcula. When very pure, a colorless mobile liquid; G.H. CHO or OCH: CHCH: CHOCHO; changes to reddish brown upon exposure to light and air; has a penetrating odor somewhat similar to that of benzaldehyde. Furfural forms condensation products with many types of compounds; such as alcohol, amine, and urea; soluble in alcohol, ether, and benzene; 8.3 percent soluble in water at 20°C; specific gravity, 1.1598 (at 20°C, referred to water at 4°C); melting point, -38.7°C; and boiling point, 161.7°C (at 760 mm.). Used in bituminous concrete road construction and in the refining of rare earths and metals. CCD 64, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. C-333.


furnace. A structure in which, with the aid of heat so produced, the operation of roasting, reduction, fusion, steam-generation, desiccation, etc., are carried on, or, as some miner, the air current is heated, to facilitate its ascent and thus aid ventilation. Fay. b. Eng. A large coal fire at or near the bottom of an upcast shaft, for producing a current of air for ventilating a mine. Fay. c. Anthracite mines formerly used a current of air for ventilation at the bottom of an air shaft. Being lighter, the heated column of airrose and the other air taking its place produced the necessary difference of pressure to ventilate the mine. Kersn. d. Structure in which materials are exposed to high temperatures. Fuch's method is used to maintain this condition. Among the materials are paraffins, gas, coal, hydrogen, electricity, wood and sulfur. A furnace is a batch type when its contents are treated in successive charges, and continuous when a stream of material passes through, being changed during transit. The main types are the arc, which uses the heat of an electric arc; the blast furnace, the crucible furnace, a laboratory appliance in which small charges, the muffle, in which the material is placed in a sleeve not in direct contact with the heating atmosphere, so that close control of entering and departing gas is possible; the reverberatory, in which heat developed on the roof is reflected on to a horizontal bed below; the revolving furnace, a horizontal cylinder; a roasting furnace in which material is oxidized, killed to leave off carbon dioxide or heated to remove moisture. See also cupola; converter. Propr., c. Either the combustion space in a firing device or a direct fired air heater. In the latter case, not to be confused with a boiler. Strock, 10.

furnace. box. See box furnace. ASTM C286-65.

furnace brazing. Brazing in a furnace. ASM Gloss.

furnace burner unit. Warm air furnace sold as a complete unit. Fay. See also heater.

furnace coal. As applied to anthracite, a formerly used term for broken coal. See also anthracite. Hew.

furnace, continuous. See continuous furnace. ASTM C286-65.

furnace conv. The conveyer which moves material through a furnace. ASA MH-4.1-1958.


furnace holding-the-iron. A condition of the furnace by reason of which it gives much less heat than normal at casting, although the feeding may have been regular. The taphole runs iron slowly, and the amount of cinder is somewhat erratic. Compare furnace losing-the-iron. Fay.

furnace linings. Refractory materials used to protect the walls of a furnace from reaction with its molten contents (abrasive, melting or chemical). Three divisions are (1) acid refractories rich in silica (flint, garnet, fire clay), which react with basic oxides; (2) neutral refractories (chromite, graphite) and (3) basic refractories, rich in oxides of calcium and magnesium, low in silica. Pryor, 3.

furnace losing-the-iron. Escape of iron from the hearth of a blast furnace into the foundation beneath, indicated by decreased quantity of iron at casting, and by the blowing of a blast hole. Fay.

furnace magnesite. A mortar material prepared from finely ground dead-burned magnesite, suitable for use as a joint material in laying magnesite brick, and for patching or daubing furnace masonry. HW.

furnaceman. One whose sole occupation is to attend a furnace. Fay. See also teaster.

furnace, porcellaneous enameling. The types and capacities of enameling furnaces are numerous. Among those in use are the continuous, box, fullmuffle, and semimuffle furnaces. Fuel commonly used are coal, gas, oil, and electricity. Used for properly fusing enamel on enamel ware at the temperature specified and in the time required. Hansen.

furnace refining. Purification of molten metal by treatment in a reverberatory furnace; term is most commonly used in connection with the refining of copper. Bennett 2d, 1961.


furnaces. See box furnace; continuous furnace; continuous tank furnace; direct-fired furnace; end-fired furnace.
**furnaces**

furnace, pot furnace, recuperative furnace, regenerative furnace, semirefractory furnace, side-fired furnace, side-port furnace, tube furnace, U-type furnace. ACSM, 1963.

dioxygen sand; also used to line furnaces. Furnaces are usually constructed particularly in open-hearth steel furnaces. C.C.D., 1964, 1965.

**furnace shaft.** An upcast shaft used in mine ventilation where a furnace is employed. Fay.

furnace sprayer. In ore dressing, smelting, and refining, a laborer who sprays the inner surfaces of furnace walls and roof with slurry of silica, water, and fireclay to protect brick, using compressed-air guns. Also called slurry man; sprayer. D.O.T. Supp.

**furnace stack.** A chimney built over a furnace for increasing the draft. Fay.

furnace ventilation. A ventilation system of the earlier days of mining whereby a large coal fire was kept burning in a furnace near the bottom of the upcast shaft. The fire heated and thus reduced the density of the air with which the cold and heavier air column in the downcast shaft flowed downwards into the workings, and thus a condition of ventilation was established. Nelson.

furnace volume. The cubic contents of the combustion space of a boiler bounded by the grate, direct heating surface, and tube sheet. Strock, 10.

furnacite. Same as furnacite. English.

furnisher. A man who furnishes money or machinery to a party of miners, and so becomes entitled to a share of the profits. Fay.

furnery; furneries; foreigners. Dark, ovoid inclusions of country rock in granite. Same as heathen. Arkell.

furring. A marking made by glaciers or frost on the surface of a sedimentary rock layer of a furrow or the like, formed when a layer of water, ice, or mud is trapped and separated from parallel, adjacent furrows by near-buried septa which appear as grooves in the cast. If the up current terminations are missing, the structure is called a furrow cast. Pettijohn.

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fusain. a. This term was introduced by Grand'Eury in 1882. It is recognized macroscopically by its gray-black color, its silty luster, its fibrous structure and its extreme friability. It is the only constituent of coal which sticks and blackens objects with which it comes in contact. Fusain may include a high proportion of mineral material, which strengthens it and retards its friability; it retains, however, its silty luster. In macroscopic description of seams, only those bands having a thickness of several millimeters are recorded. Microscopic examination shows that fusain consists in the main of fusite. Fusite occurs as wide bands and lenses in almost all humic coals. It is widely distributed, but not abundant. IHCP, 1963, part 1, b. The term was first used in the United States by J.J. Stevenson as a synonym for mineral charcoal. In the Thiessen-U.S. Bureau of Mines system, fusain is a component with a minimum band width of 37 microns. Microscopically, fusain closely resembles wood charcoal, usually being soft, friable, and black, and disintegrating readily into much longer granules. As by definition fusinite is a component with a thickness of several millimeters, it may be slightly translucent and dark red in color. It frequently shows well-preserved plant fragments, in which the lumina may be empty or may be filled with mineral material. As by definition fusain must have a minimum thickness of 37 microns, fragments of fusinite less than 37 microns are counted as opaque attributes. Fusain occurs as microscopically fine inclusions, but also in much grosser form as bands and lenses up to 15 to 20 centimeters thick and 3 to 4 meters or more long when the bands are distributed in the humic coals of the Carboniferous but only in small quantities. IHCP, 1963, part 1, e. Fusite, a variation of fusinite having the appearance and structure of charcoal. It is friable, sotty, generally high in ash content, and consists mainly of fusite. A.G.I. Staff. See also fusinite.

fusinite; fusinization; fusinisation. The formation of fusain. Tomšič, 1954.

fuse. a. A small cylinder of copper, closed at one end and charged with a fulminate. The end of the fuse is inserted in this cap, and a charge is set in the cast. Super. See also detonator.

fuse cutter. In metal mining, one who cuts blasting fuse to standard lengths; inserts fusing into open end of detonators or caps, and attaches it by squeezing the open end with a pair of crimpers (special pincers).


**fused-cast brick**

with or without a blasting cap. Fay. b. Any of various devices, as a tube, casing, gun, or the like, filled with an explosive and combusted with water, a sound, or a shock by means of which an explosive charge is ignited. Fay. c. A tube containing a compound designed to burn at a regulated linear speed, and in so doing to convey heat into an explosive charge. The miner's safety fuse, invented by Backford in 1831, is either slow or instantaneous. In it a fabric cover encloses a train of combustible material. The detonating fuse (Cordeau detonant) is trinitrotoluene in a thin lead sheath, and has a burning speed of 17,000 feet per second. Cordtex and Primacord are wrapped in textile, and have a speed of 20,000 feet per second. These high speeds have special value in simultaneous firing right through the charge. Electric fuse is of wire, metal when a current passes through the circuit in which it is incorporated, thus cutting off the supply of electricity and producing further damage through overload or overheating. Pryor, 3, d. A slow-burning train of powder used in blasting caps. C. Can. Casing prepared with combustible materials by which dynamite is detonated. Fusing is term applied to fighting explosives, either electric or non-electric. Detonators are used for firing the charge. The fuse is in- treated by means of heat, to make it capable of being ignited. Fay. c. An overcurrent protective device with a circuit-opening fusible member directly heated and destroyed by the passage of overcurrent through it. U.S. Bu. Mines Fed. Mine Safety Code-Bit. Coal & Lignite Mines, Pt. 1 Underground Mines, Oct. 8, 1953. h. To liquefy by means of heat; to make liquid. Fay.

fuse auger. An instrument for regulating the time of burning of a fuse by removing a certain portion of the composition. It has a movable graduated scale which regulates the depth to which the auger should penetrate. Standard, 1947.

fuse blasting cap. A small cylinder of copper, closed at one end and charged with a fulminate. The end of the fuse is inserted in this cap, and a charge is set in the cast. Super. See also detonator.

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fused-cast refractories. Refractories formed by electrical fusion followed by casting and annealing. Hend.

fused-cast refractories. Aluminous cement. Hend.

fused electrolyte. Molten compound which conducts and is decomposed by electrolysis; used as refractory material in cells used in electrolytic reduction of substances such as aluminum, magnesium, sodium, and calcium. Bennett 2d, 1962.

fused magnesia. Fused electric furnace magnesia, not subject to grain growth. Bureau of Mines Staff.

fused slip. A terminal connection, with a fuse, used on portable electrical mining machinery. Great.

fused quartz; fused alp. A terminal connection, with a fused elestrolyte. Molten compound which fusedplug.

fuselighter. A device for sparkplug.

fused trolley tap. A specially designed holder sparkplug.

fused salts. Constituents are held together by heating sparkplug.

fusiform bomb. A type of rotational fusinite.

fusinite. A maceral, or micropetrologic constituent of fusinite.

fusinite. The quality of being fusible; especially, capable of being liquefied by heat. Webber 3d.

fusibility scale. A list of minerals arranged in the order of their fusibility. The fusibility scale of von Kobell is: (1) stibnite; (2) natriolite; (3) amsellite; (4) actinolite; (5) orthoclase; and (6) bronze.

fusible. Capable of being fused; especially, capable of being liquefied by heat. Webber 3d.

fusible alloys. Alloys which will melt at definite low temperatures. Sphynx.

fusible metal. Any alloy, usually one containing tin, which will melt at a comparatively low temperature. Standard, 1964.

fusible plug. An insert of metal with low melting point placed in boilers, sprinklers and other devices to melt when the temperature becomes dangerously high, so that the melting will relieve pressure, allow water flow, or otherwise tend to alleviate the dangerous condition. Strock, 10.


fused silica. See silica glass. VV.

fused stone. Any gem substitute produced by means of fusion, especially synthetic stone or glass. Shipley, b. An assembled stone such as soldered emerald. Shipley.

fused trolley tap. A specially designed holder sparkplug.

fuselite. A part of an electric detonator consisting of twin metal conductors, bridged by fine resistance wire, and surrounded by a bead of igniting compound which burns when the firing current is passed through the bridge wire. BS 3618, 1964, sec. 143.

fuselgraph. An instrument for cutting time fuses to length. Standard, 1964

fuselgraph. That part of an electric detonator consisting of twin metal conductors, bridged by fine resistance wire, and surrounded by a bead of igniting compound which burns when the firing current is passed through the bridge wire. BS 3618, 1964.

fuselgraph. For facilitating the ignition of the powder core of a fuse. One form is in the shape of the carpet tack core, with a powder composition; another form is in the shape of a cord, which when ignited burns and maintains a "coal of fire" in contact with the exposed powder in the fuse. Fay. See also cloth fuse. South Africa, p. 40.

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Fusion. A process for the formation of a substance by the direct contact of two substances, which may be in solid, liquid, or gaseous form. Fusion is often used in the production of materials with specific properties or in the recycling of waste materials.

Fusion casting. A process for the manufacture of castings by heating a mixture of refractory materials to the point of melting, followed by the addition of molten metal and the subsequent solidification of the mixture.

Fusion button test. A test to determine the quality of a casting by subjecting a small button of the casting to a fusion test and examining the button for defects.

Fusion welding. A welding process that uses heat to achieve a permanent bond between two materials without the application of pressure. Fusion welding is used in a variety of industries for the joining of metals and non-metals.

Fusion piercing. A method of producing a hole in a material by heating it to the point of melting, followed by the injection of a material that solidifies inside the hole.

Fusion casting. A process for the manufacture of refractory products, such as bricks and tiles, by heating a mixture of refractory materials to the point of melting and then allowing it to cool and solidify. Fusion casting is used in a variety of industries, including the production of ceramic products and the manufacture of industrial components.

Fusion of clay. The process of combining clay particles by heat to form a solid mass. Fusion of clay is used in the production of bricks and tiles.

Fusion point. The temperature at which a material melts. Fusion point is an important property in the selection of materials for specific applications.

Fusion test. A test used to determine the quality of a material by subjecting it to a fusion test and examining the results.

Fusion piercing drill. A machine designed to use the fusion-piercing mode of producing holes in materials. Fusion piercing drills are used in a variety of industries, including the production of industrial components and the manufacture of materials with specific properties.

G

G a. A unit of force applied to a body at rest equal to the force exerted on it by gravity. One of several such units applied to a body when accelerated; for example, when an airplane pulls out of a dive or makes a sharp turn. Webster 3d. b. (1) Abbreviation for gravity; acceleration due to gravity. GPO Style Manual, I. 157; Zimmerman, pp. 49, 59. (2) Designation for gravity in formulas. A.G.I. Abbreviation for gram. BuMin Style Guide, p. 59.

Gazing. Use the fusion-piercing mode of producing holes in materials. Fusion piercing drills are used in a variety of industries, including the production of industrial components and the manufacture of materials with specific properties.

Gaseous. Relating to or consisting of a substance that is present in a gas phase.

Gasoline. A liquid fuel, usually a refined petroleum product, that is used as a fuel for internal combustion engines.

Gasolaire. A type of fuel that is commonly used in industrial processes, such as the production of steel and the manufacture of chemicals.

Gaspar. A type of high-quality coal that is used in the production of steel and the manufacture of chemicals.

Gasparco. A type of high-quality coal that is used in the production of steel and the manufacture of chemicals.

Gasparvoidite. A type of coal that is used in the production of steel and the manufacture of chemicals.

Gasphalt. A type of coal that is used in the production of steel and the manufacture of chemicals.

Gasphaltite. A type of coal that is used in the production of steel and the manufacture of chemicals.

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gagatization

Id. g. Abbreviation for Gilbert Zimmerman, p. 50. h. Abbreviation for-gilt group. Webster 3d.
As a subscript, the symbol has no specific meaning. "Newed., 1964, p. F-99; Zimmerman, pp. 120. j. Symbol for radial wire; Zimmerman, pp. 115. k. Symbol for radicant constant. Zimmerman, p. 120.
d. Abbreviation for gage (or gauge). Webster 3d.
b. Scot. A hook on the end of a chain or rope; a coupling. Fay.
c. A fine to coarse, dark-colored crystalline igneous rock composed mainly of calcic plagioclase (laboradonte or anorthite) clinopyroxene, and sometimes olivine. Magnetcite, ilmenite, or both, andapatite are accessory minerals. A rock containing orthorhombic pyroxene is called a norite. Fay. d. A granular igneous rock composed of calcic plagioclase, olivine, and sometimes olivine. An olivine gabbro. Bateman. e. A plutonic rock consisting of calcic plagioclase (commonly labradorite) and clinopyroxene, with or without orthopyroxene and olivine. Apatite and magnetite or ilmenite are common accessory minerals. A.G.I.
g. Gabbro. The texture typical of basic plutonic rocks in which completely allotriomorphic grains dominate the fabric. Schieferdecken.
h. Gabbro schist. A gabbroic rock that has been rendered schistose by cataclasis. See also flaser gabbro; subhastite. A.G.I.
i. Gabbion. A bottomless wicker cylinder or basket, from 20 to 70 inches in diameter and from 33 to 72 inches high; used in engineering, which filled with stones, to form the foundation of a jetty. Standard, 1964.
k. Gable-bottom car. See mine cars, Lewis, p. 222.
l. Gable-rake tile. The full-flanged tile used at the verge of a tiled roof. See also verge. Doddi.
m. Gable lever. A device for disengaging the gable, on the eccentric rod of a steam engine, from the rockshaft. Standard, 1964.
n. Gable wall. The charging end wall of a glass-melting furnace. ASTM C156-66.

g. A steel wedge used in mining. Gordon.
h. A small, steel wedge used for loosening seamy rock. Sauffer. i. A heavy piece of steel, 6 or 8 inches long, with a narrow chisel point for cutting samples, breaking out pieces of loose rock, etc. A mool is a gad with a round point. Hess. j. A small iron punch with a wooden handle used to break up seamy ore. Orbital spike. Webster 2d. k. To break or loosen with a gad, as rock. Webster 3d. l. A penetration drill; a jumpper drill. Mount. m. Gadder. In quarrying, a small car or platform carrying a drilling machine, so as to make a straight line of holes along its course in getting out dimension stone. Also called gadine car, gading machine. Standard, 1964.
Gadding machine. See gadder. Fay.
g. A tool used for raising a piece of ware which is in course of treatment. C. T. D.

Gadolinium. A rare silvery-white metallic element; trivalent; and a member of the rare earth group. Only known in combination and obtained from the same sources as europium. Symbol, Gd; hexagonal; atomic number, 64; atomic weight, 157.25; specific gravity, 7.895 and 7.8, depending on purity; melting point, 1,312° C; boiling point, about 3.000° C; insoluble in water or reacts slowly with water; soluble in dilute acids; and has the highest neutron absorption cross section of any known element, 84,800 barns. C.T.D.; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-11, B-175.
Gadolinium oxide; gadolinia. White; isometric space group I-43m; atomic number 67 (at 15° C); melting point, 2,330° C; slightly soluble in water; soluble in acids; hygroscopic and absorbs carbon dioxide from the air. Purifies up to 99.6 per cent gadolinium oxide are obtained. Used for nuclear-reactor control rods; neutron shield; catalyst; dielectric ceramics; and special glasses. C.G.C. 64, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-17.
Gad steel. Flemish steel; so called because wrought in gads or wedges. Fay.
g. A raft, slip, or dike. See also gaw, a. Fay.
Gagger. The head workman, foreman, or blower of a blast furnace or smelter. Fay.

b. The man in charge of horse or mule teams between the blast furnace and the mechanical haulageway. C.T.D.
g. A. Eng. An obstruction in the valve of a pump which prevents it from working. Fay.
h. A fuller used to straighten railway rails. Webster 3d. i. Derb. Any piece of timber used temporarily to reinforce other timber until proper timbering can be done. Fay. j. Eng. Chips of wood in a shaft bottom, or sump. Fay. k. A metal spacer to be inserted, so to render a floating tool or punch inoperative. A.S.M. Glas.
Gargarinite. A hexagonal mineral, Na,Ca,Y3(Fe2+,Cr2+)[Si6O18](OH)2 for the cryptocrystalline variety and the crystalline variety, respectively; color greenish or yellowish-green, or yellow; vitreous to glassy; and obtained from albitized granites and associated quartz-microcline veins of one of the granite massifs of Kazakhstan and in alluvious rocks of other regions of the U.S.S.R. Alters easily and is replaced by aggregates of tesserite, synchisite and astrophyllite. American Mineralogist, v. 47, No. 5-6, May-June 1962, p. 805.

Gagnost. gagnost. German name for jet. Tomkeieff, 1954.
gallatin. The heavy oil of coal tar used in the Bethell process for the preservation of tim-
galvanometer. An instrument for measuring a small electric current or for detecting its presence by means of the movements of a magnetic needle or of a coil in a magnetic field that requires usually much greater than the minute beam of light reflected from a mirror attached to the needle or the coil. Webster's 3d. String (wire) or mirror galvanometers are used in electrophores and other instruments of applied electrophysics. A.C.I.
galvanoscope. An instrument employed for detecting an electric current and showing its direction. It differs from a galvanometer in being only qualitative. Standard. 1964.
galvatronometer. An instrument for measuring the heat generated by an electric current or for measuring the current by the heat it generates. Standard. 1964.
ganella. Braz. A wooden bowl about 2 feet wide at the mouth, and 5 or 6 inches deep, used for washing gold out of the auriferous material collected in sluices and in river sand. Fay. 1961.
gamma. The common unit of magnetic intensity. It equals 10⁻⁶ oersted. A.G.I.
gamma-gamma log. A borehole measurement of gamma rays originating in a gamma-ray source in the instrument and scattering back from the rock information to a detector shielded from the source. The amount of scattering is proportional to electron density and, therefore, proportional to mass concentration so that the measurement, after certain corrections, yields a density log of the formation penetrated. A.G.I.
gamma-ray counter. An instrument capable of detecting and recording the intensity of gamma rays emitted by a radioactive substance. Compare Geiger-Mueller counter; scintillation counter. Long.
gamma-ray detector. An instrument on ships for identifying and measuring abnormal gamma ray concentrations in the ocean areas, as would result from nuclear powered vessel refuse and nuclear waste dumping. Hy. See gamma-ray counter. Long.
gamma-ray inspection. The method consists of placing a radioactive source at a given distance from one face of the part to be radiographed and a photographic film in a light-proof cassette between intensifying screens. The source is then placed over the part left in position for a suitable exposure time, after which the film is developed. Other.
gamma-ray log. Strip recording of the intensity of natural radioactivity versus depth, obtained when a suitable detector is moved through a borehole. Institute of Petroleum, 1961.
gamma-ray logging. a. The act or process of obtaining, by means of a gamma-ray probe, a record of the intensities of gamma rays emitted from the rocks penetrated by a borehole. Compare electrochemical logging. Long. b. This type of logging can be carried out with a radioactive source placed in any type of drilling fluid, or in dry holes. It can be used in a hole into which sea water has been rendered, the sensitivity curves valueless. Shales, marine clay, and potash are generally more radioactive than sandstone, sand, coal, and salt. Marine bands are generally, but not invariably, characterized by high gamma-ray counts. Though the rate of gamma-ray emission is erratic and recording must be carried out slowly, speeds of up to 1,000 feet per hour have been attained. Sinclair, III, pp. 106-107.
gamma-ray probe. A gamma-ray counter device built into a watertight case small enough to be lowered into a borehole. Long.
gamma-rays. High-energy, short-wavelength, electromagnetic energy emitted by a nucleus. Electromagnetic energy. Long. X-rays also occur in this energy range but are of nonnuclear origin. Gamma radiation usually accompanies alpha and beta emission but not companies fission. Gamma rays are very penetrating and are best attenuated by dense materials like lead and concrete. A.G.I.
gamma-ray spectrometer log. An instrument for determining the energy distribution of gamma rays. NI, 1957.
gamma-ray spectrometer log. A log which measures the relative quantities of potassium, thorium, and uranium present in the rocks penetrated by a borehole. Wyllie, p. 1+.
gamma-ray well logging. A method of logging boreholes by measuring the natural radioactivity of the rocks through which the hole passes. It was developed for logging holes which cannot be logged electrically because they are cased. A.G.I.
gamma structure. a. A thrust sheet with an attitude of the type of drilling Ibuid, or in dry holes. Long b. This type of logging can be carried out with a radioactive source placed in any type of drilling fluid, or in dry holes. It can be used in a hole into which sea water has been rendered, the sensitivity curves valueless. Shales, marine clay, and potash are generally more radioactive than sandstone, sand, coal, and salt. Marine bands are generally, but not invariably, characterized by high gamma-ray counts. Though the rate of gamma-ray emission is erratic and recording must be carried out slowly, speeds of up to 1,000 feet per hour have been attained. Sinclair, III, pp. 106-107.
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Gamma structure. a. A thrust sheet with an attitude of the type of drilling Ibuid, or in dry holes. Long b. This type of logging can be carried out with a radioactive source placed in any type of drilling fluid, or in dry holes. It can be used in a hole into which sea water has been rendered, the sensitivity curves valueless. Shales, marine clay, and potash are generally more radioactive than sandstone, sand, coal, and salt. Marine bands are generally, but not invariably, characterized by high gamma-ray counts. Though the rate of gamma-ray emission is erratic and recording must be carried out slowly, speeds of up to 1,000 feet per hour have been attained. Sinclair, III, pp. 106-107.
gangway

A narrow passageway or corridor for passage through a larger structure. Also, a narrow passage or valley for a large stream or river.

gangway cable. A cable designed to be installed horizontally (or nearly so) for power transmission on highways and railways. AS 4142.5:1956.

gangway; gantry; gantree. A frame erected for the purpose of carrying a switch, the two tracks breaking the continuity of either track by the breaking system. Pryor, p. 13.

gangway design. An arrangement in which certain intermediate sizes of particles are wholly or substantially absent. Taylor.

**garnet**

A gem stone, rock, or mineral that is used in crystalline form or as a gemstone. It is also used as a abrasive and gem, precious garnet; pyrope (manganese-aluminum) garnet; almandine, pyrope, and spessartite garnets.


garnet rock. A rock composed essentially of garnet crystals, which are the principal rock-forming minerals. In general, garnet rocks are metamorphic rocks that have formed from metasedimentary rocks.

**garnetization.** The introduction of garnet into a rock, or the formation of garnet in a rock from other minerals in the rock. A process commonly associated with contact metamorphism.

**garnetite.** A metadolomite rock, consisting chiefly of garnet. Stakes and Varnes, 1955.

**garnet jade.** A jade-like variety of garnetite, from Transvaal, Republic of South Africa. Also called Transvaal jade; South African jade.

**garnetoid.** A rock or mineral that contains garnet as a major or minor constituent. Garnetoids include varieties such as garnetite, garnet gneiss, and garnet schist.

**garnetoid rock.** A rock composed essentially of garnet crystals, which are the principal rock-forming minerals. In general, garnet rocks are metamorphic rocks that have formed from metasedimentary rocks.
garnet rock

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garnet shell. See shell (cutting). Shiple.
garnet stone. See stone (cutting). Shiple.

gas. A mixture of finely ground glass and quartz, produced in the grinding of plate glass. Also, any aeriform liquid other than atmospheric air, such as gaseous carbon dioxide (black damp), carbon monoxide (whitedamp), methane (firedamp), and the common combustible petroleum-product gases. Compare acetylene; bottle gas. Long. I. Abbreviation for gasoline. Long. See also manufactured gas; natural gas.

k. A fluid (as air) that has neither independent shape, nor volume but tends to expand indefinitely. A substance at a temperature and pressure at which it is not liquefiable by pressure alone. Webster 3d. b. A fluid of low density and of high compressibility. The specific recognition of a gas as distinct from a liquid of the same composition requires the simultaneous presence of both phases at equilibrium. See also fluid; liquid. A.G.I. 1. As a verb, to affect or to treat with gas.

To subject to the action of gas. Webster 3d.

gas analysis. An analysis of mine air to give information regarding the oxygen content of the air, the presence of explosive gas or other undesirable gas or gases. It is a valuable aid in following the changes in mine air during fires and after explosions. Lewis, p. 731. See also Burrell apparatus.

gas and mist sampler. This instrument is designed primarily for the automatic collection over a 24-hour period of one sample per hour of airborne material such as sulfur dioxide, ammonia, fluoride, and some acids; it can be adapted to the collection of many other air contaminants. A fixed volume of air is drawn through a special impinger. At the end of the period, the collecting fluid is discharged into a tube and is analyzed later. Bettis, p. 578.

gas barren. A barren tract of ground, devoid of veins, or of several acres in extent, characterized by escaping volcanic gases and deposits of sulfur, and underlain by rock containing volcanic rocks of an advanced state of decomposition. It occurs in regions of hot spring activity and is formed through a process of acid leaching of the surface rocks.

gas blanket. See black channel black. Finely divided carbon made by the incomplete combustion or the thermal decomposition of carbonaceous material. Aiming reconstituting agent in rubber products. C.C.D. 64, 1961.


gas bubble. Bubbles seen as inclusions in glass, synthetic corundum, and synthetic spinel, which reveal their difference from certain corundum, spinel, and most other genuine gems, in which inclusions are more angular. Shiple.

gas cap. a. The faint bluish flame that appears over the burning flame of a miner's oil safety lamp when a percentage of firedamp is present in the mine air. See also cap, b. The free gas occurring above the oil in a reservoir. It occurs whenever more gas is available than will dissolve in the associated oil under the existing pressure and temperature in the reservoir.

gas-cap drive. The force exerted by the energy of expanding gas of a gas cap. It is used to produce oil. A.G.O.


gas carbureting. The introduction of carbon into the surface layers of metal steel by heating in a current of gas high in carbon—usually hydrocarbons or hydrocarbons and carbon monoxide. C.T.D.

gas center. A location that is adequate in isotopic separation in which heavy atoms are separated from light atoms by centrifugal force.

gas classification. The separation of powder into small size fractions by means of a gas stream of controlled velocity. ASTM B243-65.

gas coal. a. Any coal that yields a large quantity of illuminating gas on distillation. It should be free from sulfur and other impurities. Fay. See also fat coal; bottle coal. b. Coal gas for engine or for cutting, gas retorts and commercial byproduct plants range from 33 to 33 percent in volatile matter. They should be low in sulfur because one-fourth to one-half of the sulfur of the coal passes off as hydrogen sulfide with the gas, and city regulations commonly prescribe 30 grains per 100 cubic feet as the maximum proportion of this constituent allowable. Mitchell, p. 120. a. Bituminous coal, such as cannel or parrot coal, used in gas making. Gordon. d. A coal suitable for the manufacture of town gas and coke. B.S. 3323, 1960.

gas coke. Coke formed in gas retorts as distinguished from that made in a coke oven.

Webster 3d.

gas concrete. See aerated concrete. Dodd.

gas conductor. A pipe for leading combustion gases from the mouth of a blast furnace to a hot blast stove. Fay.

gas constant. The constant R in the perfect gas equation, PV = RT. Strock, 10.

gas-cut coal. An aeraler tract in which gas is the coolant. L.S.L.

gas cut. Term used to describe the fluffy mixture of gas and mud drilled mud recovered in testing. Wheeler.

gas-cut mud. In oil well drilling, mud introduced into the hole which has been lowered in efficiency by natural gas rising from the strata traversed. Pryor, 3.

gas cutting. a. The retention by drilling fluid of gas entrained within drilling Ultra a drilling fluid in order to reject gas before returning to the well. fluid will become gas cut and the hydrostatic head of the fluid will be reduced. A thick drilling fluid will gas cut more easily than a thin one. See also: l. b. See rock cutting. Kent, p. 145.

gas dew. A man-made for carbonitridding ASM Class.

gas drilling. A process in which a large amount of drilling fluid is used. The drilling fluid gas cap. a. Any coal that yields a large quantity of illuminating gas on distillation. It should be free from sulfur and other impurities. Fay. See also fat coal; bottle coal. The rate of advancement of the works; (2) the face operation such as cutting, blasting, loading, etc.; and (3) the barometric readings.

gas enclosure. A gas inclusion in a stone, such as can be found in all synthetic corundum.

Shiple.

gas engine. An internal-combustion engine similar to a gasoline engine but using natural or manufactured gas instead of gasoline vapor; broadly, an internal-combustion engine. Webster 3d.

gas emission. a. Having the form of or being gas; of or relating to gases. Webster 3d. b. Lacking substance or solidity. Webster 3d.

gas enclosure. a. A process of acid leaching or of selective transport of magmatic substances to metallic particles using gas phase. Webster 3d. c. A bituminous coal, as well as products of thermal decomposition of coal. It may be expressed on a time or tonnage basis. Gas emission rate (kg of metal/ton of ore) = (1) the rate of advance of the workings; (2) the face operation such as cutting, blasting, loading, etc.; and (3) the barometric readings.

gas exposure. a. Having the form of or being gas; of or relating to gases. Webster 3d. b. Lacking substance or solidity. Webster 3d.

gas exposure. The separation based on the fact that atoms or molecules of different masses will diffuse through a porous barrier at different rates. The method is used to enrich uranium with the uranium 235 isotope. L.S.L.

gaseous dispersion pattern. A dispersion pattern that may be described by analyzing the composition of either of soil air, of gas dissolved in underground water, or of gas condensed in the rocks and soil. Hawkes, 2d, p. 70. Gaseous dispersion patterns of interest include those of hydrocarbons and some noble gases resulting from nuclear decay of radioactive elements. Lewis, p. 301.

gaseous fuel. Includes natural gas and the prepared varieties, such as coal gas, oil gas, iron blast furnace gas, as well as producer gas, etc. Newton, p. 249.

gaseous place. A place that is likely to be dangerous from the presence of flammable gas. Fay.

gaseous reduction. The reduction of metallic compounds to metallic particles using a reducing gas. Henderson.

gaseous transfer. a. The process in which volatile metallic compounds are accomplished by gases rising from lower levels to higher levels. It has been suggested as an important process in the volatilization of certain mineral deposits described as pneumatolytic. Schieffeldecker.

b. The process by which a magma differentiates...
gas field. A district where natural gas is produced. The liberation of gas in the form of bubbles during the solidification of metals. It may be due to the fact that the gas dissolved in the liquid is less in the solid and liquid metal respectively, as when hydrogen is evolved by aluminum and its alloys. Gas is the promotion of a gas-forming reaction, as when iron oxide and carbon in molten steel react to form carbon monoxide of molten magma, blowholes, unannealed. C.T.D.

gas explosion. A major or minor explosion of gas in a coal mine, in which coal dust apparently did not play a significant part. See also coal-dust explosion. Nelson.

gas fire. A rapid up-and-down motion of gas rising from coal, for example, water gas or pipe of a volcano, the gas acting as a column of molten magma in the conduit streaming of free, juvenile gas through a pipe that has a temperature higher than the freezing point was in the solidification. See also Alaska.

gas fluxing. A process in which the addition of a fluxing agent is made to the charge. C.T.D.

gas fracture. One of the open fractures in which the trapped fluid is compressed and then expands without letting any additional fluid into the pump barrel. Gas locking increases the temperature which decreases pump efficiency. American Petroleum Institute. Drilling and Production Practice, 1983, p. 150.

gas-groove. Hills and valleys in electrolytic cells. Synonymous with volcanic blow.)

gas house. A place where natural gas is produced and marketed in commercial quantities. Webster 3d.

gas indicator. A pocket device for the rapid determination of the percentage of carbon dioxide in the atmosphere of mines, boiler rooms, blast furnaces, etc. Fay, p. 55.

gas inspector. a. In the mining industry, one who maintains gas pressure within prescribed limits in collecting main to maintain the percentage of carbon dioxide in the air through oven walls by adjusting governors. He also supervises such operations as weighing and charging coal, and on the surface and equipment on top of battery. D.O.T. Supp. 2. See coal mine inspector. D.O.T. 1. See also Alaska.

gasket. A. A flat sheet of asbestos compound, sometimes impregnated with thin cotton cloth. See also Alaska.

gas laws. Those of Gay-Lussac, Boyle, and Charles are combined in the equation PV = RT, where P is pressure, V is volume, R is the gas constant, and T is the absolute temperature. These laws apply only to a perfect gas and are modified by Van der Waals effects. Pryor, 3. See also Boyle's law; Charles law; Gay-Lussac's law.

gas lift engine. In petroleum production, one who controls the operation of a gas lift system and compressors to retain natural gas that separates from petroleum and forms a gas cap above the oil column. See also Alaska.

gas furnace. A device for the combustion of coal or coke. The hot gases from the combustion are then burned through oven walls by adjusting governors. He also supervises such operations as weighing and charging coal, and on the surface and equipment on top of battery. D.O.T. Supp. 2. See coal mine inspector. D.O.T. 1. See also Alaska.

gas line. Slaked lime; used to take the carbon dioxide, carbon disulfide, and hydrogen sulfide out of gas. Bennett, 2d, 1962.

gas locking. A condition occurring in pumps where the trapped fluid is compressed and then expands without letting any additional fluid into the pump barrel. Gas locking increases the temperature which decreases pump efficiency. American Petroleum Institute. Drilling and Production Practice, 1983, p. 150.

gaslogged strata. Rock formations, usually in coal mines, which contain a relatively high proportion of methane. When the diagenesis salination is not practiced orthe fire观众, the buoyancy pressure of the fire damper opposes the vent. Flowers, p. 100 feet in depth and wider and narrow conspicuously. In some respects, they resemble fissure veins. They are common in limestone regions. Those in the Upper Mississippian Valley were the first described. The fillings are characterized by crusting, large vugs, and beautiful colors. The fillings are described in detail in the section on the rocks, without any throw or slide of the rocks. Gordon.


gasification, coal, underground. See underground gasification.


gasification of coal, underground. See underground gasification.


gasification of coal, underground. See underground gasification.


gasification of coal, underground. See underground gasification.


gasification of coal, underground. See underground gasification.


gasification of coal, underground. See underground gasification.


gasification of coal, underground. See underground gasification.
gasoline plant engineer. In petroleum pro-
duction, one who compreses natural gas to
the pressure required for transportation of
natural gas or for loading into gas cylinders

gas plant operator. A coal mine worker
wielding a coal pick for breaking up the coal
before it can be loaded. Gas plant operators
are sometimes called gas men, gas plant
men, and coal miners.

gas phase. Any chemical substance in the
form of gas, as contrasted with the liquid,
solid, or crystal form of the same substance.

gas pickling. A method of preparing sheet
metal for further treatment by pickling.

gas pipe. A pipe used for conveying gas.

gas plant booster. A device used for
booster the pressure of a gas supply.

gas plant engineer. See gas lift engineer.

gas plant operator. See gas lift engineer.

gas pipeline. A line of pipes used for trans-
mitting gas from one plant to another.

gas production. The extraction of gas from
underground reservoirs at the surface of the
earth.

gas producer. A furnace in which coal is
burned for the manufacture of producer
gas. Gas is a mixture of hydrogen, carbon
dioxide, water vapor, carbon monoxide, and
nitrogen.

gas pressure. The pressure exerted by the
explosive gases after an explosion. Streef-
ard, 1964.

gas producer. The main type of producer
plant. It consists of a shaft furnace, where
the coal is burned, and a gas holder, where
the gas is stored.

gas pocket. a. A cavity in the rocks contain-
ing gas. b. A gas pocket can be created by
the drilling of a well or the explosion of a
mine.

gas producer. A process by which gas is
produced from coal. It involves heating
the coal to a high temperature in the absence
of oxygen.

gas pressure. The pressure exerted by the
gas on the surrounding rock.

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gas plant engineer. See gas lift engineer.

gas plant operator. See gas lift engineer.

gas pipeline. A line of pipes used for trans-
mitt density of the gas.

gas pressure. The pressure exerted by the
gas on the surrounding rock.

gas pipeline. A line of pipes used for trans-
mitt medium for the transport of gas.

gas phase. Any chemical substance in the
form of gas, as contrasted with the liquid,
solid, or crystal form of the same substance.

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metal for further treatment by pickling.

gas pipe. A pipe used for conveying gas.

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booster the pressure of a gas supply.

gas plant engineer. See gas lift engineer.

gas plant operator. See gas lift engineer.

gas pipeline. A line of pipes used for trans-
mitt medium for the transport of gas.

gas pressure. The pressure exerted by the
gas on the surrounding rock.

gas pipeline. A line of pipes used for trans-
mitt medium for the transport of gas.

gas phase. Any chemical substance in the
form of gas, as contrasted with the liquid,
solid, or crystal form of the same substance.

gas pickling. A method of preparing sheet
metal for further treatment by pickling.

gas pipe. A pipe used for conveying gas.

gas plant booster. A device used for
booster the pressure of a gas supply.

gas plant engineer. See gas lift engineer.
gastropod. a. A member of the phylum Mol-
lusca, class Gastropoda. Usually it has a cal-
carinated shell, which is typically possesses a
colled, single-cham-
bered shell. Marine, freshwater, and terres-
trial forms exist, and the group has fossil
representatives but the Devonian system
and in all younger rocks. The gastropods
are extremely numerous at the present,
and they have operated through the
Cenozoic era. Snails are the common-
gastunite. The name gastunite 1, gastunite
2a, were given by H. Haber-
landt and A. Schiener (1951) to three
imperfectly characterized uranium miner-
als. Gastunite 1b proves to be betaurano-
tite, while gastunite la has since been de-
scribed another mineral, distinct from any
of the three named by Haber-
landt and A. Schiener; the fourth gastunite proves to be identical
with zeolite. In view of the prior names of
gastunite, the name zeolite is to be pre-
ferred. Honca also describes artificial
analogues, ammonium-, hydronium-, potas-
sium-, and sodium-gastunites. Hey, M.M.,
1961.
gas turbine. A device for the conversion
of the energy of a fluid, usually a gas, in
internal combustion, into rotary motion of
a machine element. The efficiency in-
creases with operating temperature and is
at present limited by the safe tem-
perature at which heat-resisting alloys can be
used. There has been much research on
the possible use of cermets and other spe-
cial ceramics in these turbines, particularly
in the blades.
gas turbine. Same as candle tur-
F. Tomkejeff, 1954.
gas watchman. In bituminous coal mining,
one who makes morning ex-
misions for gas before men enter mine. D.O.T. 1. See
also fireman; fire boss; fire viewer; gas-
gate belt conveyors. Conveyers usually from
26 to 30 inches wide and equipped to
centralize the load and minimize spillage.
A scraper feeder, consisting of an elevat-
ing chain conveyor or a belt, is often used to transfer the coal from the face belt
to the gate belt. Mason, v. 1, p. 117.
gate chamber. The recess formed in a lock
to house a ship caisson or other lock
gate when open. Ham.
gate conveyor. A gate road conveyor which
carryes coal from one source or face only,
that is, from a single face or a double-unit face. See
test conveyor; gathering conveyor. Nelson.
gated. Describes that part of the molding
process wherein the floating gate is sepa-
rated from the molten metal. Castings to
be gated should be setted, at a point where any roughness will be least promi-
nent in the finished article. Ham.
gated pattern. A pattern designated to in-
clude gating in the mold. ASM Gloss.
gate end. The coal face, or inby end of a
gate. See also gate, a. Fay.
gate-end box; gate-end unit. A flameproof
enclosure primarily for use at or near the
coalface and designed to line up with
similar boxes to form a control board. A
gate-end box may contain bus bars, isola-
tors, switches, contactors, transformers and
protective devices, for the control of
motors, lighting and other equipment. See
also gate-end section switch. B.S. 3618, 1965, sec. 7.
gate-end feeder. A short conveyor which
feeds the coal from the face conveyor on
to the gate conveyor. See also feeder con-
veyor. Nelson.
gate-end loader. A short conveyor designed
to receive the coal from the face conveyor and
elevate it to such a height as to be con-
venient for delivery into mine cars. Nelson.
gate-end plate. Mid. A large sheet-iron plate
about 4 feet 6 inches square and one-half
inch thick, upon which the exit pipes (if
any) are turned around upon coming from
the working face to be taken along the gate or
roadway. A kind of turning, a turnwheel. Fay.
gate-end section switch. A form of gate-end
box incorporating a circuit breaker to con-
trol and/or isolate part of an electric sys-
tem. B.S. 3618, 1965, sec. 7.
gate-end unit. See gate-end box. B.S. 3618,
1965, sec. 7.
gate-end stop. A system designed to prevent
shaft conveyances from being moved, or
action signals being transmitted, unless all
shaft gate are closed. B.S. 3618, 1965,
sec. 7.
gate maker. See framemaker; D.O.T. 1.
gate maker, See chute puller; doorman. D.O.T.
1.
gate man. See Barratt-Halsall fire-
man. Dodd.
gate road. a. Eng. A road connecting a stall
with a main road. Standard. See also gate,
and b. Fay. A road through the gob used
for haulage of coal from longwall working.
Prop. 3.
gate road bunker. An appliance for the stor-
age of coal from the face conveyors during
peaks of production or during a stoppage
of the outbye transport. It may consist of
a length of conveyor or of a high-capacity pan arranged under the
delivery end of the gate conveyor. When the travel conveyor cannot handle the coal
carrying from the gate conveyor, the bunker
chain is slowly drawn back carrying about 1 ton
of coal per yard of chain. Bunker is
later discharged by reversing the process.
See also bunker, underground. Nelson.
gates canvas table. A large form of inclined
canvas table in which the pulp is first
classified, then distributed along the upper
edge of the table. The concentrates are
caught in the warp of the canvas and
after this is full, treatment must be stopped
while the concentrates are swept or sluiced
off. Liddell 2d, p. 387.
gate shutter. A saddle-like implement used
to shut off the flow of metal from a mold
and divert it to other molds. Standard,
1964.
gate side pack. A pillar consisting of tightly
rammed material enclosed in walls of
stone, built on each side of the gate road.
See also double packing. Nelson.
gate valve. A valve with a sliding disk or
stop gate, which, when opened allows the
flow to move straight through the valve
mechanism. Also called stop-valve; straightway valve. Long.
gateaway. a. A road through the worked-out
area (goaf) for haulage in longwall work- ing. Also called gate road. C.T.D.
b. Mid. See gate, a and b. Fay.
gateway longwall. N. Eng. A continuous
gateway longwall

coil face served by gateways (in Durham about 12 yards apart). A small group works in each gateway down which the stock of a short trip is taken. Fay.
gather. a. To assemble loaded cars from several production points and deliver them to main haulage road, and to replace them with empty cars. Fay. Also called gathering locomotive.

gathering mine locomotive. See gathering locomotive; electric gathering mine locomotive.

gathering motor. A lightweight type of electric locomotive used to haul loaded cars from the working places to the main haulage road. Fay. Also called gathering locomotive.

gathering motorman. In bituminous coal mining, one who operates a mine locomotive to haul loaded mine cars from working places to sidings, for the formation of larger trips, for loading and unloading the cars, and to replace them with empties. Fay.

gathering hole. An opening in the working place to correspond with the dehydrated blast effects great fuel economy. Fay.

gathering haulage. That portion of the haulage system used to gather loaded cars from the separate working places, and to return empties. Fay.

gathering conveyor. Portable or transportable pumps that are required when water is encountered while opening a new mine, for extending headings or entries in an operating mine, for pumprooms or rib sections lying in the dip, for collecting water from local pools, or for sinking a shaft. They should discharge water at a point high enough for it to flow into a station pumping plant, or into a drainage ditch or tunnel carrying water outside a mine. They may also discharge directly on the surface. Either reciprocating or self-priming centrifugal pumps may be employed as gathering pumps. BuMines Bull. 570, 1957, p. 1.

gathering area. The area, usually down the regional dip from a hydrocarbon trap, from which the oil or gas may have migrated updip into the trap. A.G.I.

gathering traverse. A machine for loading loose rock or coal. It has a tractor-mounted chassis, carrying a chain conveyor the front end of which is built into a wedge-shaped blade. Mounted on this blade are two arms, one on either side of the chain conveyor, which gather the material from the muckpile and feed it on to the loader conveyor. The tail or back end of the conveyor is designed and cut for draining hydraulically so that the coal or stone can be loaded into a car or onto another conveyor.

gathering coal. Scot. See gathering peat. Fay.

gathering conveyor. a. Any conveyor which is used to gather coal from other conveyors and deliver it either into mine cars or onto another conveyor. The term is frequently used with belt conveyors placed in entries where a number of room conveyors deliver coal onto the belt. Jones. b. Generally 50 feet or greater in length. It is designed to transport material from rooms or entries and transports it to a car loading point or to another conveyor. Sometimes known as a conveying conveyor. A.G.I. Also called gathering peat conveyor; truck conveyor. Nelson.

gathering ground. See catchment area.

gathering head. That portion of the haulage system immediately adjacent to the face. In longwall mining, the face belt or tal and track along the face constitute the gathering haulage system. Wheeler, H. R., p. 1.

gathering hole. An opening in the working face of a glass tank furnace, or in the wall of a pot furnace, to permit the gathering of molten glass. Dodd.

gathering iron. The iron used in taking viscid glass from the melting pot. Standard, 1964.

gathering locomotive. See gathering motor; electric gathering mine locomotive.

gathering mine locomotive. See gathering motor; electric gathering mine locomotive.

gathering motor. A lightweight type of electric locomotive used to haul loaded cars from the working places to the main haulage road. Fay. Also called gathering locomotive.

gathering motorman. In bituminous coal mining, one who operates a mine locomotive to haul loaded mine cars from working places to sidings, for the formation of larger trips, for loading and unloading the cars, and to replace them with empties. Fay. Also called gathering locomotive.

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**gaceutlne**

in a geologic area are derived, A.G.I. a. Mineralized area from which sediments are eroded. Ballard.


**gelif**

tube. A gas-filled chamber usually consisting of a hollow cylindrical cathode and a fine wire anode along its axis. It is operated with a voltage high enough so that a discharge triggered by a primary ionizing event will spread over the entire anode surface by the reduction of the field by space charge. NRC-ASA N1.1-1957.

Geiger-Müller probe. A Geiger-Müller counter enclosed in a watertight container, which can be lowered into a borehole and used to log the intensity of the gamma rays emitted by the radioactive substances in the rock formations traversed. Also called electronic logger; Geiger probe. Long.
water. Brantly, I., I. A colloid in a more solid form than a sol. As a semiliquid, apparently homogeneous substance that may b.e made by mixing a sol with another colloid (a gelatin) or more or less rigid (as silica gel) and that is formed by coagulation of a sol in various ways (as gelatinization by evaporation, or by precipitation with an electrolyte). Or as a nonhomogeneous gelatinous precipitate. Webster 3d. e. As a verb, to change into or take on the form of a gel; to become more solid; to set. Webster 3d.

Gelatin. Trade mark for a semigelatin high explosive of relatively high weight strength of 65 percent; very good water resistance. Used in underground mining, in quarrying, in construction, and in general blasting. CCD 64, 1961.

gelatin. gelatinous. a. A hard, transparent, tasteless colloid obtained from animal connective tissues, such as skin, hoof, and horn. The dried material swells on contact with cold water to a jellylike mass or dissolves in hot water to form a firm jellylike mass on cooling. Gelatin dissolved in hot water is used commonly in borehole surveying to make a Masco compass. Compaq sugar. Long b. Commonly used as a synonym for gelatin. Long.

gel borehole tube. A device used in borehole surveying. A tube, containing a compass floating in molten gelatin, is lowered to the point in the borehole at which its verticality is required. It is left in position until the gelatin sets and is then withdrawn. The compass becomes a direction finder and a small plumb bob shows the angle of dip. Nelson.

gelatin dynamite. A high explosive which varies in composition; consists mainly of nitroglycerin, with sodium nitrate, meel, colloid cotton, and sodium carbonate. Fror, 3. It is dense, plastic, and more water-resistant than straight or extra dynamite. Its relatively high velocity makes it ideal for small strategic jobs, tough rock, for wet conditions, or for actual underwater blasting. Carson, p. 308. Commonly used by drillers to extend holes encountered in driving pipe through overburden, especially in water-filled or saturated ground. Also commonly called gelatite. Long.
gelatin extras. Explosives in which a portion of the nitroglycerin is replaced with ammonium nitrate. The explosive velocity is reduced but the substantial resistance to water is retained. Less expensive than gelatin dynamite. Carson, p. 308.
gelatinization. Solubility of the gelatin being observed with the formation of jellylike silica. Fay.

gelatin-pad printing. See Murray curve machine. Dodd.
gelatinite. A general term relating to explosives in which a principal constituent, nitroglycerin, is given a gelatinous consistency by mixing it with nitrocotton. B.S. 3614, 1964, sec. 6.
gelatinization. The formation of a gel from a sol. Webster 3d.

gel cement. Cement to which a small percentage of bentonite has been added either dry or mixed with water. Such an addition produces a more fluid slurry undergoing sedimentation and casing and restoring lost circulation because it reduces loss of slurry to the well. For a more homogeneous mixture, increases the water-cement ratio, reduces loss of water to the formation, and adds resistance to deformation of the borehole volume as occupied when placed. Brantly, I.


gelignite. A general term relating to explosive compositions in which there is a proportion of wood, metal, and oxygen-containing salts. B.S. 3618, 1964, sec. 6.


gelitocollinite coal. This type coal is characterized by predominance (over 50 per cent) of a groundmass (collinite) translucent in thin sections, resulting from complete decomposition of the process of gelification of the original plant material. As a rule, the collinite material occurs as homogeneous floccular masses. Gelified components showing structure are only rarely represented in the form of lens and thin strips of vascular wood fibers, gelified fragments of bark, and leaf parenchymatous tissue. Fusinized inclusions are rare. There may be occasional concentrations of homogenous, opaque particles and fine fragments of fused tissue, sometimes also coarse lenses of semifusinite and fusinite. The proportion of lipid microparticles varies from a single inclusion to the maximum concentration permitted in these gelite-coals. Occasionally, this type of coal may contain age of the cambial type. Hand specimens are generally semilustrous with a uniform, coarsely banded structure, and break with a typical, slightly conchoidal fracture. This coal may have low or high ash, and occurs in seams of different geological age as bands within scins or as entire scins up to several meters thick. Compared with other gelite types of coal, gelitocollinite coals are distinguished by very high caking power and because of this are valuable for coke manufacture and for blast-furnace smelting. Gelitocollinite coal contains 50 percent or more of gelified, vitrinitic components. The size of the constituent entities generally varies between 0.2 and 1.0 millimeter (1.5 to 2.0 millimeters) and are also seen. Fusinized tissue is not common and ligninite is insignificant. Gelitocollinitic material is present in greater or lesser amounts. Wood gelitocollinite coals and parenchyma gelitocollinite coals are distinguished according to the preporedecd structure of the type of original plant tissue. Wood gelitocollinite coal consists largely of individual fragments of stem and roots, wood tissue predominating. They are invariably low in ash. Parenchyma-gelitocollinite coals contain a variable amount of cutie-bordered leafy material; the parenchyma tissue is markedly gelified. Here and there the leafy material may be clearly packed forming aggregates; at other times it is found in varying quantities embedded in a transparent groundmass. Parenchyma gelitocollinite coals may have high or low ash. In hand specimens gelitocollinite coal is black and has hard coal properties; in brown coal it is matt or semimatt. Gelitocollinite coal shows sharp-edged, stepped fracture and occurs in seams of different geological age, both as bands within seams or as entire seams up to several meters thick. Compared with other gelite types of coal, gelitocollinite coals are characterized by very high caking power and because of this are valuable for coke manufacture. IHCP, 1963, part I.

gelopalite. Coal rich in gelinite; for example, alical coal. Tomkiewicz, 1954.
gel strength. The ability or the measure of the ability of a colloid to form gel. Brantly, I.
gem. a. A general term including any precious or semiprecious stone, as diamond, ruby, topaz, etc., especially when cut or polished for ornamental purposes. Fay. b. Archaeologically, the term is restricted to an en-graved stone, for example, an intaglio or a cameo. Fay. c. Mineralogically, one of the orders of minerals used by Mohs that are distinguished by their ability to scratch quartz, transparency, nonmetallic luster. They are generally brilliant and beautiful. Fay. d. A gem or gemstone, a virtually flawless, lustrous, nearly spherical, industrial-grade diamond, which on rare occasions may be cut into a brilliant cut diamond; gem grade. e. A diamond free of flaws—
gem

far as can be determined by a trained ob-
server with the aid of a 10-power magnify-
ing glass—and having a color and other
characteristics that do not deleteriously
affect its value for use as a faceted orna-
tamental (gem) diamond. Long.
gem gravel. The coarse 
material from which a gem can be cut. Shipley.
gem grade. See gem, a and b. Long.
gem gravel. A settlement of gravel con-
taining appreciable amounts of gem min-
erals. It was formed by the disintegration
and transportation of preexisting rocks, in
which the gem minerals originated. They
are placers of a special type, in which the
heavy minerals are not native gold or cat-
sinite (SnS2), but such gem minerals as
garnets, rubies, sapphires, etc. As m. of the
gem gravels are heavy and chemically
stable, they remain near the point of origin,
while the lighter constituents of the parent
rocks are washed away, resulting in a natu-
ral concentration of the valuable compo-
nents. C.T.D.
gemmary. a. The science of gems. Standard,
1964. b. House or receptacle for gems or
jewels; also, gems collectively. Standard,
1964. c. An engraver of gems. Standard,
gem material. A term used particularly to
mean (1) any synthetic or other important
substitute for a gemstone, or (2) any rough
mineral from which a gemstone can be
fashioned, such as a piece of uncut jade.
gem mineral. Any mineral species which
yields either a gem variety or individual
specimens which meet the qualifications of
a gem. Shipley.
gemmological polariscopie. See Shipley polar-
scope.
gemologist. One who has mastered gem-
ology. Shipley.
gemmology. (U.S.) gemology (Eng.). The
study of gems. A.C.I.
Gemolite. A trademark for an illuminator
designed especially to illuminate inclusions
(in gemstones) more effectively. Employs
a gem pearl. a. A term often used for those
different varieties of a mineral spe-
cies. That variety of a mineral which is of
sufficient beauty and durability for use as a
personal ornament. See also decorative stone;
ornamental stone; gem material. A term that
includes pearl, amber, coral, jet, or any stone
of any variety which fuel is gasified by blowing in steam
and coordinates all operations concerned
with reducing ore to designated size.
D.O.T. Supph.
geometric drawing. A drawing showing eleva-
tion plan, and cross section of the struc-
ture, also the borings for substructure and
geological branch of geology treating of the problems of dynamic geol-
ogy in relation to the geologic history of the earth. Schieferdecker.
geometallurgical. a. The science of individual
operation. ACSG, 1963.
geometric classificatioii. Any classification based
on manner of origin or genetic classification. Any classification based
on manner of origin or line of descent. Genetic classification is set up to deal with fossils, rocks, and minerals. Stokes
and Barnes, 1955.
ageochemical anomaly. A concentration of one or more elements in rock, soil, sedi-
ment, vegetation, or water markedly differ-
ten from the normal concentration in
to a central discharge. In the body of the tank, hang radially mounted hinged plates covered with filter cloths (sacks). These
are connected with a central valve and timing mechanism, so arranged that vacuum is applied for from one to ten minutes to remove filtrate, after which the gathered solids are digested by the fluorine
and phosphorus.
the surroundings. Sometimes applied also to abnormal concentrations of hydrocarbons in soils. A.G.I. Geochemical anomaly is the situation at depth as called primary anomalies while those originating on the surface are called secondary anomal-

gesochemical balance. Term relating, for in-
stance, to the ratios of distribution of the total amount of a chemical element liberated by rock weathering, and trans-
ported to the ocean, between sea water and sea-bottom environments. Scheidercker.

gesochemical classification. The division of
chemical elements into associations as they
exist in nature. Scheidercker.

gesochemical coherence. The phenomenon of
the intimate occurring together of certain
chemical elements and associations as, for
example, the group of the lanthanides, zir-
conium-hafnium, niobium-tantalum, etc.

Scheidercker.

gesochemical cycle. The sequence of stages
in the migration of elements during geo-
logic changes. Rankama and Sahama distin-
guish a major cycle, proceeding from mag-
ma to igneous rocks to sediments to
sedimentary rocks to metamorphic rocks
and possibly through migmatises back to
magma, and a minor or exogenic cycle proceed-
ing from sediments to sedimentary rocks to weathered material and back to sediments again. A.G.I.

gesochemical environment. Pressure, tem-
perature, and the availability of the most
abundant chemical components are the
parameters of the geochemical environ-
ment. The constraints within that environ-
ment are stable at any given point. On the basis of these variables, it is possible to classify
all the natural terrestrial environments into
two major groups—primary and sec-
ondary. The primary environment ex-
tends downward from the surface to the
lowermost levels of the earth and includes
sedimentary rocks which may or may not have a shell of
material sampled, as for example, geo-
chemical soil survey. Hawkes.

gesochemistry. a. The study of the relative
and absolute abundances of the elements
and of the atomic species (isotopes) in the
earth; the distribution and migration of
the individual elements in the various
parts of the earth (the atmosphere, hy-
drosphere, crust, etc.), and in minerals
and rocks. b. A prospecting method that
involves the discovery of elements and
which may or may not have a shell of
chalcedony, others are composed of lime-
stone, dolomite, celestite, barite, or other
minerals, and most have been formed in
shales or other soft rocks. Distinquished
from vugs which are round, and carved by
carbed veins in veins or rocks, and may be
crystal-lined. Foy. Hess. 6. A cavity in a
geode. Webster 3d.

gcesoepidemology. A long, narrow depression,
not necessarily filled by sediments. A.G.I.

gesoestrx. One who employs surveying and
geochemical instruments, such as transits, theo-
dolites, and other engineering instruments,
in setting up and improving network of
triangulation over the earth's surface, in
order to provide fixed points for use in

gesoetry. A branch of applied mathematics
that determines by observation and meas-
urement the exact positions of points and
the figures and areas of large portions of
the earth's surface, the shape and size of
the earth, and the variations of terres-
trial gravity and magnetism. Webster 3d.
Also called geodetics. b. Survey which in-
cludes corrections for the surface curvature
of the earth. Colombo.

gesoetric coordinates. Latitude and longitude
as calculated on the spheroid. Seysle. 2.

gesoetric. See geodetic.

gesoetrical surveying. That very accurate
method of surveying which takes into con-
ideration the spheroid form of the
earth and curved surface. Used in topographic and
hydrographic work. Crispin.

gesoeter. An instrument which employs
an electronic method of measuring dis-
tance by measuring the time it takes a
modulated light wave to travel from the
move-to a mirror and to return. HSB.

gesoetnomic. Of, pertaining to, or noting
the forces or processes within the earth.

geoetcuit. A large fault directly affecting the
relief of the earth's surface, on land or
beneath the sea. Challinor.

goetharact. A large flexure directly affect-
ing the relief of the earth's surface. Chal-
inor.

goetfraktion. A fracture passing through the
entire thickness of the solid crust. Scheider-
cker.

goetography. a. A branch of geology that
deals with the materials of the earth and its
general interior and exterior constitution.
Webster 3d. b. An term for absolute
knowledge of the earth, as distinct from
grology, which includes various theoretical
aspects. C.T.D.

goetology. A science or a theory of the forma-
tion of the earth. Webster 3d.

goetographical concentration. The ratio of face
length in yards (X) to length of main
haulage roads in yards (L), that is —

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geographical cycle

time a geographical cycle. Synonym for
cycle of erosion. See also geographical cycle.

A.G.I.

gеographic or true north. The northerly di-
rection of the geographic meridian at any
terrestrial point. B.S. 3018, 1963.

gеographie. A science that treats of the
surface of the earth, including its form
and development, the phenomena that take
place thereon, and the plants, animals, and
peoples that inhabit it, considered in rela-
tion to the earth’s surface; also, a book or
treatise on the above subject. Fay.

geohydrology. The science dealing with
the character, source, and mode of occurrence
of underground water. Schieferdecker.


gеoligion. A rock stratigraphic unit. A.G.I.

Supp.

gеoligion. An old term for geologist. Fay.

gеologic geological. The generally preferred
usage is as follows: geologic data; geologic
investigation or survey; geologic organi-
sation, or the society; geologic era; and
gеologic geological age. A.G.I.

geologic geological age. The time of existence of a fossil
organism or the occurrence or duration of a
particular event as stated in terms of the
conventional geological time scale. Any
event stated in terms of years is usu-
ally given a relative geologic age. Stokes
and Varnes, 1955.

gеologic geological column. A column or force by means of
which a geological process oper-
ates. Chaffin.

gеologic geological formations. Groups of rocks
of similar character and age. Fay.

geologic geological horizon. A particular bed of rock
or its equivalent, generally used as refer-
ing to the bed containing a fauna or flora
under consideration. Less often, used to
mean igneous rocks of a particular period
of time. Fie.

geologic geological ore. Ore that, so far as geological
considerations may be present, is charac-
teristic of the strata in which it is found.

geologic geological province. An area throughout
which geological history has been essen-
tially the same or which is characterized
by particular structural or physiographic
features. Schieferdecker.

geologic geological section. A natural rock cut
Schieferdecker. b. The representation of
such paper. Schieferdecker.

geologic geological survey. A systematic investiga-
tion of an area determining the distribution,
structure, composition, history, and inter-
relations of rock units. Its purpose may be
either purely scientific or economic with
special attention to the distribution, re-
serves, and potential recovery of mineral
resources. Stokes and Varnes, 1955.

Geologic Geological Survey. A Federal or State gov-
ernmental organization that undertakes
such investigations. Stokes and Varnes,
1955.

geologic geological time. The time extending from the
end of the Formative period of earth his-
tory to the beginning of the Historical
period. It is conveniently divided into sev-
eral periods, each being the time of forma-
tion of a given line or plane of the
earth’s crust. Stokes and Varnes,
1955.

geologic geological structure. See structure, b. Nelson.

geologic geological survey. A survey or investigation
of the character and structure of the earth,
of the physical changes which the earth’s
crust has undergone or is undergoing, and
of the causes producing those changes.
A.G.I.

geologic geological thermometer. A term applied to
known temperature limits within which
certain minerals or mineral aggregates must
have formed; based upon the fact that the thermal
data relating to the fusion points of rocks and
minerals, and the inversion or transition
points of allotropic modifications of rock-
forming compounds, and in general, to the
equilibrium conditions and stability ranges
under different conditions of pressure for
various minerals, alloctenes, solid solutions,
eutricrystallites, and other mineral aggregates.
Holmes, 1928.

geologic geological time unit. The time unit corre-
sponding with a time-stratigraphic unit; for ex-
ample, period, epoch, or age. A.G.I. Supp.

geologist. a. One who studies the constitu-
tion, structure, and history of the earth’s
crust, conducting research into the forma-
tion and dissolution of rock layers, analyz-
ing fossil and mineral contents of layers,
and endeavoring to fix historical sequence
of development by relating characteristics
to known geological influences (historical
geology). D.O.T 1. b. One versed in the
science of geology or engaged in a geologi-
cal investigation or investigation. Placards,
drillers core snatcher; rock hound; sample
graber; sniffer. Long.

geologist petroleum. One who explores and
charters a stratigraphic arrangement and
composition of earth in order to locate gas
and oil deposits. Identifies strata encountered
in drillings by studying the nature of the rock,
minerals, and fossils. Long.

geology. A science that deals with the histor-
y of the earth and its life, especially as re-
corded in the rocks. Three principal
branches or phases are usually distin-
guished: (1) structural, or geotectonic,
geoogy, treating of the form, arrangement,
and internal structure of the rocks; (2)
dynamic geology, dealing with the causes
and processes of geological change; and
(3) historical geology, aiming to give a
chronological account of the events in
the earth’s history. Webster 2d. Other subdivi-
sions are (1) economic geology, which
deals with the applications of the science
in industrial relations and operations; (2)
legal geology, the application in litigation
of the facts and principles of geology, par-
ticularly its subdivisions, mineralogy, eco-
nomic geology, and mining geology; (3)
mining geology, a subdivision of economic
geology concerned with the application of
geological facts and principles to mining;
and (4) stratigraphic geology, a study of
the succession of the beds of rock laid down
during the progress of geologic ages. Fay.

geomagnetic geological. The use of the minute quantities of
helium spontaneously generated in certain radioactive
minerals (see pleochroic halos). Baron G.
de Geer has used the examination of the
luminations in varve clay to measure the
Phistocene glaciation. C.T.D.

geologic geological column. A diagram showing the sub-
divisions of part or all of geologic time or the rock formations of a particular locality.
Stokes and Varnes, 1955.

geologic geological drilling. Drilling for the time primarily to
obtain information from which the geology of the formation penetrated can be deter-
mined. See geological geology. Compare forma-
tion testing. Long.

geologic geological formation. See formation. Stokes and
Varnes, 1955.

geologic geological geologic. Sometimes used in oilfields
to indicate a later geological formation re-
sulting from erosion. Opposite of geologic
low, which refers to earlier formations.
Compare topographic high. Fay.

geologic geological geologist. See geologist.

geologic geological geology. A science dealing with the
earth’s history. Webster Pd. Other subdivi-
sions are (1) economic geology, which
deals with the applications of the science
in industrial relations and operations; (2)
legal geology, the application in litigation
of the facts and principles of geology, par-
ticularly its subdivisions, mineralogy, eco-
nomic geology, and mining geology; (3)
mining geology, a subdivision of economic
geology concerned with the application of
geological facts and principles to mining;
and (4) stratigraphic geology, a study of
the succession of the beds of rock laid down
during the progress of geologic ages. Fay.

geomagnetic geological. See geomagnetic geological.
geophysical pole

generic field located about 4,000 miles above its surface, does not correspond to the surface magnetic pole; one is at 78°25' south, 111° east. A.G.I. Supp.

generic effects. A term to describe the effectiveness of measurements, such as borehole diameters, on the magnitude of S.P. deflections. Wyllie, p. 41.

generic mean diameter. The diameter equivalent of the arithmetic mean of the logarithmetic frequency distribution. In the analysis of beach sands it is taken as that grain diameter determined graphically by the intersection of a straight line through selected boundary sizes (generally points on the distribution curve where 16 and 84 percent of the sample by weight is included) and a vertical line through the median diameter of the sample. HBG.

generic progression. Series of numbers increasing by multiplication, which uses a constant factor. Pryor, p. 30.

generic. That branch of mathematics that deals with the relations of points, lines, angles, areas of surfaces, and volumes of solids. Jones, 2, p. 80.

genericomorphic. Of or relating to the form of the earth. Webster 3d.

generic cycle. The term geomorphic cycle is defined as the old term geographical cycle which is less accurate. Synonym for geographical cycle; cycle of land and submarine relief features; regarding the earth. Webster 3d.

generic morphology. That part of geology which treats of the origin and development of the earth's surface features. Fay.

generic geomorphologist. A specialist in the study of the origin and development of the earth's surface features. Fay.

generic geomorphology. A science that deals with the land and submarine relief features of the earth's surface and seeks a genetic interpretation of them through using the principles of phylogeny in its descriptive aspects and through its natural geography in its exploratory phases. Webster 3d.

genericymirin. See geomycirin. Fay.

genericymite. A yellow glass, white general, melting at about 80° C, and soluble in hot absolute alcohol and ether; its composition (CaHfO₃) is near that of certain vegetable glasses. A.G.I.


generic phone. A detector, placed on or in the ground in seismic work, which responds to the ground motion at the point of its location. Synonym for seismometer; seismograph; geotelegraph; pickup; jug; tortuga. A.C.G.

generic physical. Relating to the physics of the earth. Fay.

generic physics. The branches of physics by measuring the various physical properties of the rocks, and interpreting the results in terms of geologic feature or the economic deposits of the rocks to be taken at the surface of differences in the density, electrical resistance, or magnetic properties of the rocks. There are four main methods employed in geophysical prospecting of oil: gravimetric, magnetic, electrical, and seismic with several modifications of each. Nelson.

generic geophysical prospector. One who studies structural and surface rock formations in order to locate petroleum deposits, using such physical and electrical testing instruments as seismograph, gravimeter, torsion balance, magnetometer, pendulum devices, and electrical-resistivity apparatus to measure various characteristics of the earth. May be designated according to type of equipment used, as electrical prospector, gravity prospector, magnetic prospector, and seismic prospector. D.O.T. 1.

geophysical site investigation. The measurement of the various physical properties of rocks at a site and interpreting the information in terms of geologic structure and nature of deposits. Of the various established geophysical methods of investigating sites, the electrical resistivity method is the best known. It is used to contour concealed rock surfaces and detect discontinuities. The geophysical method is particularly useful for rapid survey of a large site, especially when used in conjunction with boreholes or trial pits. Nelson.

generic geophysical survey. The exploration of an area in which geophysical properties and relationships unique to the area are mapped by one or more geophysical methods. A.C.G.

generic geophysicist. One who studies seismic, gravitational, electro, thermal, and magnetic phenomena; deals with the structure and composition of earth, and forces causing movement and warping of surface. Investigates origin and causes of glaciers and volcanoes, and the course and phenomena of earthquakes; charts ocean currents and tides; takes measurements concerning shape and movements of earth, and acoustic, optical, and electrical phenomena in the atmosphere; and studies petrology and mineral deposits. May specialize in a particular phase of the work, as exploration, administration, teaching, consulting, design, or research. D.O.T. 1.

generic geophysics. The science of the earth with respect to its structure, composition, and development. It is a branch of experimental physics dealing with the earth, including its atmosphere and hydrosphere. It includes the sciences of dynamical geology and physical geography, and makes use of geodesy, geology, seismology, meteorology, oceanography, magnetism, and other earth sciences in collecting and interpreting earth data. Geophysical methods have been successfully applied to the identification of under-ground structures in the earth and to the search for structures of a particular type, as, for example, those associated with oil-bearing sands. A.G.I.

generic geordie turnout. A. Scot. A coal miner's safety lamp. Webster 3d.

generic geothermal. Of or relating to the form, arrangement, and structure of the rock masses of the earth's crust. Synonym for structural. Webster 3d.


generic geotectonic. Of or relating to the form, arrangement, and structure of the rock masses of the earth's crust. Synonym for structural. Webster 3d.


geothermal. Steam drawn from deep underground through a rock mass that subsided deeply; throughout a long period of time in which a thick succession of stratified sediments and possibly extrusive volcanic rocks commonly accumulated. The strata of many geosynclines have been folded into mountain ranges. Many different kinds have been differentiated and named. A.C.G. Supp. b. The area of such a trough. A.G.I. Supp. c. A stratigraphic formation or sequence that subsided in such a trough. A.G.I. Supp.

generic geotechnical processes. The name given to those processes which control the structure and development of soils, and which include compaction, electro-osmosis, freezing, ground-water lowering, and injection. Hum.

generic geotechnics. The engineering behavior of all cuttings and slopes in the ground. This term is gradually replacing the term "soil mechanics and foundations of geotechnical processes." Symposium on Open pit Mining, Quarrying, and Alluvial Mining, London, 16-19 November, 1964. Pages 17, pp. 1-2. A science of making the earth more habitable. Webster 3d.


generic geologically. Of or relating to the form, arrangement, and structure of the rock masses of the earth's crust. Synonym for structural. Webster 3d.

generic geologist. Synonym for geophysicist. A.G.I.

generic geothermal. Of or relating to the form, arrangement, and structure of the rock masses of the earth's crust. Synonym for structural. Webster 3d.

generic geothermal. Of or relating to the form, arrangement, and structure of the rock masses of the earth's crust. Synonym for structural. Webster 3d.

geothermal gradient. The change in temperature of the earth with depth, expressed in degrees per unit depth, or in units of depth per degree. A.G.I.

generic geothermal steam. Steam drawn from deep underground through a rock mass that subsided deeply; throughout a long period of time in which a thick succession of stratified sediments and possibly extrusive volcanic rocks commonly accumulated. The strata of many geosynclines have been folded into mountain ranges. Many different kinds have been differentiated and named. A.C.G. Supp. b. The area of such a trough. A.G.I. Supp. c. A stratigraphic formation or sequence that subsided in such a trough. A.G.I. Supp.

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generic geothermal gradient. See strata temperature. Roberts, I.

generic geothermometer. A thermometer designed to measure temperatures in strata or in boreholes deep below the surface of the earth; a geologic thermometer. Webster 3d.

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gerhardite. A basic copper nitride containing 32% cobalt. Contains Cr, Zn, Cu, Ni, Co. Contains niobium and Zr, C. 426; luster, vitreous; brilliant; color, deep emerald-green; streak, light green; transparent; soluble in dilute acids. From Jerome, Ariz. Weed, 1918.
german. A straw tube filled with gunpowder and used as a fuse. Not used in coal mines. C.T.D.
german cupellation. A method using a germanium to separate the tin from the silver. A straw tube filled with gunpowder and used as a fuse. Not used in coal mines. C.T.D.
german cold. See pyramidal cut. Fraenkel, v. 1, Art. 602 b. 27.
german impure. A dark, red-gray sulfarsenite of copper, iron, and germanium, 5CuS₈-12(Fe₃S₄)S₃As₂S₃.2GeS₂; isometric; number, 32; atomic weight, 72.38; specific gravity, 5.323 (at 25°C); melting point, 937.4°C; boiling point, 260°C; insoluble in water and in alkalies; and soluble in hydrochloric acid and in aqua regia. C.T.D.; Handbook of Chemistry and Physics, 45th ed., 1958, p. B-672.
germanium dioxide (insoluble). GeO₂; tetragonal; molecular weight, 104.59; specific gravity, 4.229; melting point, 1,086±5°C; insoluble in water and in hydrochloric acid; and slightly soluble in ammonium hydroxide. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-177.
germanium dioxide (soluble). GeO₂; melting point, 1,115°C. This oxide is a gas former and provides some unique properties; for example, greater dispersion, lower melting temperature; and higher transmittance for infrared radiation. Some germanium oxide complexes and solid solutions have ferroelectric properties. Lee, Colorless; specific gravity, 4.228 (at 25°C); hexagonal; soluble in alkali; and slightly soluble in acids and in water. Used as an ingredient of special glass mixtures. C.G.D ed. 4d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-177.
germanium nitride. A brown, decomposes at 800°C. A yellow electric conductor of high resistivity. Dodd.
german lapiz. See Swiss lapiz. C.M.D.
german melt. See Continental commercial process.
german reduction process. This process consists in: (1) roasting the ore; (2) melting and obtaining a matte with 30 to 40% cobalt; (3) roasting as cobalt; (4) melting and obtaining a matte with 70 to 80% nickel. (5) roasting the matte; (6) melting and obtaining a black copper. Fay.
german silver. An alloy of copper, zinc, and nickel. German silver. A basic copper nitride containing 32% cobalt. Contains Cr, Zn, Cu, Ni, Co. Contains niobium and Zr, C. 426; luster, vitreous; brilliant; color, deep emerald-green; streak, light green; transparent; soluble in dilute acids. From Jerome, Ariz. Weed, 1918.
german steel. A metal made from charcoal iron obtained from bog iron or from sparry carbonate of iron. Fay.
german tubing. A form of tubing, with internal flanges and bolts, for lining circular shafts sunk through rapidly watered strata. Where conditions are favorable, concrete is replacing tubing as a shaft lining. See also English tubing. Nelson.
germination. See grain growth. ASM Glass.
gersdorfitite. A sulfarsenide of nickel mineral, NiAs₃ or Ni₃S₄, As₃S₄. C. 275; luster, vitreous; color, deep brown-black; opaque; strongly birefringent; twinning, parallel and symmetric. Nelson.
gerstenhofer furnace. A shaft furnace, with a fixed, white, incandescent light. Fay.
gey sand. A type of roped cappel used with the Koope wandor, particularly in Germany. It consists mainly of two plates held together, incorporating a dead eye and wedge block. The rope is laced around this wedge and is self-tightening as the load increases. See also Demag cappel. Nelson.
ghizlize. A glassy variety of an analcite and olivine-bearing basalt. A.G.I.
ghost crystal. A crystal within which may be seen an early stage of growth, and outlined by a thin deposit of dust or other mineral deposit. C.M.D.
ghost reflection. In the seismic reflection method, a special type of multiple reflection. This is the reflection which takes place when the energy from the shot is reflected downward by the base of the weathered zone or by the earth's surface. The reflected pulse follows the primary downgoing pulse at a time interval determined by the depth of the shot below the weathering (or the free surface) and the velocity of the medium. For normal shooting depths this interval will range from 0.010 to 0.020 seconds. Dobrin, p. 143.
ghost town. Deserted mining camp; or one in which only a few people remain after closing down of a once busy community. Pryor, 3.
ghup. a. 3d. b. Nitroglycerin absorbed in a gas-oil ratio. Also called gas-oil ratio. Fay.
giant's Causeway. A large formation of basaltic columns, in which geysers are vented by the pressure of the lava. Usually (Ad Faithful in Yellow Park, Wyo. The eruptive force is usually terminated upwards by a sinter crater. C.T.D. or geysers. Fay.
giant arsenite, Na₂As₂Sb₂S₁₇.6H₂O, as red spherules, most of them small. Fay. The clay in the Geyser basin. An area in which geysers are grouped. Fay.
giant granite. See pegmatite. Fay.
giant pressure. For gross gas-oil ratio. Also abbreviated GGOR. BuMil Style Guide, p. 59.
ggpd Abbreviation for gross gas produced. Also abbreviated GGP. BuMil Style Guide, p. 59.
ghast, Scot. The white ash or chind of shale.
gey纱 coal. Scot. A coal which burns with a fixed, white, incandescent light. A.G.I.
ghost coal. Scot. A coal which burns with a fixed, white, incandescent light. A.G.I.
ghast coal. Scot. A coal which burns with a fixed, white, incandescent light. A.G.I.
Giant's Causeway

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gin race

Webster 3d.
gin beam. S. Staff. A timber crofter carrying the pulley wheels over the top of a head-frame. Fay.
ginning. The process of lining a shaft with bricks or mosaicry; the lining itself. C.T.D.
ginfire. Derb. A walling up a shaft, instead of timbering, to keep the loose earth from falling. Fay.
gin hand. One who assists pressman I by performing unskilled duties entailed in the feeding and unloading of a brick press, such as shoveling, laying mud in path of box, barracrow the box, that feeds press, pushing empty rack car in position for off-bearer who removes formed bricks from gin, and who removes finished product to press. D.O.T. 1.
ginnern. a. Cumb. A Union, used by miners fringing the more irregular iron-ore bodies. Arkell. b. Cumb. An opening or crack in the rocks.
ginnier. N. Staff. a. A term used in the potteries for a woman whose job it is to grind china ware, after it has been taken from the glott kiln, any adhering particles of refractory material from the kiln furni-
ture. Compare sorting. Dodd. b. From Ginn- net, an old term for a tool used by carpenters to remove excesses from wood. Dodd.
ginney fender. A man working on an endless chain haulage. C.T.D.
ginney rails. Track rails for ginnery carr-
ries. Fay.
ginorite. A white hydrous calcium borate, CaB03.8H20. (1.) Monoclinic. Minute, lozenge-shaped plates aggregated into masses. From Tuscany, Italy, English.
gin pit. A shallow mine, the hoisting from which is done by a gin. Fay.
gin pole. a. The center pole of a drill tripod. Long. b. A pole used to support hoisting tackle. Fay. c. The pole or bar on the top of a drill derrick to which a pulley tackle is fastened and used to hoist and place the crown block on top of a drill derrick. Long. d. Any one of the three poles of a hoisting gin. Webster 3d. e. A single pole held in a nearly vertical position by guys that support a block and tackle used for lifting loads. Webster 3d. f. A vertical, wooden, or steel mast rigged with block and tackle, together with rope or steel cable, by which mechanical power is em-
ployed to raise hoist rights to a desired position. Used in place of a crane. Crispin.
gin race. a. Eng. A wide excavation near the top of an underground inclined plane in
gin tackle. A tackle arranged for use with a gin; especially, a combination of a double with a single block and tackle by which five or more power is exerted. Standard, 1964.

gin tackle. A tackle, especially a combination of a double with a single block and tackle by which five or more power is exerted. Standard, 1964.

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gin tackle. A tackle, especially a combination of a double with a single block and tackle by which five or more power is exerted. Standard, 1964.
glacial till (till) subjected to the sorting action of water. ASCE 21826.
glaciate. To overspread with glacial ice, or to cover the phenomena of planation, rock scoring, drift, etc. Standard, 1964.
glaciated coast. The features of which have been modeled by glacial influences. Schairer.
glaciation. Effect on surface of land over which glaciers have moved. Includes erosion, deposition, planing, polishing of rocks, releveling, change of drainage system, and lakes. Pryor, J. glacial. Same as glacial. Fay.
glaciation, glaciation. Fay.
glaciate. To overspread with glacial ice, or to be covered by a glacier. Fay.
glaciere. Fr. An artificial or natural cavity, as a crevice, split in a block of ice, or a pipe in the glacier. Fay.
glaciar burst. The sudden release of a reservoir of water which has been impounded within the body of a glacier. Fay.
glaciar. Fr. An artificial or natural cavity, in a temperate climate, in which a mass of ice remains unthawed throughout the year; an ice gien. Standard, 1964.
glaciar, grain. a. The granular texture of glacier ice. Fay, b. One of the grains of ice in a glacier. Fay.
glaciar ice. If the body of ice developed from snow becomes great enough, it is apt to spread or creep out from its place of accumulation. Ice thus moving is glacial ice. A.G.I.
glaciarized. Pertains to terrain covered by glacier ice. This is a British usage. Most American writers prefer glacier covered. A.G.I.
glaciar meal. See rock flour. Fay.
glaciar milk. The milk-white water, charged with fine white sediment, that issues from beneath glaciers. Standard, 1964.
glaciar mud. The pulverulent material, produced of a glacial erosion, that is washed out from beneath a glacier and deposited at lower levels by glacial streams. Also called glacier mud. Standard, 1964.
glaciar snow. The compacted mountain snow that is in the intermediate stage between ordinary snow and glacier ice; nève. Standard, 1964.
glaciar table. A block of stone supported above the surface of a glacier on a pedestal of ice. Weber, 3d.
glaciar theory. The theory that large elevated portions of the temperate and frigid zones were covered during the early Quaternary, and perhaps during some earlier epochs, by slowly moving ice sheets and glaciers. One that transported vast masses of drift to lower latitudes, assisted by icebergs drifting along the coast. No longer a generally accepted fact but accepted as a fact. Standard, 1964; Fay.
glaicel. A combining form frequently used with other words to denote polarization by means resulting from the passage of light through the substances.
glacial. A combining form frequently used with other words to denote polarization by means resulting from the passage of light through the substances. It is self-evident in such words as glaicoaqueous, glaicofluif, glaicoamine, and glaicoalum. Nyström and Vernet, 1955.
glaicoaqueous. Pertaining to or resulting from the combined action of ice and water. Standard, 1964.
glaicoarctic. Of, relating to, or coming from lakes or rivers which transport all of their water from the melting of a glacier. Webster, 3d.
glaicier burst. That branch of geology which treats of glaciers, the deposits formed by them, and the results of their action in modifying topography. Fay.
glaicierine. Of, or relating to, processes or deposits which involve the action of glaciers and the sea, or the action of glaciers in the sea. Fay.
glaicierite. A quartz lamprophyre containing andesine and hornblende and in smaller quantities both micas and epidote, and has been called diorite. From Glad-kia Sopa, Northern Ural, U.S.S.R. Hass.

500 DSC
glass colors

cals or mixtures used to confer special properties on glass. CCD 6d, 1961.
glass container. A general term applied to ASTM C162-66.
glass cutter, machine. One who cuts glass into oval or circular shapes. Standard machine. Adjusts machine to produce desired shape and manually guides cutting tool suspended by a steel rod over the glass. D.O.T. 1.
glass driller. One who, using an electric drill, drills holes in glass lamp shades to permit the attachment of metal frames or fixtures. D.O.T. 1.
glass etcher. A trade name used by segments of the chemical industry for porcelain enamelled steel. ACSG, 1961.
glass electrode. A glass sensor electrode used to measure pH or hydrogen-ion activity. ASM Gloss.
glass frit. One that contains or as with a glass. Standard, 1964.
glass enamels. A series of finely ground powders, basically lead borosilicate, intimately blended with colored ceramic pigments. Different grades give characteristics of acid resistance, alkali resistance, sulfide resistance, or low lead release to meet requirements for various uses. Firering range 1,000° to 1,400° F (537.8° to 760° C). Used for fired-on labels and decorations on glassware, glass containers, illuminating ware, architectural glass, and signs. CCD 6d, 1961.
glass etcher. One who mixes baths of hydrofluoric acid, and dips glass into them so that portion of the glass not covered with wax will be eaten away (etched). D.O.T. 1.
glass eye. A defect consisting of a large bubble or blister with clear glass over the top. Bryant.
glass fiber. Generic name for a manufactured fiber in which the fiber-forming substance is glass. A continuous filament or staple fiber having unusual resistance to heat and chemicals. It is the strongest fiber known and is perfectly elastic up to its ultimate strength. It is attacked by hydrofluoric acid and alkalis; resistant to most other chemicals and solvents. Colored by resin-bonded pigments or by dyeing an applied protein film. Nonflammable. Is used for electrical insulation; plastic laminates. CCD 6d, 1961.
glass fume. See network formers. VV.
glass frost. Very thin glass that has been blown or sintered. D.O.T. 1.
glass glaze. See glaze. Shipley.
glassies. Octahedral diamond crystals (translucent); heat-treated. Hess.
glass lava. An undesirable name for obsidian. Shipley.
glassmakers soap. A decolorizing agent for glass, such as manganese dioxide or white arsenic. Hess.
glass metal. The fused and refined material of which glass is made. Fay.
glass meteorite. An undesirable name for moldavite. Shipley.
glass polisher. One who inspects glass for flaws, after it has been cut to the desired shape, and repairs small defects. Repairs glass by grinding and buffing, using power-driven sand and pumice grinding wheels and cloth or felt buffing wheels. Also called glass buffer or smoother. D.O.T. 1.
glass products inspector. One who visually examines finished glassware, such as dishes and automobile light lenses, for blisters, cracks, strains, and other obvious defects. D.O.T. 1.
glass quartz. A little-used name for rock crystal. Shipley.
glass rougher. One who grinds the edges of glass for automobile windshield, rear window, and other glass that does not need perfect edges, to a rough finish, holding, propping, and turning piece against rotating wheel on a stationary base or using a portable grinding tool. Also called glass sealer. D.O.T. 1.
glass sand. A sand suitable for making glass. The principal component is quartz. A typical analysis is: 99.41 percent SiO2, 0.21 percent Al2O3, 0.07 percent Fe2O3, 0.07 percent CaO, 0.08 percent MgO. Found in New Jersey, Pennsylvania, West Virginia, Minnesota, Illinois, and Maryland. CCD 6d, 1961.
glass seam. A joint plane in a rock that has been recemented by deposition of calcite or silica in the crack. Fay.
glass, silica. See silica glass. Bennett 2d, 1962 Add.
glass spar. 20-mesh. Afeldspar produced for the flat glass manufacturing industry; (milk bottles, mason jars, etc.). AIME, p. 341.
glass spar 40-mesh. Afeldspar produced for the flat glass manufacturing industry. AIME, p. 341.
glass stone. A glass imitation stone; also, a gemstone. Standard, 1964.

glass, talc. Calcite, Fay.
glass tile. Tile made of glass, designed to transmit light through an otherwise opaque structure. ACSC, 1961.
glass-to-metal seal. Metal components varying in size from fine wires to heavy flanges are sealed to glass for many purposes, for example, electric lamp bulbs and radio valves. Metals that have been used for this purpose include platinum, chromium, nickel, and nickel-iron-cobalt. D.O.T. 1.
glass transformation. The transition from a supercooled liquid to a true glass. PV.
glass transformation temperature. Temperature below which the relaxation time for some degree of freedom is long compared with the duration of an experiment. Bennett 2d, 1962 Add.
glass tube. Synonym for acid bottle. Long.
glass vial. Synonym for acid bottle. Long.
glass wool. A fibrous woollike material composed of fine filaments of glass intermingled with ordinary wool. Used in chemical laboratories; also in some producer-gas plants as a dust-filtering agent, and widely used in insulation for air filters. CCD 6d, 1961.
glassy. Applied to diamonds which lack brilliance. Hess.
glassfeldspar. Two varieties of potash feldspar occur as transparent colorless crystals, sanidine and adularia. Transparent yellow orthoclase also occurs but is very rare. C.M.D.
glass texture. The texture of natural glass or slag in insulation and air filters. CCD 6d, 1961.

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Glaze.
in the ceramic industry. According to the sense in which it is used it may mean: (1) A vitreous coating on finished pottery or enameled ware, as distinguished from powdered dry materials of the batch to be used for producing the vitreous coating, or (3) an enamel covering on vitreous materials suspended in water (wet glaze). Glazes may consist of common salt or feldspar but are usually mixtures of native silicates such as feldspar, kaolin, or Cornish stone with flint, sand, calc, chalk, borax, soda, white lead, red lead, or litharge. C.C.D. 6d, 1961. See also bright glaze; clear glaze; crystalline glaze; fritted glaze; mat glaze; opaque glaze; raw glaze; semimat glaze.


glazed ceramic mosaic tile. Ceramic mosaic tile with glazed faces. ASTM C242-60T.

glazed extra-duty tile. Tile with a durable glazed surface which is suitable for light-duty floors and all other surfaces on interiors where there is no excessive abrasion or impact. A.C.S.G.

glazed interior tile. A glazed tile with a body that is suitable for interior use and which is usually nonvitreous, and is not required or expected to withstand excessive impact or be subject to freezing and thawing conditions. ASTM C242-60T.

glaze dipper. One who applies a thin coat of glaze to bisque tile by dipping the tile into a glazing vat with a pair of hand tongs. Also called glazer. D.O.T.1.

glaze pot. Generally a new pot coated inside with a substance to protect it from the raw batch. ASTM C162-66.

glazed tile. Tile with a fused impervious facial finish composed of ceramic mate- rials, fused into the body of the tile which may be a nonvitreous, semivitreous, vitre- ous, or impervious body. The glazed sur- face may be clear, white, or colored. ASTM C242-60T.

glaze relationship between the glaze and body of a fired ceramic product. ASTM C242-60T.


glaze blender. One who filters, tests, stores, and mixes glaze mixtures used as finish coating for ceramic ware. D.O.T. 1.


glaze maker. a. One who operates mills for mixing and grinding glazed tile and glaze and prepares frit for firing. Also called disintegrator man; frit maker; glaze grinder; glaze mixer; polisher; slip mixer; frit mixer. b. One who mixes and grinds ceramic tile-glazing materials in proportions according to specific chemi- cal formulas. D.O.T. 1. 


glazing. Dulling the abrasive grains in the cutting face of a wheel during grinding. ASM Gloss.


glazing-machine operator. One who removes rough spots, air bubbles, and other blem- ishes from glass kitchen utensils. Places pieces of glass into a disk which rotates through a gas flame, and by manipulating valves, regulates color and intensity of flame. Also called beveler; finisher; smoother. D.O.T. 1.

glazing stone. A smooth, hard stone com- posed mostly of frit, used by polishers to glaze the face of a finishing wheel when iron or steel articles, not plated, such as carpenters' tools and metaleni, etc., require a high finish. Hess.


Gleeds. A glowing coal or small coke such as that used in nailmaking. C.T.D.

gleng. glet. Slime, ooze, slimy alluvial de- position. Fay.


or 4 percent, having the composition of red clay. Holmes, 1928.


globular. In petrology, a textural term synonymous with globular texture. C.T.D.

globular pearlite. See granular pearlite. C.T.D.

globular powder. Particles having approximately spherical shape. Osborne.

globular transfer. The term describes the transfer of material as relatively large globules or globules during combustion-electrode arc welding. Also known as drop transfer, or more specifically as large-drop transfer. BuMinex Bull. 625, 1963, p. VII.

globullite. A. A tiny globular body of mineral calcite. Webster 3d. b. A tiny, rounded, incipient crystal form visible in some volcanic glasses when they are examined in thin sections under a microscope. Fay.

glockrite. A mineral, 2FeO·SiO₂·H₂O. Massive, earthy, or stalactic. Color, brown to ochre-yellow to pitch black or dull green. Fay.


Glomax. Brand name for purified koilinite; used as pigment extender. Bennett 2d, 1962.

Glomax. A locational substance extracted from animal carcases, organs, hides, and bone. Used in mineral processing as a coagulant after acid leach of uranium-bearing or phosphorus. Glues are also derived from these resources, but these have no direct use in the mineral process. Pryor, 3.

glomax. b. A vertical pit, material from which is delivered to the bottom of which it is delivered to an underground transport system. Pryor, 3d. c. Can. Large open-pit excavation. Hoffman, c. Open opening through which to observe the interior of a furnace. Standard, 1964. d. A subsidiary furnace, in which and which are reheated during manufacture. C.T.D.

glory hole. A method of mining using a machine whose wheels or batons are fitted with underground mining system, in which deposited material gravitates or is moved to a short shaft, from the bottom of which it is delivered to an underground transport system. Pryor, 3d. Can. Large open-pit excavation. Hoffman, c. Open opening through which to observe the interior of a furnace. Standard, 1964. d. A subsidiary furnace, in which and which are reheated during manufacture. C.T.D.

glory hole system. A method of mining using a machine whose wheels or batons are fitted with underground mining system, in which deposited material gravitates or is moved to a shaft, from the bottom of which it is delivered to an underground transport system. Pryor, 3d. Can. Large open-pit excavation. Hoffman, c. Open opening through which to observe the interior of a furnace. Standard, 1964. d. A subsidiary furnace, in which and which are reheated during manufacture. C.T.D.

gloos. Brand name for purified koilinite; used as pigment extender. Bennett 2d, 1962.

glos. a. Newc. A piece of wood, used for making a glos. b. A tiny, rounded, incipient crystal form visible in some volcanic glasses when they are examined in thin sections under a microscope. Fay.


Glos. gloos. a. Newc. A piece of wood, used for making a glos. b. A tiny, rounded, incipient crystal form visible in some volcanic glasses when they are examined in thin sections under a microscope. Fay.


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Glos: gloos. a. Newc. A piece of wood, used for making a glos. b. A tiny, rounded, incipient crystal form visible in some volcanic glasses when they are examined in thin sections under a microscope. Fay.

glycerol monoac.
golfino; goffen

golden; gold

golden; goldine

golden; goldine

golden; goldine

golden; goldine

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goldleaf electroscope

Covered on one or more surfaces with a layer of gold alloy to form a clad metal. The term is often used in commercial agreements, a gold stamp showing the quantity and fineness of gold alloy may be affixed which shows the actual proportional weight and karat fineness of the gold alloy. For example, one-tenth 12K gold-filled means that the article consists of base metal covered over with more surface coverage of gold alloy of 12-karat fineness comprising one-tenth part by weight of the entire metal in the article. No article having a gold alloy coating of less than 10-karat fineness may have any quality mark affixed. No article having a gold alloy portion of less than one-twentieth by weight may be marked gold-filled but may be marked marked gold plate provided the fractional proportion and fineness designation precede. These stands do not necessarily apply to very thin clads, AS 12K gold.

goldfilm glass. Glass incorporating a thin gold film which can be electrically heated for demisting and deicing. C.T.D. Supp.
goldfilled. Gold beaten or rolled out very thin; in gold in sheets thicker than goldleaf. Webster 3d.
gold fine. A term sometimes applied to goldstone. Shipley.
gold hydride. See gold hydroxide. CCD 6d, 1961.
gold hydroxide; gold hydrate; auric hydroxide. Brown; Au(OH); sensitive to light; soluble in hydrochloric acid in solutions of sodium cyanide, and in alkal hydrides; and insoluble in water. The hydroxide, easily soluble in water and is lost water easily. Used in gilding luids; in porcelain; and in gold leaf production. Shipley.
goldichloride. Hydrous potassium ferric sulfate, KFe(SO₄)₂·4H₂O, as pale-green monoclinc crystals from the decomposition products of uraninite. From mines. J.M. 1955.
goldichloride. Hydrous potassium ferric sulfate, KFe(SO₄)₂·4H₂O, as pale-green monoclinc crystals from the decomposition products of uraninite. From mines. J.M. 1955.
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goldichloride. Hydrous potassium ferric sulfate, KFe(SO₄)₂·4H₂O, as pale-green monoclinc crystals from the decomposition products of uraninite. From mines. J.M. 1955.
goldichloride. Hydrous potassium ferric sulfate, KFe(SO₄)₂·4H₂O, as pale-green monoclinc crystals from the decomposition products of uraninite. From mines. J.M. 1955.
goldichloride. Hydrous potassium ferric sulfate, KFe(SO₄)₂·4H₂O, as pale-green monoclinc crystals from the decomposition products of uraninite. From mines. J.M. 1955.
gold dichloride; gold trichloride; auric chloride. Red crystals; AuCl₃; decomposes at 254° C; sublimes at specific gravity, 5.3; soluble in water, in alcohol, and in ether; slightly soluble in ammonia; and insoluble in carbon disulfide. Used in gold plating; in ceramics (enamels, gilding, and painting porcelain); in glass (gilding, ruby glass); and in the manufacture of finely divided gold and purple of Cassius. CCD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-177.
gold cupricide. A clod or cupricide. Webster 3d.
goldener. One who digs for gold. Webster 3d.

An electroscope consists of two narrow strips of goldleaf suspended from the lower end of a brass rod, at the top of which a brass disk is fixed. The lower end of a gold plate provided the conditions of crystallization approximate those now prevailing at the earth's surface, the more resistant is the mineral in the weathering environment. The Goldich stability series also applies to the same minerals when they are of metamorphic origin. Hanke, p. 80-B1.
gold jewelry. Jewelry made wholly or principally of gold; s° designates gold- or gold-plated jewelry. Webster 3d.
gold leaf. Extremely fine layers of gold formed by beating or rolling between layers of gold leaf. Gold leaf is made of metal in a metal case by a plug of ebonite or some other good

goldfleet electroscope. An electroscope consisting of two narrow strips of goldleaf suspended from the lower end of a brass rod, at the top of which a brass disk is fixed. The lower end of a gold plate provided the conditions of crystallization approximate those now prevailing at the earth's surface, the more resistant is the mineral in the weathering environment. The Goldich stability series also applies to the same minerals when they are of metamorphic origin. Hanke, p. 80-B1.
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Goldich stability series. Mineral species differ widely in their resistance to weathering processes. This series summarizes the relative resistance to weathering of the common rock-forming silicates, and indicates that the minerals crystallized at the highest temperature, under the most anhydrous conditions, are more readily weathered than those that crystallized last from the lower temperature, more aqueous magmas. As a general rule, the closer the conditions of crystallization approximate those now prevailing at the earth's surface, the more resistant is the mineral in the weathering environment. The Goldich stability series also applies to the same minerals when they are of metamorphic origin. Hanke, p. 80-B1.
gold leaf. Extremely fine layers of gold formed by beating or rolling between layers of gold leaf. Gold leaf is made of metal in a metal case by a plug of ebonite or some other good
insulating material. Whenever the leaves have acquired a potential, they separate.

**Morris and Cooper**, p. 230.

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gold leaf electroscope 499

gold scutellar. A gold-colored species, **Cassida fulgida** (L.), from the Laguna uranium mining district, Albuquerque, N. Mex. Hey, M.M., 1964; Frank. 3d.

gold matrix. Gold in a matrix of milky quartz. Same as gold quartz. Shipley.

gold milling. A general term applied to the treating of ore to recover gold and silver therefrom. **Bureau of Mines Staff**.

gold mine. a. A mine containing or yielding gold. It may be either in solid rock (quartz mine) or in alluvial deposits (placer mine). Fay. *b. Any investment yielding or furnishing great profit.* Fay.

gold 198. Radioactive gold of mass number 198. Half-life, 64.8 hours; radiation, beta and gamma; and radiotoxicity, moderately hazardous. Available in gold metal, colloidal gold, and gold-sodium thiocyanate. Used to locate the solidification boundary in continuously cast aluminum and to determine metallic silver in photographic materials. The decay product of gold 198 is mercury 198, which may be distilled from aged, neutron-irradiated gold for the fabrication of monoisotopic mercury, a source of neutrons. Also radioactive gold. **CCD** 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. 690.

gold opal. Opal which exhibits only an overall color of golden yellow. Shipley.

gold oxide; auric oxide; auric trioxide. Brownish-black; AuO3; decomposed by heat, losing one oxygen at 160°C; soluble at 250°C in hydrochloric acid; and insoluble in water. Used in gilding liquids and in porcelain. **CCD** 6d, 1961.

gold paint. Paint pigmented with gold powder; really a bronze powder. Bennett 2d, 1962.

gold pan. See pan, c., d., and i.

gold panning. See panning. Nelson.

gold poachers. Roving and enterprises freighting mines and prospectors. Hoon, p. 495.

gold point. The melting point of pure gold, 1,063°C. Used one of the fixed reference points on the temperature scale. Bennett 2d, 1962.


golden gran. S. Afr. The excess of the price of gold in a given market over the value fixed by the government or calculated over the exchange rate of money. Beerman.

gold purple. The purple of Cassius. Webster 2d.

gold quartz. Milky quartz containing inclusions of gold. Same as gold matrix. Shipley.

gold-quartz ores; silicious ores. Gold-bearing ores from which the sulfides have been removed by leaching of groundwaters so that the ore consists almost entirely of quartz gangue, some iron oxides, and free gold. See also goldleaf. Shipley.

gold ruby glass. See ruby glass. Dodd.

gold sapphire. Lapis lazuli containing flecks of pyrites. See also golden sapphire. Shipley.

gold savinig table. This table consists of a series of narrow slivces from 2 to 3 feet wide set side by side on grades of from 1/8 to 1/2 inches per foot. These tables extend from first class cautery to beneath the trommel and then are turned at right angles to extend longitudinally to the rear of the dredge where they empty into tail sluices that carry the material some distance back of the dredge before discharging it into the pond. **Levis**, p. 393.

Goldschmidt's law. The structure of a crystal is determined by the ratio of the numbers and sizes, and the properties of polarization of its structural units. Pryor, 3.

Goldschmidt's mineralogical phase rule. Under natural rock-forming conditions, the probability of finding a system with a variance (degrees of freedom) of less than two (temperature and pressure) is small. Any given natural mineral assemblage, igneous or metamorphic, seems to be the stable one over a range of temperature and pressure. Thus, with a variance of two, the phase rule is reduced to a special case, \( P = C \), in which the maximum number of phases possible is equal to the number of components. \( A.G.I. \)

Goldschmidt's process. a. The thermite process of welding. See also thermit. Fay.


gold. a. A place where gold is mined, washed, or worked. Fay. b. A place where gold is mined with washing or by dredge. Fay.


gold washing. Act or process of washing auriferous soil for gold; also a place where this is carried on. **Webster 2d.** See also diggings Fay.

gold work. a. The act or art of working in gold. **Webster 3d.** b. A place where gold is mined with washing or by dredge. See also goldsmiths. Fay.


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**goliath crane.** A portal type of crane having a lifting capacity of 50 tons or more, with the crab traveling along the horizontal beam. See also portal crane. Ram.

**Gonnell elutriator.** A specialized method of surveying a borehole, utilized when a magnetic compass cannot be used because of local magnetism. The instrument used is essentially a rigid tube, up to 30 feet long, which is lowered into a borehole. The tube fits the borehole closely and contains a fine wire under tension. The difference between the arc of the tube, when bent at a crook in the borehole, and the chord of the wire is indicated by a stylus marking, which can be measured. The dip is read by etch tubes, and a direct-rectangular orientation taken at the surface is carried down the hole by precise alignment of the tube and rods as they are lowered into the borehole. Long.

gompholite. See nagelluh. Fay.

gondola. A metal frame consisting of garter (spessartite) and quartz. See also collateralite; eulysite. \( A.G.I. \)

**Gondite.** A spessartite-quartz rock, probably produced by the metamorphism of manganiferous sediments, and named after the Gondite of the Central Provinces of India, where the Gondite series occurs. **Holme**, 1928.

**Gondite series.** A series of manganiferous metamorphic rocks being washed in a system of the Indus valley, India, and characterized by the presence of spessartite, rhodonite, and gongolite. *Statistical Research Bureau*.

gondola. a. A large flat-bottomed riverboat of light build. **Standard**, 1964, p. 1. A railroad car with no top, flat bottom, fixed sides, and sometimes demountable ends that is used chiefly for hauling steel, rock, or heavy bulk commodities. **Webster 3d.**

gondola car. Type of flat railroad truck used in the United States for mineral transport. Pryor, 3.

**Gonnell electrolitrator.** A down-blast type of electrolitrator designed by H. W. Gonnell and which has found considerable use in Europe for treating the fineness of petrolatum cement. **Dodd.**
gone off. A borehole that has deviated from the goniometer. a. An instrument for measuring the geometric position of the well's path. b. A borehole that has deviated from the angle of the well's path. c. A borehole that has deviated from the angle of the well's path.

Good delivery. Under metal exchange rulings, a goodletite. Aust. The matrix rock in which gow caisson. A device for sinking shafts of deep holes are made by a bar and an excavator. A blacksmith. Standard, 1964. A narrow band of gold-bearing class next to the vein, which is contained by a thin, long-pitched, nick, South Carolina. Fay. To circle a mine without plan or system.

Grades. See channel cast. Pettijohn. A layer of soft material along the floor of a hill. The term "airblast" is sometimes used to designate a blast in which the sides are approximated to give desired degree of classification of feed. Pryor, 3. e. A bend in a pipe or tube having a change in direction.

Gordian's formula

\[ M = \frac{g \cdot H \cdot N}{H \cdot N} \]

Ome. To work a mine without plan or system. A cavern in a limestone region. Mather. A mine where a large tonnage of rock is to be removed and the holes deepened and extended. A grabber. An ocean floor sampling system using a grab or gubber bucket suspended from a borehole. Fay. 2d, p. 407. Potter-Delprat process. A flotation recovery system for separating minerals. See also multipassage kiln. Dodd.

Gouge marks; crescentic gouge. Crescentic gouge channel. See channel cast. Pettijohn. A layer of soft material along the floor of a hill. The term "airblast" is sometimes used to designate a blast in which the sides are approximated to give desired degree of classification of feed. Pryor, 3. e. A bend in a pipe or tube having a change in direction.

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the jib head of a crane, which does the necessary raising and lowering. Also called a grapple dredger. C.T.D.

graben. A depressed segment of the earth’s crust bounded on at least two sides by faults and generally of considerable length as compared with its width. Webster, 3d. See also trough fault.

grab equipment. A clamshell bucket fitted with teeth to assist digging. Nelson.

grab hooks. Hooks used in lifting blocks of stone. They are used in pairs connected with a chain, and are so constructed that the tension of the chain causes them to adhere firmly to the rock. Fay.

grab iron. See grab.


grab sample. a. A rough and random mode of sampling. The samples may be taken from the pile broken in the process of mining. It is often used to estimate the approximate value of material lying broken in stopes or headings or of material coming from the mine. All portions of the ore exposure are not equally represented by grab samples. See also chip sample. Nelson. b. A sample taken at random from a pile, truck, or car of ore or coal. Ballard.

grab sampling. Collection of specimens of ore more or less at random from a heap, scatter pile or passing load. Used in connection with the characteristics of the characteristic minerals in the deposit rather than for valuation. Pryor, 3.

grad. a. Having a hydraulic backhoe equipped with an extensible boom that performs the three separate functions of excavating, backfilling, and grading. Carson, p. 161.

gradation. a. In geology, the bringing of a surface or bed of gravel to bed state, through erosion, transportation, and deposition by running water. See also aggradation; degradation; gradation. Fay. b. The proportion of material of each size present in a given soil. ASCE P1826.

grade. a. The classification of an ore according to the desired or worthless material in it or according to value, for example, a gold ore that contains 1 ounce gold per ton would be a high-grade ore whereas an ore containing 1 pennyweight per ton would be a low-grade ore. Nelson. b. See rank. Nelson. c. A particular class of workman in a mine, namely, collier, engineman, timberman, repairman, and laborer. Nelson. d. To prepare a roadway of more uniform slope. Fay. e. An ore which carries a great or comparatively small amount of valuable metal is called a high- or low-grade ore. Fay. f. The degree of strength of a high explosive. Those above 50 percent nitroglycerin are arbitrarily designated as high-grade dynamites and those below 40 percent strength as low-grade dynamites. Fay. g. In assessing the power of the sought value or of each valuable species in the ore. Pryor, 3. h. In surveying, the gradient of a traveling line along which a sluice, etc. See also grade.

graded aggregates. Aggregates in which there is a continuous grading in the sizes of mineral fragments from coarse to fine. A.P.I. Glossary.

graded bedding. A type of stratification, each stratum of which displays a gradation in grain size from coarse below to fine above. Synonym for diadic structure. A.G.I. See also sorted bedding.

graded coal. One of the three main size ranges by which coal is sold by the National Coal Board in Great Britain. It consists of coal screened between two screens—with an upper and lower limit varying from a top size of 2 or 1½ inches to a bottom size of ½ to ⅛ inch. See also large coal; smalls. Nelson.

graded filter. Superimposed layers of coarse gravel, fine gravel, coarse and fine sand arranged so that the gravel will not be clogged by the action of water flowing through the sand. A.G.I.

graded profile. See profile of equilibrium. A.G.I.

graded sand. A sand containing some coarse, fine, and medium particle sizes. It is not a uniform sand. Ham.

graded sedimentology. A type of sedimentology, a sediment consisting chiefly of grains of the same size range. Stokes and Varnes, 1955. b. In engineering, grading or selecting a uniform or equivalent distribution of particles from coarse to fine. Stokes and Varnes, 1953.

c. A general term for loose or cemented detrital sediments in which the allogenic grains make up within the limits of a single grade. Hess.

graded shoreline; smooth shoreline; straight shoreline. A shoreline showing no superimposed or erosional terrace or bay; typical of an advanced shoreline development. Schieferdecker.

graded shore profile. A shore line which has reached its profile of equilibrium, typical of the stages of maturity and old age of the shoreline cycle. Schieferdecker.

gradient, stream. A stream having a smooth gradient, without cascades or rapids. Mather.

gradient unconformity. A nonconformity as between granite and a basal arkose where no sharp plane of contact can be recognized. Pettitjohn, 2d, 1957, p. 327.

gradeline. a. The baseline from which elevations are measured. ASA M414-1958. b. A line that defines the intended grade of a roadway that is being driven. Such a line is used to control the gradient of a roadway, R.C. 3618, 1963, sec. 1.

grade of coal. A term to indicate the nature of coal main', as determined by the amount and nature of the ash and sulfur content. The term grade is sometimes used as a synonym for rank. Tonn, 1954.

graded. a. A self-propelled or towed machine provided with a row of cutting or digging teeth arranged to spread and lay the material. It is used for cutting topsoil at open pits and for leveling spoil. Nelson. b. A machine with a centrally located blade that can be angled to cast to either side, with independent hoist control on each side. Nelson. c. One who sorts and classifies diamonds; a person, implement, or apparatus employed in grading streets, etc., as a road grader. Standard, 1964. d. A trommel-type airswept circular screen used in asphalt milling where the fine rock and fibre dust are eliminated through medium size perforated plates. Arbiter, p. 69.

graded surface. The force, due to gravity, which resists the movement of a vehicle up a slope. Carson, p. 72.

grade scale. A subdivision of an essentially continuous range into a series of size classes. See also Wentworth scale. A.G.I.

graded scale, Atterberg. See Atterberg scale.

grading scale, Phil. A logarithmic transformation of the Wentworth grade scale based on the negative logarithm to the base 2 of the particle diameter. A.G.I.

graded scale, Tyler standard. See Tyler standard scale.

graded scale, Udden. See Udden scale.

graded scale, Wentworth. See Wentworth scale.

grading stake. A stake indicating the amount of cut or fill required to bring the ground to a specified level. Nichols.

gradation. a. The inclination of the rate of regular or gradual ascent or descent, as of a slope, roadway, or pipeline. Webster 3d. b. A part (as of a road or pipeline) that slopes upward or downward; a portion of the way that is not level; slope, grade, ramp. Webster 3d. c. The rate of increase or decrease of a variable magnitude or the curve that represents it. Webster 2d. d. The rate of change of a quantity with respect to the temperature gradient in a metal bar is the rate of change of temperature along the bar. C.T.D. e. The space rate of de-
create of a function. The gradient of a function in three space dimensions is the vector normal to surfaces of constant value of the function and directed toward decreasing values, with magnitude equal to the rate of decrease of the function in this direction. The accent is the negative of the gradient, and is loosely used to denote the magnitude of the gradient or ascendant (that is, without regard to sign) of a horizontal pressure field. See also slope. H&G.

gradient. A surveyor’s instrument consisting of a small telescope mounted on a tripod and fitted with a spirit level and a graduated vertical arc; used for determining grades, etc. Standard, 1964. A grading instrument. A surveying level with a grading curve. A curve giving the grain size grading. a. The degree of mixing of size classes of coarse and fine particles and a low proportion. A batch with a grading for variously sized particles in a batch, or the distribution.


Grain size or grade. The smallest grain in a sample sized by the U.S. Standard Sieve Series to which the lot of material falls.

Grading test. See screen analysis. Fay.

gradient. A process for producing a decorative finish by transferring a pattern to the porcelain enamel surface. Originally termed recrystallization. G.S.A. Mem. 6, 1938, p. 66.


grading board. A specially constructed board used in the grading process. Hansen.

grading paste. A mixture of color oxides, fluxes, and oils. ASTM C 285-65

grading paste thinner. A mixture of oils used in the grading process. Fay.
graining paste thinner

to thin out graining paste. *Hansens.*

graining roll. A specialized type of roll
for transferring the grain pattern to the
porcelain enamel. ASTM C286-65.

graining paste. Granular magnesium oxide
obtained by dead-burning magnesium car-
bonate or hydroxide. A.R.I. See also dead-
burning magnesite.

grain marks. Lines on the facet surfaces,
the result of imperfect polishing. *Hirsh.*

grain size. a. A term relating to the size of
mineral particles that make up a rock or
sediment. Grain sizes are reported in
terms of number of grains per
unit area or volume, average diameter,
or as a grain number derived from
area measurements. ASM Gloss. c. For
grinding wheels, see grit size. ASM Gloss.
d. The size or size distribution of refrac-
atory particles determined usually by
sieve analysis. A.R.I.

grain-size analysis; mechanical analysis.
The practice of determining gradation. ASCE
P1826.

grain-size classification. A scheme of rock
classification based upon the average size
of certain chosen components; thus, each
clast comprises coarse-, medium-, and
fine-grained members. T.D.

grain spacing. The relative position of the
abrasive particles in a grinding wheel. See
also grit number. ASM Gloss.

grain fin. a. The granular or nodular form
of casterite, tin oxide, SnO2; also known
as stream tin. *Henderson.* b. Metallic tin
of high grade obtained by charcoal re-
duction. *Henderson.*

grait. a. N. of Eng. To replace, repair, dress,
and finish. Standard, 1964. c. A term used
for work underground. C.T.D.

grat. a. The size or size distribution of refrac-
atory particles determined usually by
sieve analysis. A.R.I.

grain-atom. a. The atomic weight of an ele-
ment which combines with, or displaces
an unspecified element. Some would limit
the (too:, permitting the car to shed its
load. *Crispin.*

grain. b. Metallic tin of high grade obtained
by charcoal reduction. *Henderson.*

granadine. A.プレゼント greenhouse hours;
{

granat. Ir. Coarse quartzose grit. PresumZbly
formed by weathering. *Henderson.*
granitoid arkose. Grains of quartz, lamellar feldspar, and mica, more or less disposed as in granite, feldspar dominant. This rock does not differ from granite except that it is evidently formed by aggregation.


granulated. Term sometimes used for a bonnet hip tile. See also hip tile. Dodd.

granoblastic. a. The texture of metamorphic rocks composed of equidimensional elements. A.G.I. b. A term applied to secondary texture due to diagenetic change either by recrystallization or recrystallization in the solid state, in which the grains are of equal size (equigranular). A.G.I.

granodiorite. A plutonic rock consisting of quartz, calcic orthoclase or andesine, and clinopyroxene. Webster 3d.

granodioritic. A plutonic rock consisting of quartz monzonite and quartz diorite, and contains at least twice as much plagioclase as orthoclase. A.G.I.

granofels. A field name for a medium- to coarse-grained granoblastic metamorphic rock that has not been given another name or foliation or lineation. A.G.I. Supp.

granolith. An artificial stone of crushed granulite. A.G.I.

granulic. The texture of igneous rocks characterized by the irregular intergrowth of blebs, patches, and threads of quartz in a base of feldspar. It is similar to graphic and micrographic but differs from these textures in that the intergrowth of quartz and feldspar is not perfect. C.M.D.

granulite. a. A textural term applied by Judd (1886) to basaltic or doleritic rocks consisting predominately of kaidonite grains of lighter or darker shades, often surrounded by collinite. These grains show a cryptocrystalline to finely crystalline structure; the cryptocrystalline material is isotropic. IHC, 1963.

granulate. To form into grains or small particles, as gunpowder or zinc. Standard, 1964.


granulated aluminum. Aluminum powder which has not been coated with a lubricant; relatively large masses of aluminum, such as are used in alloying with other metals. Bennett 2d, 1962.

granulated blast furnace slag. The glassy, granular material formed when molten blast furnace slag is rapidly chilled, as by immersion in water. ASTM C123-66.

granulated chert. A type of granular chert composed of rough, irregular grains or granules of chert tightly or loosely held together in small irregular masses or fragments. A.G.I.

granulated metal. Small pellets produced by putting liquid metal through a screen or by dropping it onto a revolving disk and, in both cases, chilling with water. ASTM Gloss.

granulated salt. Vacuum pan salt, of characteristic cubic shape. Also a name given to Southern mined rock salt of the same or similar appearance. Judd.

granulated slag. Molten slag broken up into granules and quick quenches. Three general methods of granulation are: (1) running the molten slag into a pit of water; (2) using a jet of high-pressure water to break up the stream of molten slag as it falls into the pit; and (3) using a mechanical revolving device with relatively small amounts of water. Camp. 6d, 1951, p. 279.

granulated steel. Steel made from pig iron by a process in which the first step is the granulation of the iron. Fay.

granulating machine. a. An apparatus for reducing a powder cake to gunpowder. Fay. b. A device for reducing metal or slag in a liquid form to fine grain. In a common method, the hot metal is dispersed on the face of a rapidly revolving disk, which scatters it centrifugally in minute particles of iron, steel, or iron alloy. "granulating mill. Old name for ball mill, particularly the Hardinge type when operated to produce sharply granulated sands. Pryor, 3.

granulation. a. In metallurgy, the state or process of being formed into grains or small particles. Fay. b. The process of separating into various sizes the particles of blasting powder. Fay. c. The crushing of a rock under such conditions that no visible openings result. Kemp, 6d, p. 217.

d. The production of coarse metal particles by pouring the molten metal through a screen into water, or by violent agitation of the molten metal while solidifying. ASTM B848-62, c. See kerosine flotation. Mitchell, p. 572.

granulator. a. A rock breaker which converts large ore into small aggregate. Ham. b. A machine that produces body raw material in the form of grains with a minimum of fines. ACSG, 1963.

granule. A little grain; a small particle. Webster 3d. b. Granular mineral products of blast furnace slag is rapidly chilled, as by pouring the molten metal through a screen into water, or by violent agitation of the molten metal while solidifying. ASTM B848-62, c. See kerosine flotation.


granules, roofing. See roofing granules.

granular texture. Generally oval or rounded grains in a matrix but grains are not of clastic origin and lack internal structure. Used especially for the round or oval grains in iron formations. A.G.I.

granulite. A metamorphic rock composed of even-sized, interlocking, granular minerals. A.G.I. b. A metamorphic rock belonging to a high-temperature facies characterized by the presence of a high Ti hornblende and hornblende. Coarse and fine bands alternate and produce a regular planar schistosity. A.G.I. c. In French literature, the term has been used as a synonym of muscovite granite. See also charnockite; granite; migmatite; leptynite; leptite; quartzite; A.G.I.

granulitic. a. A textural term applied by Judd (1886) to basic or doleritic rocks in which discrete crystals of augite and/or olivine fill the interstices between a network of plagioclase laths. In this sense, the term is synonymous with intergranular. A.G.I. b. A term proposed by Michel-Levy (1874, 1889) and applied to igneous rocks with a holocrystalline, intergranular texture in which there is a xenomorphic development of most of the constituents. In this sense, the term is synonymous with pandiomorphic granulatic. A.G.I. c. A structure due to the production of granular fragments in a rock by crushing. Holmes, 1920.

granulitic texture. The texture of a granulite, sometimes referred to as granulose or granoblastic, is an arrangement of shapeless interlocking mineral grains resembling the granitic texture developed in metamorphic rocks. C.T.D.

granulization. a. The process is regional metamorphism of reducing the component grains of a solid rock to small particles. If the reduction of the size of the particles goes farther, rock flour or mylonite is produced. C.T.D. b. This results from crush-
granulation

ing at a stage when recrystallization was still possible, and the process is therefore, in some sense, intermediate between the protoclastic and the cataclastic. All the minerals are broken down; but while the feldspar (and quartz) present makes a simple mosaic, the hornblende, with a superimposed crystallographic form, fails to form perfect prisms or fibrous patches. Harker applies the term to gneisses. A.G.I.

grape formation. Clusters of smooth, nodular, calcareous deposits on cavern walls. Synonym of botryoid; dusterite. A.G.I.

grapevine drainage. See trellised drainage. A.G.I.

g. Diagram which shows as a line the grapevine drainage. See trellised drainage. A.G.I.

grow. An intergrowth of two minerals in granite. A variety of binary granite, containing graphite or carbon. von Bernebeck. Other graphic systems give multidimensional information regarding such relations, by use of more than two axes as in nomograms and triangular graphs. Pryor, 3.

Graphite, Composition consisting of graphite impregnated at high pressure with a matrix such as cop per, lead, silver, or cadmium; used for bearings and similar purposes. Bennett 2d, 1962.

graphic. An intergrowth of two minerals in such a manner, that in certain cross sections, one has a form suggesting cuneiform writing, hence the name; quartz in feldspar in such a way, that in cross section, it has some resemblance to Hebrew letters, or cadmium; used for bearings and similar purposes. Bennett 2d, 1962.

graphic carbon. The portion of the carbon in iron or steel that is present as graphite; distinguished from combined carbon. Webster 3d.

graphic steel. Alloy steel made so that part of the carbon is present as graphite. A.S.M. Gloss.

graphicite. A variety of shungite or graphite rock which does not give the so-called, mimitic acid reaction. Tomkeieff, 1954.

graphitization. The formation of graphite in iron or steel. Where graphite is formed during solidification, the phenomenon is called primary graphitization; where graphite is formed later by heat treatment, secondary graphitization. A.S.M. Gloss.

graphitizing. Annealing a ferrous alloy in graphite; distinguished from combined carbon. Webster 3d.


grapholite. See grappel. b. Fay.

grapholite. a. An implement used to recover lost core, drill fittings, or junk from a borehole. Also called grappel. Long. b. A small anchor with four or five flukes or claws used in dragging or grappling operations. Webster 3d. c. A heavy tong used in handling large logs, stones, etc. Standard, 1964.

grapholite. See grappel. a. Fay.

grapholite. A clamshell-type bucket having three or more jaws. Nickels.


graphing iron. A fishing tool consisting of several iron or steel claws for grasping and holding an object fast. See also grappel. Lang.

grapholite. Graptolites are the greatest value to stratigraphers for dating the Ordovician and Silurian systems. A graptolite is an animal or lowly organization, extinct since the Silurian period, belonging to a class Graptolithina, of the phylum Coelenterata. C.T.D.

grapholite. The area of the surface of the grate of a steam boiler, or any part of it. Standard, 1964.

grapholite. A tool used to align and butt traffic can pass. Generally are removable for servicing. ASA MH4-1.1958.

graphite brush. A brush used to apply to street or other machines preparatory to welding. Long.
to permit passage of air for cooling or heat to maintain temperature. ASA MH-
5-1954. See also gravity discharge conveyor.

gravically. The force by which substances are attracted to each other, or fall to earth. See also law of gravitation. von Bernou-

 gravely. The force by which substances are attracted to each other, or fall to earth. See also law of gravitation. von Bernou-

 gravity anomaly. The difference between the gravity calculated from the station and the value (corrected for topography, elevation, etc.) actually measured for that station. The anomalies reflect variations in density of the underlying rocks, and hence, may be used for estimating the location of some mineral deposits and geologic structures, such as anticlines, buried ridges, or salt domes. Stokes and

 gravity API. The gravity scale developed by the American Petroleum Institute to express the density of liquid petroleum products on this scale, water has a gravity of 10° API; and liquids lighter than water (such as petroleum oils) have API gravities numerically greater than 10. Shell Oil Co.

 gravity arc. A dam which derives its resistance to the pressure of water from both an arching effect and its own weight. See also gravity dam. Ham.

 gravity balance. Sensing weight system in which a beam rides on a fulcrum, and supports a load of unknown weight at one end which is counterpoised by weights at the other. Pryor, p. 35.

 gravity bar. A 5-foot length of heavy half-round rod forming the link between the wedge-orienting coupling and the drill-rod swivel coupling on an assembled Thomson removable borehole-deflecting wedge. Long.


 gravity battery. A two-fluid battery in which there is no porous cup and in which the fluids are separated by their different spe-

 gravity dam. A dam consisting of rock or earth masses, solid or semi-solid, of such a height and structural character as to prevent the passage of water and eroding forces. A.G.I. d.

 gravity discharge conveyor

 gravity. The force by which substances are attracted to each other, or fall to earth. See also law of gravitation. von Bernou-

 gravity conveyor. Continuous belt, system of rollers, or inclined chute down which loaded material gravitates without the application of power. Pryor, 3. See also roller conveyor; wheel conveyor. ASA MH-

 gravity dam. A dam depending solely on its weight to resist the water load. Smyly, 1.

 gravity-draft conveyor. A type of conveyor using gravity-discharge back-
gravity-discharge conveyor

vertical paths over suitable drive, corner, and takeup terminals. ASA MH4.1-1958

gravity-discharge conveyor-rollator bucket. An elevator bucket designed to contain material on vertical lift and at the same time receive material from horizontal runs. Discharge is effected by gravity. ASA MH4.1-1958.

gravity fault. a. A fault along which the hanging wall has moved down relative to the footwall. See also normal fault. Billings, 1954, p. 145. b. Some other form of fault, but the result of the unimpeded action of gravity. The term is indefinite as to the quantity of material involved and period for draining, temperature, and other factors. Selsby, 1.

gravity haulage; self-acting incline. A system of haulage in which the set of full cars is lowered at the end of a rope, and gravity force pulls up the empty cars, the rope being passed around a sheave at the top of the incline. The speed of the haulage is controlled by a band brake on the sheave. Many forms of this type of haulage are in use, but difficulties arise when derailments occur as no power is available for regaining the set. Nelson.

gravity incline. Openings made in the direction of the dip of the deposit. The gradient of the gravity incline is determined by the dip of the deposit. The ore mined is transported through them, usually at a point below the level of the next lower level drive. Stoess, v. 1, p. 233.

gravity instruments. Devices for measuring the gravity force or acceleration at two or more points. They are of two principal types: (1) a static type in which the linear or angular displacement is null by an opposing force; (2) a dynamic type in which the period of oscillation is a function of gravity and is the quantity directly observed; or (3) a gradient measuring type, for example, Eotvos torsion balance. Nelson.

gravity main. A pipeline through which the water from a reservoir flows downhill by gravity. Ham.

gravity meter. Sensitive electrical device for measuring gravitational variations between different geologic formations; used in oil prospecting. Bennett, 1962.

gravity plane. A tramline laid at such an angle that full skip running down hill will pull up the empy. Fay.

gravity plane rope haulage. See self-acting rope rope. Fay.

gravity potential. The work required or gained in moving a unit mass from sea level to a point above or below sea level. The unit in this system is one dynamic decimeter. H.G.C.

gravity process. See ggb process. Dodd.

gravity prospecting. Mapping the force of gravity at different places with a gravity meter (gravity meter) to determine differences in specific gravity of rocks masses, and, through these, the distribution of masses of different specific gravity. Leet.

gravity railroad. A railroad in which the cars descend by their own weight; and inclined railroad. Standard, 1964.

gravity retaining wall. In similar manner to a gravity bridge this is prevented from overturning by its own weight. See also crib dam. Ham.

gravity road. Any road on which cars can descend by gravity. Jones.


gravity screen. A perforated steel plate, set at an angle, over which, large coal or other material slides by gravity to effect a primary classification. Nelson.

gravity segregation. Variable composition of a casting or ingot caused by the settling out of the heavier or lighter constituents before or during solidification. ASM Gloss.

gravity separation. Treatment of mineral particles which exploits differences between their specific gravities, their sizes and shapes also in part in separation. Performed by means of jigs, classifiers, hydrocyclones, dense media, shaking tables, Humphreys spirals, sluices, vanners, classifiers. Gravitational force also plays a smaller part in most other methods of separation. See also jig. Nelson.

gravity solution. A solution used to separate the different mineral constituents of rocks by their specific gravities. This is brought into effect by the solution of mercuric iodide in potassium iodide containing a maximum specific gravity of 3.19. Standard.

gravity, specific. The ratio of the weight, per unit of volume, of a given substance to the weight of the same unit volume of water. The specific gravity of water is 1 and of substances lighter than water, it is less than 1. Shell.

gravity stamp. Unit in stamp battery which directly a heavy falling weight on to a die on which rock is exposed for crushing. Pryor, 3.

gravity stowing. A method of stowing in inclined conveyor faces, in which the material is brought into the upper gate (usually the tailgate) and arranged to slide down on trays which are moved forward as each track is filled. Nelson.


gravity tube. An instrument used to measure the specific gravity of drilling mud. Long.

gravity water. a. Water that moves through soil under the influence of gravity. Selsby, 1. b. Gravity supply of water as distinguished from a pumped supply. Selsby, 1.


gray anthony. See anthony trisulide; stibinite.

grayback. a. Aust. A local name for minor cleats that cross the main cleat. Corn. A group with large grains of quartz in a compact black matrix of tourmaline. Also known as black granite. Han.


gray beds. N. of Eng. A stratum formed by a mixture of shale and sand. Fay.

gray cast iron. A cast iron that gives a gray fracture due to the presence of flake graphite; often called gray iron. A.S.M. Gloss.

graywacke. A firm gray chondrite meteorite composed of bronzite and olivine with characteristic bands which are parallel with the matrix. Hess.

grey cobalt. Smallite. Fay.

grey copper. See tetramate, Fay.

grey copper. See tetramate; tetrahedrite; fahlore.


greyhounds. Aust. Joints in the rolling country of the Southern Coalfield of New South Wales, which run parallel with the longest axis of a fold; these joints are generally coated with a whitish substance. Fay.

grey hematite. See specularite. Fay.

grey iron. Pig iron or cast iron in which nearly all the carbon not included in pearlite is present as graphite. C.T.D.

greyite. A thorium phosphate containing a little lead, calcium, and rare earths; gives an X-ray pattern like that of rhodonite, and when heated above 500° C, gives an olivine-like product. C.T.D.

Gray-King coke type. The type of coke or carbon reserve obtained under the prescribed conditions of the Gray-King carbonization assay. B.S. 3223, 1960.

Gray-King test. Methods of assessing the coking property of coal; 20 grams are heated in a silica tube to 600° C and the coked product is compared with a standard series ranging from noncoking (type A) to highly coking (G), all of which is the same volume as the original. Cokes which expand (swell) on cooling receive a subscript indicating the degree of swelling. Weltz, 1954.


gray manganese. See manganese.

grey manganese ore. See manganese.

gray metal. Shale of a grayish color. Fay.

grey ore. Corn. Copper glance. See also tetrahedrite. Fay.


gray sapphire. The gray variety of sapphire popular as a gem only if asteriated. Shiple.

gray streak. An instrument used for determining the flashing point of heavy oils. Fay.

gray stock. A clamp-fired stock brick that is off color. See also stock brick. Dodd.


graywacke; graywackes. A term applied to intermediate, fine-grained, sedimentary rocks, chiefly Paleozoic, consisting of undistorted detritus of the grain size of sandstone but without fragments of volcanic rocks and ferromagnesian minerals. C.T.D.

graywacke quartzite. A metamorphosed gray
graywacke quartzite


Graywacke. One-coat mottled enamelware. 

Grayweter. One of numerous fragments or blocks of sandstone and conglomerate, covering large tracts in Dorsetshire and Wiltshire, England, supposed to be remnants of a starting mass of material that was superstitiously regarded by the unlearned. Standard, 1964. Also called druidical stone; same stone: saracen stone. 

Gray zone. A typical gray section of used silicone brick, composed principally of large crystalline crystals. Bureau of Mines Staff.


Grease. a. This term should be applied only to fatty or oily matter of animal origin; but mixtures of oil and fat; and soap and soda ash constitute well-known lubricating greases. Fay. b. Animal fat when soft; also, anything oily or unctuous from the standpoint of usage. Fay. c. Term used in the flotation process. Fay. d. As used in engineering for lubrication or protection of parts of machinery. Fay. 

Grease spot photometer. A simple means of grease-box concentration. A process of grease box. A journal box or axle box in which grease is contained. Arkell.


greasy. Applied to the luster of minerals. Having the luster of oily glass, as ecleoite. Fay.


Greasy feelings. Some minerals are greasy or soapy to the touch; for example, talc, sometimes called soapstone. C.M.D.

Greasy gold. Fine gold. Fay.

Greasy lustre. Associated with oil or grease; occasionally observed in quartz and other minerals; for example, talc. Nelson.

Greasy quartz. A name applied to some crystals of quartz stained green. Fay.

Great circle. Circle described upon a sphere, the plane of which passes through its center. 

Great coal. Scot. Large pieces of selected coal. In the East of Scotland, the coal was formerly delivered into 12 or 14 grades; great coal, chews, lime coal, and panwood. Fay.

Great Coal age. Another name for the Coal Measures or the Pennsylvanian. So called because the greatest coal deposits of the world are found in formations of this age. Kentucky, p. 3.

Great Diurnal Range. The difference in height between mean highest high water and mean lowest low water over a 12-year period. Also called Diurnal Range. 

Great Falls converter. A pear-shaped vessel used for converting the Bessemer converter. It has been largely supplanted by the cylindrical (Peirce-Smith) type converter. 

Greathead shield. A tunneling device invented by J. H. Greathead, first used in England in 1869, and still widely used today. His invention included a circular cutting edge forced through the ground by hydraulic jacks, a cast-iron lining assembled by bolts, and grouting behind the lining with the aid of compressed air and a special mixer. 

Great Ice age. See Pleistocene period. C.T.D.

Great salt. Salt in large lumps or crystals. Great Ice age. See Pleistocene period. C.T.D.

Great sintering machine. An intermittent or batch-type machine used for concentrating iron ore for use in blast furnaces. It may be assumed to be equal. Also called Diurnal Range. 

Great sintering machine. An intermittent or batch-type machine used for concentrating iron ore for use in blast furnaces. It may be assumed to be equal. 

Great Smoky Mountains. See Appalachian Mountains.

Green earth. a. Green sedimentary material, usually some cryptocrystalline variety of quartz stained green. A special member of the chlorite group. Fay. b. Not fully crystallized. A.G.I.

Green earth of Verona but before it has been dried and fired. Daud.

Green acids. Mixed sulfonation products from oil refining cracking processes; used in detergent and as a raw material, generally steatite. A.G.I.


Greenalite rock. A dull, dark green rock of uncertain fine-grained and conchoidal fracture, containing grains of greenalite in a matrix of chert, carbonate minerals, and ferruginous amphiboles. 


Greenawalt sintering machine. An intermittent or batch-type machine used for concentrating iron ore for use in blast furnaces. It may be assumed to be equal. 


Greenburg-Smith impinger. A dust-sampling apparatus evolved by the U.S. Bureau of Mines which makes use of the principle of impingement of the dust-laden air at high velocity on a wetted glass surface, together with that of bubbling the air through a liquid medium. The apparatus consists essentially of a hand pump or electrically driven blower, a flowmeter, or other suitable means of measuring the air passed through the instrument, and the dust-collecting device. See also midget impinger. 

Green, beryl. A term applied to the lighter green varieties of beryl as distinguished from the full green emeralds and the light-green-blue aquamarine. Shipley.

Green brick. Brick which have not received the kiln burn to which they will be subjected. A.R.J. Unfried bricks. 


Green carbonatc. Copper. See malachite.

Green chalcedony. Usually some cryptocrystalline variety of quartz stained green. Also may be chalcedony of natural green color. Shipley.

Green charge. A mixture of ingredients for gunpowder before the intimate mixing in the incorporating mill. Webster 3d.

Green clay. A green pigment consisting of the fired oxide of cobalt and zinc. Webster 3d.


Green concrete. Concrete which has set but not appreciably hardened. Taylor.

Green copperas; green vitriol. The mineral malachite, hydrous ferric sulfate, Fe₃(OC₂H₃)₂. 

Green copper carbonate. Same as malachite, Cu₂CO₃(OH)₂. Dana, 17, p. 802.

Green earth. a. Lime, precipitated by reaction, uninterred. ASM Gloss. b. Not fully processed or treated. Webster 3d. c. Ceramic ware in the condition after it has been shaped green earth of Verona. See celadonite.
green-er. A very strongly marked cleavage plane in the natural garnet, which is specially utilized in the working of the coal. Arkell.
green feldspar. Synonym for amazonstone; microlite. Fay.
green garnet. Also the demantoid variety of andradite garnet. The green grossularite garnet is usually known as gooseberry garnet. Also a monomer for enstatite. Shipley.
green gold. An alloy of 25 percent silver and 75 percent gold. Crippen.
green hole. A furnace taphole in which clay is not properly set, and through which the drill may break and let iron out unexpectedly. Fay.
green iron ore. The mineral dufrenite, approximately, Fe₃O₄·Fe(OH)₂. Fay.
green john. Green fluorite.
green jade. A green stone sometimes used for jewelry. Fay.
green jadeite. A variety of jade. Fay.
green John. Green fluorite.
greenschist. A metamorphosed basic igneous rock, characterized by the presence of a considerable proportion of glauconite and CaCO₃ in variable amounts up to 50 per cent. Holmes, 1920.
green mad. A deep-sea terrigenous deposit characterized by the presence of a considerable proportion of glauconite and CaCO₃ in variable amounts up to 50 per cent. Holmes, 1920.
green onyx. A mineral of the banded variety of chalcedony, used as a gem. Fay.
green quartz. A. A name sometimes used for green transparent flint. Shipley.
green root. A miner's term for a roof which has not broken down or shows no sign of breaking down. Fay.
greenroom. A chamber for the reception of unburned and unjured pottery or newly made cloth. Standard, 1964.
green rouge. Chromium oxide and used chiefly as a polishing agent for platinum and stainless steel. AIME, p. 260.
green sand. a. A sedimentary deposit that consists largely of dark greenish grains of glauconite often mingled with clay or sand, occurs abundantly in the Cretaceous often little or not at all cemented, and is used as a water softener and as a source of potash. Webster 3d. b. A highly siliceous sand that contains a little magnetite and alvina mixed with about one-twelfth of vein quartz, unburned coal or charcoal and is used when dampened for making foundry molds. Webster 3d.
Green sand beds. In general, any beds of Cretaceous or Tertiary containing a green iron-potassium-silicate; specifically, the Lower Cretaceous of England, whether containing green silicate or not. Standard, 1964.
green sand casting. Metal cast in sand mold which has not been subjected to baking or drying. Bennett 2d, 1962.
green sand core. In metal casting technique, a sand core which has not been subjected to drying. Bennett 2d, 1962.
green sand of Peru. An early synonym for staminite, because found there in the form of sand. Fay.
green silicate. See silicon carbide.
green top. Freshly exposed roof which is unburned and undried pottery or newly made clay. Fay.
greenstone. A. An old field name for those rock composed of quartz and muscovite. Fay. b. A term sometimes used in connection with up to perhaps 3 percent, MnO. Hey, M.M., 1964; c. A coarse-grained, tin-bearing rock containing muscovite, chlorite, epidote, and topaz. The mica is usually muscovite or lithium mica, and tourmaline, fluorite, rutile, cassiterite, and wolframite are common accessories. A.G.I. d. A coarse-grained, tin-bearing rock containing muscovite, quartz, topaz, or tourmaline. A.G.I.
greenstone. The process by which those rocks are converted into greenstone. A.G.I.
greenstone molds. Metal cast in sand mold which has not been subjected to baking or drying. Bennett 2d, 1962.
green top. Freshly exposed roof which is unburned and undried pottery or newly made clay. Fay.
Grenville series

and is considered to be the equivalents of the Huronian series. C.T.D.

grenz. Horizons in coalbeds resulting from truncation or obliteration of vegetal material. They are frequently marked by a bed of clay or sand. Raisz and Mell, p. 287.

grenz. See grenz. Eng. Gravel or sand. Occurs in the horizons in coalbeds resulting from grid.

gribble. A marine borer of the class Crustacea. Webster 3d.


greve. A ditch or trench. Fay.


grey Billy. N.S.W. Local name for a hard vegetable pattern of pits or borehole. Pryor, 3. i. A sampling, a rectangular or other regular able relationship is obtained by connecting the points which must be thereby spread over a large area of ground. Pryor, 3. j. Other

grid. The framing at the top of a shaft for the pulley wheels or sheaves for the hoisting rope. C.T.D.

grid azimuth. The angle that any given line makes with the north-south grid line. It differs from the true azimuth (except at the central or initial meridian) by the amount of the convergence of the meridians. Seyele, 2.

grid distance. The plane distance between two points, as determined from the grid (x, y) coordinates. It may be greater or less than the corresponding ground distance. Seyele, 2.

gridiron twinning. See crossed twinning. Fay.

gridiron valve. A slide valve having many ports corresponding to ports in the seat.

gridaw. The framing at the top of a shaft for the pulley wheels or sheaves for the hoisting rope. C.T.D.

grid azimuth. The angle that any given line makes with the north-south grid line. It differs from the true azimuth (except at the central or initial meridian) by the amount of the convergence of the meridians. Seyele, 2.

griotte. A cistern or basin. Fay.

grinder. a. The act or process of continuing to drill after the bit or core barrel is blocked, thereby crushing and destroying any core that might have been obtained. Also called grinding. Long. b. To reduce to a powder by friction as in a mill. Webster 3d. c. To polish or dress metals by friction. Webster 3d. d. The size of particles obtained by grinding. Webster 3d.

grindability. a. The effect produced on representative pieces of ore by applying standard methods of comminution, assessed comparatively in terms of size reduction and power used. Pryor, 4. b. Grindability of coal, or the ease with which it may be ground fine enough for use as pulverized fuel. C.T.D., is a constant physical property embracing other specific properties, such as hardness, strength, tenacity, and fracture. Mitchell, p. 42. c. Relative ease of grinding, analogous to machinability. ASM Gloss.

grindability index. A measure of the grindability of a material under specified grinding conditions, expressed in terms of volume of ground ore per unit volume of wheel wear. ASM Gloss.

grinder. One or both that grind a material. 

grinding bench. A stone slab on which to grind.
grinding bench
fasten by plaster of Paris, in a level position, a plate of glass the upper surface of which is to be ground or polished. Standard, 1964.

grinding coolant. A liquid, usually water, but often emulsions of oil and water, used to prevent grinding temperature rise and friction between the grinding wheel and the work. Henderson.

ground. Shallow cracks formed in the surface of relatively hard materials because of excessive grinding heat or the high sensitivity of the material. See also grinding sensitivity. ASM Gloss.

grinding cycle. The sequence of operations in grinding a material, including, for example, the screening of the primary product and the recirculation of the screen oversize. P.R. 2555, 1962.

grinding fluid. Cutting fluid used in grinding. ASM Gloss.

grinding machine. Any machine on which a material is to be ground or polished. ACM T, 1963.

grinding media. The balls (generally porcelain) or other materials such as flint pebbles, used in a ball mill to grind frit into porcelain enamel. Bryant.

grinding mill. A machine for the wet or dry crushing of ore or other material. The three main types are the ball, rod, and tube mills. The mill consists of a rotating cylindrical drum and the ore enters one hollow truncated and the finished product leaves the other. Modern practice indicates ball mill feeds of one-half inch, three-quarters inch, and one inch for hard, medium, and soft ores respectively and the products range from 35 to 200 mesh and finer. See also open-circuit mill. Nelson.

grinding pan. Arrangement in which a heavy steel disk (the muller) bears as it rotates horizontally above a fixed wearing plate in a shallow cylindrical pan. Ore is fed centrally and discharged peripherally. Obsolescent, the main use being to amalgamate auriferous concentrates. Pryor, 3. See also dry pan.

grinding pebbles. Pebbles, usually of chert or quartz, used for grinding in mills, etc., where contamination with iron must be avoided. A.G.I.

grinding plate. a. A piece of steel or iron by the medium of which ore is ground against another smooth surface. Fay, b. A heavy cast-iron disk rotating on a vertical axis, used to grind or polish plates or similar objects. A.G.I.

grinding ratio. The ratio of the volumes of metal removed from the work and from the Abrasive material. ASTM E 1814. 1964.

grinding relief. A groove or recess located at the boundary of a metal surface to permit the corner of the wheel to overhang during grinding. ASM Gloss.


grinding sensitivity. Susceptibility of a metallic material to form grinding cracks; it can be affected by such factors as hardness, microstructure, hydrogen content, and residual stress. ASM Gloss.

grinding slip. a. A disk of olstone or whetstone; b. A hone. Standard, 1964. b. A shaped piece of olstone on which the curved sides of the cutting edges of tools may be rubbed for sharpening purposes. C.T.D.

grinding stress. Residual stress, generated by grinding, in the surface layer of a metallic material. It may be tensile, compressive, or a combination of both. ASM Gloss.

grinding vat. A mill for grinding flints or clay used in making porcelain. It is a form of the arrastre. Fay.

grinding wheel. A disk, or comparable symmetrical shape, of bonded abrasive material. The abrasive is either alumina or silicon carbide; the bond may be of the vitrified ceramic type, or it may consist of sodium silicate (here called a silicate bond), resin, rubber, or steel. A standard marking system for grinding wheels was adopted many years ago by the Grinding Wheel Manufacturers Association of America; in 1952, this system was also adopted in the United Kingdom as British Standard 1814. Dodd.


grindstone. A large, circular, revolving stone used for shaping tools and instruments. It is made from a tough sandstone of fine-grained material, with an angular grain. A.G.I. Supp. d. Sandstone with angular grains. A.G.I. Supp. Sandstone suitable for grindstones. A.G.I. Supp. f. in archeology, a noncommittal term for tempering material, used when the archeologist is unable to identify the material used or finds it essentially fine gravel. Sometimes referred to as a plastic or its by the French term, degraisant. ACSG, 1963.

gripr. A small tank for collecting debris. Ham.

grit collector. An adaptation of any of several types of conveyors used for removing heavy solids from settling tanks or basins. See also bucket elevator; flight conveyor; reciprocating flight conveyor; screw conveyor; V-bucket conveyor elevator. ASA MH-1-1958.

grit number. See mesh number, ACSG, 1963.

grit size. Nominal size of abrasive particles in a grinding wheel corresponding to the number of openings per linear inch in a screen through which the particles can just pass. Sometimes called grain size. ASM Gloss.

gritter. a. An implement for spreading surface dressing or nonslip grit over a road surface. Ham. b. In the stonework industry, one who smooths the rough-sawed or bed-rubbed surfaces of marble slabs or blocks on a gritting machine preparatory to polishing. Also called gritting machine operator. D.O.T.

gritting. The process of forming a smooth surface on blocks of marble, or other natural stones, by means of abrasive blocks known as rubbing blocks. Dodd, b. In quarrying, a process that gives a smoother surface than rubbing. It is accomplished with silicon carbide or other abrasive bricks attached to revolving buffer heads. AIME, p. 332.


grizzle. a. Eng. Inferior coal with an admix-
grizzly. Iron or steel bars used to sort or separate the rock ore as it falls into the chute. Ricketts.

grizzly. A guardrail or covering to protect those working. Miners are (1747) called grizzly; grizzly man; grizzly chute; live roll grizzly.

grizzly chute. A chute with a bar grizzly which separates the fine from the coarse material as it passes through the chute. "ASA MH4-1958."

gizzly, live roll. See live roll grizzly. "ASA MH4-1958."


gizzly worker. In metal mining, a laborer who works underwater at a grizzly (a grating constructed of heavy iron beams or timbers) over a chute or raise heading. Fay.

groove angle. The total included angle of the groove between parts to be joined. Also called mud furrow. See also drag mark; striation cast. Pettijohn.

grooved drum. Drum having a grooved surface to support and guide a rope. Ham.

groove face. The portion of a surface or surfaces of a member included in a groove. "ASA Gloss."


grooving. Rounding or chamfering; reaming; precision cutting of holes. See also groove cast; dress mark; slide mark. Pettijohn.

grooves. A term applied to any straight linear depressions in rocks. They may be continuous or discontinuous. Smith et al., 1943.


groovulite. A rare black, coarse-grained manganous carbonatite, occurring in some of the world's largest ore deposits. Osborn et al., 1854.

grout. A hydraulic cement used for grouting, ie. for cooling the metal. Nelson.

grout. A combination of materials and water, used to fill an excavation, especially an excavation in rock. Nelson.

grouting-in. The cutting and fitting of brick to fill into the volume common to two intersecting cylinders. Bureau of Mines Staff.

grotesque. A term loosely applied to anything representing a figure, zoomorphic, or anthropomorphic, which has a characteristically grotesque or fantastic quality. Nelson.

grotto. A small cavern or a cavernlike aperture in a rock wall. Nelson.

grotto. A small cavern or a cavernlike aperture in a rock wall. Nelson.

Gröndal separator. Early wet magnetic separator. Osborne.

groutability. The ability of a mixture of grout to fill an excavation, especially an excavation in rock. Nelson.

groutability. The ability of a mixture of grout to fill an excavation, especially an excavation in rock. Nelson.

"Grötz". A. 1864. "Mineralogisches journal."

Grötz. A term used in the German language for a stone or rock. Nelson.


groove. a. Derb. The place where a miner is working. Miners are (1747) called grizzly; grizzly man; grizzly chute; live roll grizzly.

groove. b. A device for the coarse screening of bulk materials. See also bar grizzly; grizzly chute; live roll grizzly.

groove. c. An additional groove, such as the spiral depression on a cylindrical object, such as the spiral depression on the surface of fluted core or the rifling of a gun barrel. Long.

groove (or fluting). A family of surfaces laid out on the surface of fluted core or the rifling of a gun barrel. Long.

groove (or fluting). A family of surfaces laid out on the surface of fluted core or the rifling of a gun barrel. Long.

groove. d. The cutting and fitting of brick with a stone apron at the end, to accumulate sand and silt on a beach, and to act as a breakwater. "Standard, 1964."

groove (or fluting). A family of surfaces laid out on the surface of fluted core or the rifling of a gun barrel. Long.

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ground. a. Any rock or rock material. Long. b. 1964, p. 19. Mines, any specific part of a mineral deposit, or the rock in which a mineral deposit occurs. Long. c. The mineral, in situ and the rocks in which it occurs, for example, payground, payable reef. barren ground, rock without value. d. Rock at the side of a body of country. Gordon. e. Commonly used in the United States to denote earth. C.T.D. I. A ground is a conducting medium, whether intentional or accidental, between an electrical circuit or equipment and either earth or some conducting body, serving in place of the earth. Also called earthed. C.T.D. 

ground. a. In marble working, the act or operation of subjecting a rock formation to pressure, either by dusting powder over an oiled surface or by the action of water. C.T.D. b. Rock wind. Fay. 

ground. coat. The initial coat of a porcelain enamel; bossm. A.R.I. 

ground coat. That part of an electric circuit as the earth, or metallic conductors provided by the area in square inches of the ground directly supporting a machine or apparatus referred to is provided with a ground. Also called earthing. ASA M2.1-1964. 


ground control. a. The regulation and final arresting of the closure of the walls of a stope area. Spalding, b. In photogrammetry, correlation of photographs taken from an airplane with points on the ground accurately fixed for latitude and longitude. Pryor, 3. c. See control. Steeye, 2. 

ground crab. See ground block. Fay. 

ground detector. A device, as in a central power house, to indicate where a ground connection, entailing loss of electricity, has taken place. Standard, 1964. 

grounded. a. Means that the system, circuit, or apparatus referred to is provided with a ground. Also called earthed. ASA M2.1-1964. 

grounded circuit. Electrical system earthed at key points to insure a common potential and eliminate danger to personnel. Pryor, 3. 

ground power conductor. An insulated or bare cable that constitutes one side of a power circuit and normally is connected to ground. It differs from a ground wire in that a grounded power conductor normally carries the load current while the equipment it serves is in operation. Bu-Mines. Geophysical Interpretation Manual, June 1966, pt. 3-18e, p. 53. 

ground fire clay. Fire clay or a mixture of fire clays that have been subjected to no treatment other than grinding or weathering, or both. ASTM C71-64. 

ground fire clay mortar. Fire clay fire clay for use as a refractory mortar in laying fire clay brick. A.R.I. 

ground. form. The crystalline form of any crystal system which is bounded by natural faces, all of which intersect the crystal axes. The ground form of the isotropic system is the octahedron. Hess. 

ground geophysical anomaly. A geophysical anomaly related to that is mapped instrumentally over the surface of the ground. Hawker, 2, p. 320. 

groundhog. See barney. Fay. 

groundhog kiln. Used for an art potter's kiln (usually fired with solid fuel) partly buried in a convenient hillside to support the roof and contain a heaped ground floor. Fay. 

ground ice. Spongy ice which sometimes forms on the bottom of either running or still waters. Standards, 1964, c. e. 

grounding. a. In mining, a grounding conductor is a metallic conductor used to connect the metal frame or enclosure of an equipment, device, or wiring system with a mine track or other effective grounding medium. The mine track is considered to be an effective grounding medium for direct current only. Also called ground conductor. Standard, 1964. 

grounding conductor. In mining, a grounding conductor is a metallic conductor used to connect the metal frame or enclosure of an equipment, device, or wiring system with a mine track or other effective grounding medium. The mine track is considered to be an effective grounding medium for direct current only. Also called ground conductor. Standard, 1964. 


ground layer. One who applies solid colors over glaze by dusting color on ware covered with a varnish. D.O.T. 1. 

ground lathing. a. In ceramics, the process of applying a coat of boiled oil to porcelain ware, to receive the colored enamel; bossing; grounding. Standard, 1964, b. Covering a surface with an even coat of color, usually by dusting powder over an oiled surface. C.T.D. 

ground magnetometer. A magnetometer primarily suitable for making observations of magnetic field intensity on the surface of the earth. A.G.I. 

grounded circuit. Electrical system earthed at key points to insure a common potential and eliminate danger to personnel. Pryor, 3. 

ground noise. Seismic disturbance of the ground not caused by the shot. Schieferdecker.
groundsel. Also spelled groundslill. Webster 3d.

groundshill. See groundsel.

groundwater. A layer of unconsolidated materials through which ground water can move and be replenished. Webster 3d.

grounder. A temporary pile or heavy equipment to support or sustain an anchor plate at its foot to receive a foundation bolt. Ham.

grouse. a. A temporary pile or other floating object in the stream to hold a drilling or dredging boat, or other floating object, in position. Long. b. A group of birds of the family Tetraonidae, see also winter grouse. Ham.

grouse, grouse. a. A variety of birds in the family Tetraonidae, see also winter grouse. Ham. b. A group of birds of the family Tetraonidae, see also winter grouse. Ham.

grout; grouting. a. The process of injecting a material into rock to prevent ground water from flowing into an excavation, to seal crevices in a dam foundation, or to consolidate and cement together rock fragments in a brecciated or fragmented formation. Also spelled grounding medium. Long. c. The act or process of injecting a grout into a rock formation through a borehole. Long. d. A cementitious component of high water-cement ratio, permitting it to be poured into spaces without forming quasi-walls. It consists of portland cement, lime, and aggregate, and is often formed by adding water and mixing it with cement. Also spelled ground zero. Long. e. A cementitious component of high water-cement ratio, permitting it to be poured into spaces without forming quasi-walls. It consists of portland cement, lime, and aggregate, and is often formed by adding water and mixing it with cement. Long. f. A cementitious component of high water-cement ratio, permitting it to be poured into spaces without forming quasi-walls. It consists of portland cement, lime, and aggregate, and is often formed by adding water and mixing it with cement. Long.

grouser. a. A temporary pile or heavy equipment to support or sustain an anchor plate at its foot to receive a foundation bolt. Ham.


groundwater. The water which permeates, saturates, and moves through the earth, filling their pores and fissures. Fay. That water of atmospheric origin which saturates rock openings beneath the water table. Batenan. c. See free water. ASC P1826. d. Water, whether or not below the water table; basal or bottom water; phreatic water. Used also in a broad sense to mean water free to move through the ground surface. Sneyd, 1.e. Water derived from wells or springs, not surface water from lakes or streams. ASTM STP No. 146-D.

groundwater discharge. The return of ground water to the surface. Fay.

groundwater divide. The crestline of a water table. On the opposite sides of this line, the water table slopes in opposite directions. Compare watershed. Fay.

groundwater elevation. Water free to move through the ground surface. Fay.

groundwater hydrology. The branch of the science of hydrology that treats of ground water, its occurrence and motions, its relationships and depletion; the properties of rocks that control ground water movement and storage; and methods of investigation and utilization of ground water. Stokes and Varnes, 1955.

groundwater level. The level below which in a given subconcealed depth, are full of water. Fay. Also called groundwater table; water table. Long. groundwater lowering. The process of lowering the water table; basal or bottom water; phreatic water, its occurrence and motions, its relationship with preparation for firing. ASC P1826.

groundwater sensitive. See sensitivity with which they can be detected. Groundwater is unique because it can be used to label the actual water molecule to be traced and is not chemically removed by the strata. Nelson.

groundwaves. Vibrations of soil or rock. Nichols. See also ground roll.

groundwater table. See groundwater level.

groundwater table; water table. Long. a. The water which permeates, saturates, and moves through the earth, filling their pores and fissures. Fay. That water of atmospheric origin which saturates rock openings beneath the water table. Batenan. c. See free water. ASC P1826. d. Water, whether or not below the water table; basal or bottom water; phreatic water. Used also in a broad sense to mean water free to move through the ground surface. Sneyd, 1.e. Water derived from wells or springs, not surface water from lakes or streams. ASTM STP No. 146-D.

gravels, gravel. A layer of unconsolidated materials through which ground water can move and be replenished. Webster 3d.


gravel bank. A deposit of unconsolidated materials through which ground water can move and be replenished. Webster 3d.

gravel channel. A channel or trough in the ground through which auriferous earth is sluiced for placer mining. Webster 3d.

gravel core. Core obtained by drilling into and through foundations or rock masses that have been injected and allowed to set. Long.

gravel curtain. An area into which grout has been injected to form a barrier around an excavation or under a dam through which ground water cannot percolate or flow. Long. A road constructed of coarse aggregate, having the voids filled with bituminous or cement grout. See also gravel core. Ham.

grout. a. In the stonework industry, a laborer who maintains the floors, equipment, machinery, and yard in a clean and unobstructed condition, using shovels, brooms, buckets, and wheelbarrows to collect and remove stone scraps, dirt, and debris to dump for disposal or to remove steel shot from under gangways and store it in suitable containers. Also called mucker. D.O.T. 1. b. See box loader. D.O.T. 1. c. A borehole drilled for the express purpose of using it as a means by which grout may be injected into the rock surrounding the borehole. Compare consolidation borehole and drift. See also rotary cave. Long. d. The act or process of injecting grout into crevices of a rock, usually through a borehole drilled into the rock to be grouted; also, the grout thus injected. Long.

grout. a. A base of given size, usually through a borehole drilled into the rock to be grouted; also, the grout thus injected. Long. b. A machine that mixes the dry ingredients for a grout in a dry and nonmoist condition, and transports it to the face of the excavation. See also rotary cave. Long.

grout box. A conical box formed of expanded metal, cast into concrete, and having an anchor plate at its foot to receive a foundation bolt. Ham.

grout hole. A borehole drilled for the express purpose of using it as a means by which grout may be injected into the rock surrounding the borehole. Compare consolidation borehole and drift. See also rotary cave. Long. 

grouting. The act or process of injecting grout into crevices of a rock, usually through a borehole drilled into the rock to be grouted; also, the grout thus injected. Long.

ground zero. The point on the surface of land or water vertically below or above the center of a burst of a nuclear weapon. L&L.
injected into a grout hole. The machine is essentially a closable cylindrical container, which may be held to hold the next cement slurry made with one bag of cement. The slurry is placed inside the container and the core of air or steam allowed to enter the top of the container forcing the slurry out of the bottom of the container through a quick-opening plug valve into the grout pipe and grout hole. The process is intermittent, requiring the refilling of the container after each batch of slurry had been ejected. Compare grout injector, L. Long. grout off. To seal off flow of water by grout injections, Long. grout pipe. A tube or pipe firmly anchored in the collar of a grout hole through which grout is injected into the hole. grout-pipe, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or tube, or pipe, or 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guard ring

ductivity apparatus designed to insure that heat shall flow, through the sample actually under test, in a direction perpendicular to the heat input. If the sample is cold, that is, if no heat flows through the sides of the test piece. Dodd.
guard tube. In chemical analysis one containing a suitable reagent for removing moisture, etc., from a sample which has been drawn into or is emanating from a reacting vessel. Pryor, 3.
guar. See orthoguanilurite; clinoquarzite.

**G**

guadalupite. A pale yellow, amorphous, nonresinous, oxygenated hydrocarbon, from near Guayaquil, Ecuador; it has the specific gravity 1.092, begins to fuse at 70°C, and is soluble in alcohol. Fay.
gubbins. Chunch or clod with ironstone nodules. Arkell.
gubble stone; gub. Eng. A rough, round stone which will not lie evenly in a wall or building. Variant of cobblestone. Arkell.
gucchini. A black, fusible substance resembling iron ore, which a bituminous shivery earth abounds. Arkell.
guided bend test. A test in which the specimen is bent to a definite shape by means of a jig. ASM Gloss.
guided bracket. A steel or iron bracket fixed at a bunton to secure rigid guides in a shaft. See also fixed guides. Nelson.
guided core. See dummy. Long.
guided coupling. A coupling with a projecting reamer guide or pup to which is attached a reaming bit. A guide coupling served to couple a reaming bit to a reaming barrel. Long.
guided bend test. A test in which the specimen is bent to a definite shape by means of a jig. ASM Gloss.
guided fan. A centrifugal fan, introduced about 1860, with 8 or 10 straight blades which are arranged radially. An important feature developed by Guibar and since adopted by others, is the expanding chimney, which is placed behind the impeller and reduces the velocity of the air as it leaves the fan. Nelson.
guide. a. See guide coupling. Long. b. A pulley to lead a driving belt or rope in a new direction or to keep it from leaving its desired direction. Long. c. The tracts that support and determine the path of a skidder and skid bucket barrel, ASA MH4-1958. d. The tracks that guide the chain or buckets of a bucket elevator. ASA MH4-1958. e. The runway or members paralleling the path of the conveyor which limits the conveyor or parts of a conveyor to movement in a defined path. ASA MH4-1958.
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guided core. See dummy. Long.
guide plate. Scot. A cast-iron plate containing the holes in a crossbeam through which rope guides are sometimes used. Pryor, 3. a. The holes in a crossbeam through which the stems of the stamps in a stamp mill rise and fall. Fay. d. Corn. Crossbeams in the St. Just district. Fay. e. A boring rod having an enlargement or wings fitted to it to suit the size of the borehole for steadying the rods when a considerable depth has been attained. Fay. f. In a steam engine, a crosshead guide. Standard, 1964. g. A pulley to lead a driving belt or rope in a new direction, or to keep it from leaving its desired direction. Standard, 1964. h. A curved plate directing a sheet of water against the buckets of a water wheel. Standard, 1964. i. In a rolling mill, a wedge-shaped piece held in the groove of a roll to prevent the sticking of the work. Fay. j. It is called a hanging guide. Wane. k. The guide is held by a hanger or counterweight against the underside of the shroud. Standard, 1964. l. It is called a swinging guide. Wane.
guiding bed. A thin layer of coal or carbonaceous shale which continues into the barren ground where a fault or nip-out has occurred in a coal seam. The layer may be extended to the position of the displaced seam. See also coal leads. Nelson.
guiding core. A dark chestnut-brown hydrous sulfide of copper, iron, and aluminum, [CuFe]0.2[FeAl]0.5O1.7SO1.17H10.0. Habit, cubic; monoclinic. From Jerome, Ariz. Eng. fish.
guiding core. A. A machine for breaking iron with a driven bit. Nichols.
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gulch claim

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gum. a. See gumnings. Nelson. b. Small coal broken out by a coal cutter. Also called gunning. c. Used as a cutting agent. ship. Ship. In addition with a cutting bar of iron for connecting a horse's harness. Also called a bent bar of iron for connecting a horse's

gum boat brigade. Itinerant miners who bartered gum boots for liquor. Is. 
gumboot. a. The small coal or dirt produced by the picks of a coal cutter. Also called a bootleg or Jogn O'dges. See gumnings. b. N. Staff. The moving and cracking of overlying strata in a coal mine. C.T.D.
gumbo. a. A name current in the Western and Southern States for those soils that yield a sticky mud when wet. Fay. b. In southwestern Missouri, a puttylike clay associated with lead and zinc deposits. Fay. c. In Texas, a clay encountered in drilling for oil and sulfur. Fay. d. The stratified portion of the lower till of the Mississippi Valley. Fay.
gumbo clay. a. Fine-grained clays which are very sticky and breaking with a puttylike consistency. May be used as a proveing agent and in making tanks watertight. Bennett 2d, 1962.
gumbellte. A variety of hydromuscovite. Dana 6d, p. 692.
gumble. A variety of hydromuscovite. Dana 6d, p. 692.
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guniting

and the fresh surface then sprayed by means of a cement gun. A wire netting coil is placed against the ground which becomes embedded in the concrete. See also Allia concrete sprayer. Nelson. b. The treatment of timber with water, cement and sand sprayed from a cement gun. Expanded metal lath or chicken wire is first nailed to the timber before the grout of cements is applied. As a protection against decay, guniting is effective only as long as the coating of cement remains unbroken and covers the entire surface of the timber. Lewis, p. 71.

gunk. a. Used by some drillers as a synonym for red dope; red grease. Long. b. Any gummy substance that collects inside the working parts and hinders the operation of a machine or other mechanical apparatus. Long. c. A slang term denoting an undesirable nondescript material usually semiliquid. NRC-ASA NL-1957.

gunmetal. A copper-tin alloy (that is, bronze) containing 88 percent copper, 10 percent tin, and 2 percent zinc (usually gunmetal); or 88 percent copper, 8 percent tin, and 4 percent zinc. Lead and nickel are frequently added, and the alloys are used where resistance to corrosion or wear is required; for example, in bearings, steampipe fittings, etc. C.T.D.

gunmetal pipe. a. The variety of so-called black pearl; the color and luster of which resembles polished gunmetal. Shipley. b. A gunmetal pipe or tube of such a pearl. A mimanometer. Shipley.

gunflint. a. A mineral, (Fe,Al)O3. 10 (H2O), in a group of minerals (hydrated aluminides) that, because of its black color, is used in jewelry and as a gem. Predominately black, as black micaceous platelets in basilite; from east Greenland. Spencer 19, M.M., 1952. b. A piece of slate used for roofing. American Mineralogist, v. 42, No. 11-12, November-December 1957, p. 920.

gun-iron. The name of a piece of iron which has been cast. Fay. gunner. A Kansas term for a blown-out shot. Fay.

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gunpowder. Black, blackpowder. A mixture of potassium nitrate (saltpeter), sulfur, and charcoal in varying proportions. A typical composition: 70 to 75 percent saltpeter, 10 to 20 percent sulfur, and 10 to 15 percent charcoal. It is designated according to grain size: Mealed; superfine grain (FG); fine grain (FG); large or course grain (LG); large grain for rifles (RLG); and mammoth. CCD 6d, 1961.


gunpowder, white, white powder. A mixture of potassium nitrate (saltpeter), large part potassium ferrocyanide, and 1 part sugar. CCD 6d, 1961.

gun sampling. See pipe sampling. Truscott, p. 149.

Gunter's chain. A chain that is 66 feet in length and divided into 100 links. Each 7.92 inches long. It is built up of 100 lengths of iron or steel wire (Nos. 8-12 standard wire gage), each looped and ends joined together by three oval rings. This gives flexibility to the chain. Swivels are introduced at the brass handles and sometimes in the middle to eliminate twisting. The chain is convenient to handle, and its length is a basic unit for the following measurements of length and area: 1 chain equals 22 yards; 10 chains equal 1 furlong; 80 chains equal 1 mile; 360 feet equal 1 chain. Mason, v. 2, p. 712.

gur. A potable white liquor found in iron ore mines. American Mineralogist, v. 42, No. 11-12, November-December 1957, p. 920.


gutter. Oil well with a strong natural outflow; a geyser. Pryor, 3.


gussen. A V-shaped cut in the face of a head or a heading. C.T.D.

Gusto multiplough. A number of small ploughs attached to a rope or chain which cut backward and forward on the face. They operate in conjunction with an armored conveyer. See also multiplough. Nelson.

Gusto scraper box. An arrangement of scraper boxes with cutting knives attached to the face side. See also scraper box plough. Nelson.

Guy rope. A flat-topped submarine mountain rising from the floor of the ocean like a volcano but planed off on top and covered by an appreciable depth of water. Leet.

Guy rope. a. Galvanized rope consisting of 6 strands, 7 wires each, and a hemp core. HBG, p. 109, b. A rope holding a structure in a desired position. C.T.D. See guy rope.
gypsum rope


guy wire. See guy. Long.
guy-wire slide. A mechanism attached to a guy wire, gusset, rod, or timber so that a person can grasp and slide to safety in an emergency. Long.

Guy wires are a method of calculation for compounds slips and glazes, the V-value being the grams of suspended solids per cubic meter of suspension. \( G = \frac{SP}{100} \), where \( S \) is the specific gravity of the suspension, and \( P \) is the percentage of solids in the suspension. Dodd.

GVC Abbreviation for glazed vitrified clay; term applied to glazed clay pipes. Dodd.

gweyon. See guy-wire slide. Webster 2d.
gwythyn. S. Wales. A mineral vein or seam.

Guy. See gyroscope.

gyration. a. More or less eccentric, as in certain rock crushers. Von Bernoulli. b. A widely used form of coffee mill. It consists of a hollow cone. C.T.D.

gyrosopic. See gyroscopic.

gyrosopic compass; meridian indicator. An instrument that is actuated by a rapidly rotating mass, one whose axle is constrained by the earth's gravitational field. This instrument has been developed in its most precise form for application to mine orientation and borehole surveying. B.S. 3618, 1953, sec. 1.

gyroscopic clinograph method. A method for measuring borehole deviation which photographs the time, temperature, and direction from the vertical on 16 millimeter film and can take one thousand readings descending then ascending the hole as a check. The gyrooscope maintains the casing on a fixed bearing. Sinclair, II, p. 243.

gyroscope. See gyroscopic.


gypsum. A naturally occurring mineral consisting essentially of calcium sulfate for use in making interior embellishments, cornices, as gauging plaster, etc. ASTM C11-60.

gypsum concrete. A material consisting essentially of calcined gypsum for use in making interior embellishments, cornices, as gauging plaster, etc. ASTM C11-60.

gypsum fiber concrete. Gypsum concrete in which the aggregate consists of short wood fiber, or chips of wood. ASTM C11-60.

gypsum flower. Curved; twisted crystal growths of gypsum resembling flowers. A.G.I.

gypsum formboard. A sheet or slab having an incombustible core, essentially gypsum, surfaced with paper suitable to receive gypsum plaster. ASTM C11-60.

gypsum mold. A material consisting essentially of calcined gypsum for use in making interior embellishments, cornices, as gauging plaster, etc. ASTM C11-60.

gypsum plaster. See gypsum cement. CCD 6d, 1961.

gypsum plate. In microscopic examination with polarized light, a transparent plate used to produce a purple interference effect. Pryor, 3.

gypsum sheathing board. A sheet or slab having an incombustible core, essentially gypsum, surfaced with water-repellent paper. ASTM C11-60.

gypsum wallboard. A sheet or slab having an incombustible core, essentially gypsum, surfaced with paper suitable to receive gypsum plaster. ASTM C11-60.

gypsum wedge. A thin, wedge-shaped piece of selenite. C.T.D.

gypseal; castable. A capstone which.

gyrophore. Heavy-duty fixed path cone crusher; a variant from the standard cone crusher. See also Symons crusher. Pryor, 3.

gyratory. a. More or less eccentric, as in certain rock crushers. Von Bernoulli. b. A widely used form of coffee mill. It consists of a hollow cone. C.T.D.

gyratory breaker; gyratory crusher. A primary breaker built on the principle of the old-fashioned coffee mill. It consists of a vertical spindle, the foot of which is mounted in an eccentric bearing within a conical shell. The top carries a conical crushing head revolving eccentrically in a conical shell. There are two types of gyratory —those which have the greatest movement on the smallest lump, those that have equal movement on all lumps, and those that have greatest movement on the largest lump. Liddell 2d, p. 536.

gyroscopic. a. A compass that is actuated by a rapidly spinning rotor which tends to place itself in a fixed position. This instrument has been developed in its most precise form for application to mine orientation and borehole surveying. B.S. 3618, 1953, sec. 1.

gyroscopic-cilioograph method. A method for measuring borehole deviation which photographs the time, temperature, and direction from the vertical on 16 millimeter film and can take one thousand readings descending then ascending the hole as a check. The gyrooscope maintains the casing on a fixed bearing. Sinclair, II, p. 243.

gyropole. See gyroscopic.


of heat transfer; heat-flow rate per unit area, per degree, across a boundary surface. Zimmermann, p. 147, 136, 366. A as a subscript. Symbol for head in hydraulics: Zimmerman, p. 137, 163. Symbol for depth. Zimmermann, p. 153. Symbol for thickness. Zins, p. 184. Symbol for one of the Miller indexes (h, k, l). Zimmermann, p. 158. With subscripts 1, 2, and 3, the symbols for the Bragg reflection indexes (h1, k1, l1), which expressed in terms of the Miller indexes (h, k, l) are "h1 = h/n1, k1 = k/n1, and l1 = l/n1. Symbol for hydrogen 2 (deuterium) are "/2. Symbol for the atomic mass of hydrogen. The symbol for various kinds of head in hydraulics. Zimmerman, pp. 153, 158. Symbol for head in hydrodynamics; with various subscripts, the symbol for various kinds of heads in hydraulics. Zimmerman, p. 157.


H c. Symbol for enthalpy (heat content); enthalpy per mole; total heat; total enthalpy; enthalpy per mole of water vapor; unit of heat content for any weight; total heat. Zimmermann, p. 53. e. Abbreviation for humidity. Zimmerman, p. 54. g. Abbreviation for irradiance; irradiance; radiative flux density. Zimmermann, p. 158, 190.

h Abbreviation for hectare (100 acres). Zimmermann, p. 59.

HA Abbreviation for high angle; hot air.

hour angle. Webster 3d.

Haakeel depth rule. A rule of thumb for estimating the depth of the image of a body, valid if the body may be regarded as magnetically equivalent to a single pole. The depth of such a pole is defined as the horizontal distance from the point of maximum vertical magnetic intensity to the points where the intensity is one-third of the maximum intensity. Zimmermann, pp. 153, 158, 159. Symbol for head in hydrodynamics; with various subscripts, the symbol for various kinds of heads in hydraulics. Zimmerman, p. 157.

Haarman plough. See scraper box plough. Nelson.


Henry's law constant is facilitated by water under pressure which is forced down the tubes to wash away the loose material from underneath their points. Nelson.


H-b. In crystallography, the characteristic form, as determined by the faces developed on a Haber system. A system of shaft sinking for the purpose of fusing tungsten filaments, and primarily for the recovery of tungsten from its compounds. Zimmermann, pp. 153, 158, 159. Symbol for head in hydrodynamics; with various subscripts, the symbol for various kinds of heads in hydraulics. Zimmerman, p. 157.

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H d. Abbreviation for hectare (100 acres). Zimmermann, p. 59.

h Abbreviation for high angle; hot air.
Hafnium (Hf).

Hafnium carbide. HfC; isomctric; HfN; molecular weight, 192.50; melting point, 3,890° C. It is the most refractory of all known metal nitrides. Handbook of Chemistry and Physics, 54th ed., 1964, p. B-176.

Hafnium oxide; hafnium dioxide; hafnula. White; isometric; HfO2; molecular weight, 180.17; specific gravity, 10.98 (at 20° C); melting point, 4,500° C; boiling point, about 5,000° C; and insoluble in water. Handbook of Chemistry and Physics, 54th ed., 1964, p. B-176. In commercial hafnium oxide is beneficial because of its lower thermal expansion, its higher index of refraction, its temperature stability, and its smaller volume change during inversion. Lee.

Hafnium silicate. A complex compound analogous to zirconium silicate, the suggested name hafnon. It can be synthesized from the oxides or nitrides and used to produce monocrystalline hafnium. Dodd.

Hafnium nitride; hafnium nitride. A white, dense, isomctric, nonmetallic solid. Commercially produced by the reaction of hafnium metal with nitrogen gas at high temperatures. Dodd.


Haidingerite. A colorless mineral forming thin, closely packed, parallel plates. Usually found in crusts with the ore. The Vall' Alta area of Chile is probably the best known locality. Fay.

Hailstone bort. Variety of bort built up of layers with the ore. The Vall' Alta area of Chile is probably the best known locality. Fay.

Hair crystal. Same as hairstone. Skow.

Hairmelt. A colorless mineral forming a series of beds of great thickness and varying lithological character, overlying the crystalline schists, and underlying the Lower Silurian, in the Himalayan Mountains. Fay.


Hair copper. See chalcocite. Shipley.

Hairline. a. Fine cord on the surface of glassware. See also air line. Dodd. b. A fault or fracture seen in vitreous enamelware. The hairlines are a series of fine cracks that have healed in the later firings (therefore differing from crazing). The cause is excessive stress in the enamel. Dodd. c. A line of separation sometimes found near center of thick ceramic ware that has been shaped by solid casting. Dodd.

Hairline cracks. Minute, irregular cracks that are barely noticeable until the object is split into films, resulting in production of torn films. Skow.

Hair mica. The accumulation of slivers of mica formed by ruling into very narrow ribbons. Skow.

Hairpin furnace. U-type furnace. Hairpin furnaces are used in vitreous enamelware. Webster 3d.

Hair salt. a. Epsomite when in thin, fibrous crystals in vitreous enamelware. Webster 3d. b. Syenite names applied to Glasses containing large quantities of sodium and magnesium. Webster 3d.

Hair zeolite. Quartz thickly penetrated with hairlike crystals of rutile, actinolite, or other mineral. Webster 3d.


Hair. a. A hair made to dry in the course of manufacture. C.T.D.

Hairfruit. The German term for semimulass or vitrifusain. Tomkeiell, 1954.


Half-and-half. Solder made of equal parts of lead and tin. Webster 3d.

Half-and-half plane; half-end half-plane. Scot. In a direction midway between plane course and end course. See also half-course. Fay.

Half ball. Eng. A mine prop cut into halves longitudinally. See also ball, b. Fay.

Half-bolt. A building block of half the normal length; also called a map-header. Dodd.

Half-headers. Term applied to material that amounts to a large cap piece. They are used by tawing a header in two and placing one or more timbers under the half header on the same side of the chambers. The timbers are generally placed under the half header and the end allowed to extend out over the header. The term half header should not be applied to regular cap pieces. Kentucky, p. 140.

Half priceless. Fay. same as break faces. c. Fay.

Half-finish. The first cover coat of enamel in a two cover coat system. Bryant.

Half-header. Term applied to material that amounts to a large cap piece. They are used by tawing a header in two and placing one or more timbers under the half header on the same side of the chambers. The timbers are generally placed under the half header and the end allowed to extend out over the header. The term half header should not be applied to regular cap pieces. Kentucky, p. 140.

Half life, biological. The time in which one-half of the atoms in a radioactive substance disintegrate. Half-lives range from millionths of a second to billions of years. L&L b. The time in which the quantity of a radioactive isotope is reduced to one-half of its initial value. NRC-ASA N1.1-1957.

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Half-light. a. A mineral, white, or colorless, commonly found in crusts with the ore. The Vall' Alta area of Chile is probably the best known locality. Fay.

Half-lattice girder. See Warren girder. Ham.

Half-life, radioactive. The time in which one-half of the atoms in a radioactive substance disintegrate. Half-lives range from millionths of a second to billions of years. L&L b. The time in which the quantity of a radioactive isotope is reduced to one-half of its initial value. NRC-ASA N1.1-1957.


Half-period. See half-life. Pryor 3.

Half-plait. Dipping or raising 18 inches to the yard. Fay.

Half-round nose. See medium-round nose.

Half set. In mine timbering one leg piece and a collar. Fay.

Half-socket pipe. A subsoil drain placed to the side and sufficiently close to the header, which enters, makes a 180° turn and enters the header. Fay.


Half-cell. An electrode immersed in a suitable electrolyte, designed for measurements of electrode potential. A.S.M.

Half-course. A drift or opening driven at an angle of about 45° to the strike and in the plane of the seam. Fay.

Half-edged seams. Scot. Highly inclined seams; seams lying at the inclination of 1 in 1. Fay.


Half faceting. Same as break faces; cross facets. See also girdle facets. Shipley.

Half-finish. The first cover coat of enamel in a two cover coat system. Bryant.

Half headers. Term applied to material that amounts to a large cap piece. They are used by tawing a header in two and placing one or more timbers under the half header on the same side of the chambers. The timbers are generally placed under the half header and the end allowed to extend out over the header. The term half header should not be applied to regular cap pieces. Kentucky, p. 140.

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half-trimmed mica

half-trimmed mica is a term used in mining and mineralogy. It refers to mica that has been trimmed on one side and left as a half-trimmed mica. This type of mica is often used in various applications due to its unique properties.

halismite

Halismite is a term used in geology. It refers to a mineral that is a member of the halite family. It is typically found in salt deposits and is known for its white to gray appearance.

halite

Halite is the mineral form of sodium chloride, commonly known as table salt. It is a white, tasteless, and odorless solid substance. Halite is one of the most abundant rock salt deposits on Earth and is used extensively in various applications.

halogen

Halogen is a term used in chemistry to describe a group of nonmetallic chemical elements. It includes fluorine, chlorine, bromine, and iodine. These elements are characterized by their ability to form compounds with other elements.

halogenite

Halogenite is a term used in geology. It refers to a mineral that is a member of the halite family. It is typically found in salt deposits and is known for its white to gray appearance.

halogenpyroasaphite

Halogenpyroasaphite is a term used in mineralogy. It refers to a mineral that is a member of the pyroasaphite family. It is typically found in various deposits and is known for its unique properties.

halogens

Halogens are a group of nonmetallic chemical elements that include fluorine, chlorine, bromine, and iodine. They are highly reactive and are used widely in various applications due to their unique properties.

halo

Halo is a term used in geology. It refers to a mineral that is a member of the halite family. It is typically found in salt deposits and is known for its white to gray appearance.

halocephalus

Halocephalus is a term used in ichthyology. It refers to a genus of fish that are typically found in the open ocean. They are known for their unique anatomy and are often studied for their biological properties.

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Halocephalus is a term used in ichthyology. It refers to a genus of fish that are typically found in the open ocean. They are known for their unique anatomy and are often studied for their biological properties.

halofauna

Halofauna is a term used in ecology. It refers to the study of organisms that are adapted to living in environments with high salt concentrations, such as salt marshes and estuaries.

halolife

Halolife is a term used in biology. It refers to the study of organisms that are adapted to living in environments with high salt concentrations, such as salt marshes and estuaries.

hall furnace

Hall furnace is a term used in metallurgy. It refers to a type of furnace that is used for the production of iron and steel. The furnace is named after its inventor, Dr. William Siemens.

hallingleyite

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hammer

liquid or gas flowing through a pipe system. Long.

hammer and plate. A signaling apparatus. A

hammer beam. a. A short beam projecting laterally from the inside of a wall, and serving as a support for the beam. Standard. 3rd ed.

A short cantilever beam projecting into a room or hall from the springing level of the roof, strength to be a cover of the roof. C.T.D.

hammer. An impact type of breaker

hammer dam. To dress or face (stone) with hammer breaker. An impact type of breaker

hammer head. A short beam projecting into a room or hall from the springing level of the roof. C.T.D.

hammer drill. a. A light, mobile, and fast-cutting drill in which the bit does not recirculate but remains against the rock in the bottom of the hole, rebounding slightly at each blow. There are three types of hammer drills: drifter, sinker, and stopper.

Leeds, p. 866. b. A development of the piston drill in which the drill bit is not attached to the piston but remains in the hole, the piston delivering a rapid succession of light hammer blows. The drill is frequently hollow so that air or water may be driven through to cool the bit and clean the hole. Rotation of the bit is automatic. Also known as jackhammer. Barker. C. A percussion drill. B.S. 3618, 1964, sec. 6. c. A rock drill powered by compressed air which recirculates a free particle to strike the shank of the drill bit. When of light construction, a hand hammer drill, otherwise supported on a tripod or bar. Pryor, 3.

hammer drop. The measured distance a drive hammer is dropped when driving a dry or drive-sample barrel in soil or foundation-testing operations. Long.

hammer forging. Forging in which the work is deformed by repeated blows. Compare press forging. ASM Gloss.

hammer-harden. To harden, as a metal, by hammering it while cold. Webster 2d.

hammer metal sheet iron. Also, deshaped sheet either over a form or on a hammer-refined. Designating steel, the grain of which has been made finer and closer by heavy hammering followed by lighter and quicker blows at the finishing. Long.

hammer scale. A scale that forms on heated metal when it is hammered. Webster 3d.

hammer slag. Anvil dross. Webster 2d.

hammer weight. The weight of a drive hammer, in pounds, used in driving a dry-drive-sample barrel in sampling formations in soil and foundation-testing work. Long.

hammer welding. Forge welding by hammering. ASM Gloss.


hammer-phase. A stone, the appearance of which suggests sand-veined with gold, perhaps mottled Jasper. Webster 2d.

hammerack. A structure relating to two systems of veins intersecting at an acute angle. Schiffldecker.

hammerpipe. Serpentine pseudomorphs after olivine found at Chester, Mass. The original crystals have been described as quartz and humite, and the replacement mineral as steatite.

hammerite. A fine-grained, lamprophyric igneous dike rock that is dark violet-gray, with prominent black phenocrysts of mica in a groundmass of mica, feldspar laths, and a little quartz. Johansen, v. 1, 2d, 1939, p. 285.

hand coal. Term used in South Wales for a variety of cango coal. Tomkieff, 1954.

hand coal. Some coal containing with gold. Long.


hand-end. A screw nail or similar tool used to form the surface of compacted concrete, and which may be fitted with a vibrator. Ham.

hand frame. An iron barrow used in a foundry. Fay.


hand hammer. Any hammer wielded by hand. A blacksmith or miner's hammer used with one hand as distinguished from a heavier hammer, or sledge. Fay.

hand holding. To hold a bar in the hand and not mounted on a bar or column. The air leg support is now widely used in tunnels and rock drilling operations. Fay.

hand hole. A small hole, closed by a removable lid. Fay.

hand hole. The useable rough sheet mica that remains after all adhering rock, dirt, and defective mica have been removed from the books. Also known as cobbed mica. Skow.

hand dog. Eng. A kind of spanner or wrench for screwing up, or disconnecting, the joints of boiling rods at the surface. Fay.

hand-dug wells. The earliest known method of extracting petroleum was by means of pits dug by hand labor. The usual method was to dig a few feet and then allow the oil to collect at the bottom, whence it was subsequently collected by means of a suitable vessel. The deepest of these wells rarely exceeded 50 feet. Fay.

hand electric lamp. A hand lamp, with battery and fittings similar to a cap lamp except that it forms a self-contained unit. Nor.

hand face. The descent into a mine by ladders. Fay.

hand feed. A drill machine in which the rate at which the bit is made to penetrate the rock is controlled by a hand-operated ratchet and lever or a hand-turned wheel meshing with a screw mechanism. Long.

hand-fill. Eng. To separate the small from the large coal in the mine, the latter being filled by the hand into the car, and the former thrown to the side of the working place, or filled separately as required. Pryor, 3.

hand-filled coal. Scot. Lump coal which the miner loads by hand. Fay.

hand drilling. A barrow coal from face by hand. Pryor, 3. b. Eng. Loading coal from face by hand, but small coals are loaded separately from large lumps. Pryor, 3.

hand finisher. A screw rail or similar tool used to form the surface of compacted concrete, and which may be fitted with a vibrator. Ham.

hand frame. An iron barrow used in a foundry. Fay.


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hand hole. A small hole, closed by a removable lid. Fay.
handhole

able cover, in the side of a pressure vessel or tank; it provides means of access for the hand to the inside of the vessel.

C.D.


handlamp, electric. A portable battery-powered lamp incorporating a tungsten filament light source within a glass of clear dome or well-glass type and providing maximum illumination in the horizontal plane. -B.S. 3618, 1965, sec. 7.

hand lamp, miner's. See miner's hand lamp.

hand level. A lead weight attached to a hand lamp, miner's. See miner's hand lamp.

hand leveling. Equipment for the mechanical movement of dirt, ore, coal, or other material either horizontally or upward, by some form of conveyor, bucket, chain, or rope. Nelson.

hand leveler. A miner who loads coal by machine. B.C.I.

hand loupe. See loupe. Shipley.

handmade brick. Brick shaped in wooden molds from a soft plastic mix; (that is, too mix when too large for the workman's hand, softer, and takes less pressure to form as compared to extruded brick). See also molded brick. Bureau of Mines Staff.

hand method. Molding bricks by hand. Member, 4th, p. 261.


handpicked coal. Coal from which all stones and inferior coal have been picked out by hand; large lumps. Fay.


handpick sampling. Manual removal of selected fraction of coarse run-of-mine ore, usually performed on picking belts (conveyors) after screening away small material, perhaps washing off obscure dirt, and crushing pieces too large for the worker to handle. Hard sorting (Hand) describes picking of bucket when up to 30 percent of waste rock is removed. Pryor, 3.


hand pulled. See hand hoisting. Long.

hand putting. The pushing of tubs or trams by hand. This practice is now obsolete except in small mines or in an emergency. See also tramming. Nelson.

hand reel. A solid brick which is partially dried after molding, then pressed in a hand operated press. Bureau of Mines Staff.

hand rope. Flexible rope consisting of 6 ropes, each composed of 6 strands, 7 wires each, and 7 heads in total. Fay.

hand sampling. a. In prospecting, valuation and control, use of manual methods for detachment and reducing to an appropriate size representative samples of ore. Pryor, 3.

b. One of the major breakdowns in ore sampling that includes grab sampling, trench or channel sampling, fractional selection, coning and quartering, and pipe sampling. These methods are used in sampling small batches of ore, etc. Compare mechanical sampling. Newton, p. 28-29.

handsaw. An ordinary one-handed saw, either rip or cross-cut, used by woodworkers. Crippin.


hand selection. The selection by hand of pieces of coal with certain specific qualities according to surface appearance. B.S. 3552, 1962.

handset. A bit in which the diamonds are set toward and tightly cinched into place by pulling or drawing the metal towards and tightly cinching the diamond by pinning. The entire operation is by hand and rapidly is becoming a seldom-practiced art as the hand method is almost completely superseded by so-called mechanical setting methods. Long.

handspraying. A method of dust prevention used in hand-won faces, or in conjunction with wet cutting in thick seams. The sprays are controlled by the miner who wet the face and the broken coal before loading. Sprays must be used. Fay.

hand sprayer. A manually directed sprayer for spreading road binder, working under pressure produced by hand or power-operating plants, a jack-of-all-trades, as a rigger, millwright, and machinist combined. A man employed to do various kinds of work. Fay.

hang. A. To suspend drill string or other downhole equipment in the drill derrick or trip either on the hoisting line or on hooks provided in the crown block for that purpose. Long. b. To suspend casing or pipe in a borehole. Fay.

hangale. A piece of rock trimmed toward and tightly cinched into place by pulling or drawing the metal towards and tightly cinching the diamond by pinning. The entire operation is by hand and rapidly is becoming a seldom-practiced art as the hand method is almost completely superseded by so-called mechanical setting methods. Long.

hangar. A brick having a cut-out to fit over a hanger, in a suspended roof, or sectionally supported wall. Bureau of Mines Staff.


hanger brick. A brick having a cut-out to fit over a hanger, in a suspended roof, or sectionally supported wall. Bureau of Mines Staff.

hangerman. A. A man who attaches or detaches the tubs or trams on an endless-roped haulage in a coal mine. Fay. b. A hangerman who Developer a similar task at the shaft bottom. Fay. c. Also clipper, C.T.D. b. Eng. The man who runs the full trams upon the cages and gives the operator the brist. See also cage. Fay. c. One of the major breakdowns in ore sampling that includes grab sampling, trench or channel sampling, fractional selection, coning and quartering, and pipe sampling. These methods are used in sampling small batches of ore, etc. Compare mechanical sampling. Newton, p. 28-29.

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hanging coal. A portion of the coal seam which, by under cutting, has had its natural support removed. Foy.

hanging core. Core supported by a wire hanger that is imbedded in the core. Hanging cores are used to avoid a deep lift for the cope. Crispin.

hanging drat. Aust. Planks used to suspend a lower course of ore above the one above it, in cases where backing decks are necessary. Foy.

hanging glacier. A glacier of small size on so steep a slope that the ice breaks off and falls from its lower end. Foy.

hanging guide. See guides, 1. Foy.

hanging wire. Scot. The bucket failing to pump on account of a faulty valve, or air between the bucket and the valve, the column of water above the bucket being insufficient to prevent the opening of the bucket lugs, is said to hang its water. Foy.

hanging leaders. A steel frame suspended from the pivot at the top of the crane or excavator jib, used to guide a driven pile. See also false leaders. Ham.

hanging load. a. The weight that can be suspended on a hoist line or hook device in a drill tripod or derrick without causing the machine to tip over, or trip or tipped to buckle. Long. b. The weight suspended or supported by a bearing, as the weight of the inner tube and contained core suspended by the bearing in the core-barrel head. Long.

hanging wall. The upper side of a mineal vein or deposit. Pryor, 3. c. The upper side of an inclined vein. It is a lip that is imbedded, in the core. Haras.


hard bottom. A condition encountered in some open-cut mines wherein the roof occurs and will not be broken down to grade because of an extra-hard streak of ground or because not enough powder is used. It interferes with work and puts undue strain on a shovel. Such unbroken ores are usually drilled with a jackhammer or blasted. Bucklin Bull. 433, 1941, p. 129.

hard brass. Brass which has not been annealed after drawing or rolling; used for springs, etc. Crispin.

hard burned lime. A quicklime that is calcined at high temperature and is characterized by relatively high density and moderate to low chemical reactivity. Boynton.

hard chrome. Chromium deposited for engineering purposes, such as increasing the wear resistance of sliding metal surfaces, rather than as a decorative coating. It is usually applied directly to basis metal and is customarily thicker than that deposited by electroplating. ASM Gloss.

hard coal. All coal of higher rank than lignite. In the United States, the term is restricted to anthracite. R.S. 3223, 1962.

hard coal pack. Westfalla pack. A plough type of cutter loader for cutting the harder coal seam and consisting of hardened kerfing bits which punch the coal, leaving the unstrressed coal to be cut by the following bits. The kerfing bits may be either a single or a double row. See also rapid plough. Nelson.

hardcore. Broken hard stone, brick, clincker,
hard-core. a. A layer of hard, abrasive-re-
stant metal applied to a less abrasive-
stant metal part by plating, welding, or other techniques. See also dress-
face. b. The crystal face of a diamond lying parallel or nearly so with a hard vector plane of the crystal. Long.

hard-drawn. a. Temper of copper or copper-
loy tubing drawn in excess of 25
percent reduction in area. ASM Gloss. b. Drawn while cold; said of wire. Fay.

hard-drawn wire. Wire which is cold-drawn from mild steel, and which has a tensile
strength of 37 to 42 tons per square inch. Tapp.

hardened. A phase or type of unaltered
kimberlite which occurs occasionally in the blue ground. It resists disintegration even when exposed to the atmosphere for as long as 50 years, whereas normal blue ground disintegrates in 12 months. I.C. 8200, 1964, p. 31.

hardening. As applicable to a ferrous al-
loy, the property that determines the depth and distribution of hardness that may be induced by quenching. The standard test for hardenability is the Jominy
hard test. Henderson.

hardener. Slang term for a safety hat. B.C.I.

hardening kiln. A kiln in which, in the
transfer printing process, unfinished pot-
tery is treated高温, or is ground for 60 revolutions. Fay.

hardening media. Liquids into which steel
is plunged in hardening. They include cold water, various oils, and water con-
taining sodium chloride or hydroxide to increase the cooling power. C.T.D.

hardening on. Heating of underglaze-decor-
at ed ware at 600° C to burn off the
mixture of liquid and finally divided
solids. The solids settle out on the bot-
tom of the thickener tank as a sludge
and finishing with a steep cone leading
to the discharge trunnion. The tricone
mill has wedge-shaped liners in the drum
section which turn this into a gentle conic
shape, or is scratched by other minerals in a series
range of hardness and set side by side in cement, for testing
whether the specimen under test scratches
the like. May be designated according to
the article hardened or quenching solu-
tion used, as gear hardener or waterman.

hardener. a. An alloy, rich in one or more
alloying elements, added to a melt to per-
mits closer composition control than pos-
sible by addition of pure metals or to in-
troduce refractory elements not readily
alloyed with the base metal. ASM Gloss.
b. A type of unaltered ground that is
difficult to work. Bureau of Mines Staff.

glass hard. A glaze having a high melting
point owing to its high silica content. It
is mechanically harder than glazes fired
at lower temperatures, and more resistant
to chemical attack. Rosethath.

hardgrove number. a. Empirical
index of grindability of coal samples, reached
as result of comminution of a test sample
under stated conditions of control. Pryor, 3.

hardgrove test. This test utilizes a special
grindability mill of the ring-and-ball type,
in which a 50-gram portion of coarsely
rounded stone found especially in coarse
gravel. A niggerhead. Fay. c. In mining,
the resistance
mineral or to be penetrated by a Knoop
indenter. Long. c. In digging, the resistance
to penetration. Nichols, 3, pp. 3-4. f. The
relative refractoriness of a porcelain enam-
el or frit. ASTM C286-65. g. Relative resist-
ance to scratching or abrasion. ACSB, 2, h. Re-
sistance to scratching or abrasion. The brit-
tle hardness of the mineralogist differs from
Mohs' scale; Brinell scale; Rockwell scale;
and set side by side in cement, for testing
test. Armstrong, 1.

hardened steel. a. A metal or an alloy that is
harder and usually more resistant to abra-
sion than the hardest of steels. Long. b. The Sintered tungsten carbide; used for the
working tip of high-speed cutting tools.
c. A large, smooth, hard metal. a. A metal or an alloy that is
hardened by quenching from or above the
hardening temperature. Fay.

hardness. a. The ability of a material to
resist disintegration or deformation.
b. A term generally applied to
undergo change in form. Shipley.
c. Of minerals, measured
on Mohs' scale according to the crystalline system, or is scratched by other minerals in a series
range of 1 to 10, with 10 being the hardest material or by extreme cementation of sandstone in
spot. Hag. d. A
hardness of carbon steel objects by heat-
ing them to a predetermined temperature
and finishing with a steep cone leading
to the discharge trunnion. The tricone
mill has wedge-shaped liners in the drum
section which turn this into a gentle conic
shape, or is scratched by other minerals in a series
range of hardness and set side by side in cement, for testing
whether the specimen under test scratches
the like. May be designated according to
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tion used, as gear hardener or waterman.

hardness points. a. A term generally applied to
an unusual glass, over 6 inches in hard-
ness; also occasionally, but inaccurately,
to synthetic corundum or spinel. Shipley.
b. A term sometimes used to mean any
green glass imitation of emerald, espe-
cially those containing imitations of jard-
ins. Also spelled hard mass. Shipley.
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an unusual glass, over 6 inches in hard-
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to synthetic corundum or spinel. Shipley.
d. A metal or an alloy that is
harder and usually more resistant to abra-
sion than the hardest of steels. Long.

hard wood. a. A material that is
hardened by quenching from or above the
hardening temperature. Fay.

hard points. Small pieces of minerals of
differing hardness, with one end pointed
of the tank. It is used for processing
chemical, metallurgical, and coal-wash-
ing slurries. Nelson.

hard kiln. a. A kiln driven at a tem-
pature between that of the enamel and
the like. May be designated according to
the article hardened or quenching solu-
tion used, as gear hardener or waterman.

hard lead. Metal in which the high degree of
malleability characteristic of pure lead is
destroyed by the presence of impurities,
of which antimony is the most common.
C.T.D.

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hardness points

...and affixed to small handles of wood, metal, or plastic, to be held in hand and used for traverse and point counting, as in rock analysis. A pointed instrument, by its certainty which points will scratch it. Minerals of hardness 10 to 6 are usually used for testing gem stones.

Shipley.

hardness scale. a. The scale by which the hardness of a mineral is determined as compared with the Mohs' Standard. The Mohs' scale is as follows: talc, gypsum, calcite, fluorite, apatite, orthoclase, quartz, topaz, corundum, and diamond. Fay. b. Quantitative units by means of which the relative hardness of minerals and metals can be determined, which for convenience is expressed in Mohs', Knoop, or sclerometer units for minerals and Vickers, Binell, or Rockwell units for metals. Long.

hardness table. Any listing of substances as to their comparative hardness. Shipley.

hardness test. A determination of the relative hardness of a mineral, as made on a specimen, using appropriate hardness-testing apparatus and techniques. See also hardness scale; hardness table; hardness wheel.

hardness wheel. A hand instrument in which hardness points are set as equidistant spokes in a circle, which for convenience is expressed in Mohs', Knoop, or sclerometer units for minerals and Vickers, Binell, or Rockwell units for metals. Long.

hard plating. Chromium plating deposited in hard plating. C.T.D.


hard radiation. Ionizing radiation of short wavelength and high penetration. NCB.

hard rays. Beta rays or gamma rays of great penetrating power. Long.

hard rock. a. Loosely used to distinguish igneous and metamorphic rocks from sedimentary rock. A.G.I. Supp. b. A term used to distinguish between material which can be excavated without blasting (as clays, sands, gravels, etc.) and rock having a strong bonded structure. Pryor, 3.

hard-rock drill. a. A driller who albids for the low amount of footage of borehole drilled by claiming that the rock penetrated one or two thousand feet was unusually hard. Long. b. A miner employed to operate a drill in a mine in which the rocks are so tough or stony that very high pressure is required. Fay.

hard-rock drilling. Drilling done in dense and solid igneous or highly silicified rocks, which can be penetrated economically only by diamond bits, as opposed to that done in soft rocks, which is done by roller or wing-type rotary bits. Long.


hard-rock mines. Solid minerals, as distinguished from oil and gas, especially those solid minerals found in hard rocks. Williams.

hard-rock phosphate. A term used in Florida to designate a hard, massive, close-grained, fine-grained, light-gray phosphate, that shows a large or smaller irregular cavities, that are usually lined with secondary marmaliferous incrustations of phosphate of lime. Fay.

hard-rock mine. A mine in hard rock; especially one difficult to drill, blast, and square up. Hess.

hard-rock miner. A workman competent to mine in hard rock. Usually trained in the use of diamond drills as an expert miner as compared with one fit only to mine in soft rocks. Hess.

hard rock tunnel boring. A comparatively recent technique in which early experiments utilizing a machine called the "Mole" indicated that long-distance drills in hard jasperite at an average rate of 5 feet per hour, and the raise borer approached the goal of a 300-foot 40-inch-diameter raise in 48 hours. Encyclopaedia Britannica. Britannica Book of the Year, 1965, pp. 550-551.


hard seat. See seat rock. A.G.I.

hard solder. A metal which melts at a red heat; used for soldering silver, etc. Fay.

hard soldering. Formerly referred to a process of using materials now called brazing alloys. AS M Glass.

hard sorting. See handpicking. Pryor, 3.

hard way. a. A term used in slate quarrying to describe the third direction at right angles to both slaty cleavage and rift, in which there is no tendency to split. It is known as the hard way and designated locally as the sculp. Bu Mines Bull. 630, 1960, p. 683. b. In granite quarrying, the direction at right angles to both rift and run is called the hard way or head grain. Hess. c. Durian. Tomkeieff, 1954, p. 326. Sometimes called cut-off. Fay.

hard white ore. Georgia bauxite containing in excess of one percent ferric oxide. Fay.

Hardwick conveyor loader head. A dust collector for belt conveyors used at the loading station. The delivery pulley of the main gate conveyor is used to drive a scraper chain. The latter is arranged to run at half the belt speed by means of chains and sprockets, and the scraper chain runs at the bottom of a long hopper to the point where the coal is delivered into the trams. The undersides are collected on the scraper chain after having been released from the belt by means of a snub pulley. The scraper chain is driven by the side of the tram in the direction of travel, and the actions are prevented by means of rubber flaps. Mason, vol. 1, pp. 302-303.

hardy. A square-shanked chisel or fuller for cutting larger or smaller irregular cavities, that are usually lined with secondary mammiferous incrustations of phosphate of lime. Fay.

harkerite. A colorless, vitreous lustrous mineral of the melilite group with one good and two rare cleavages, Ca2O.Zn4Si16O38; from Franklin, N. J. Nelson, p. 86.


haring cell. A four-electrode cell for measurement of electrolyte resistance and electrode polarization during electrolysis. A.S.M. Glass.

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harkerite

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brite group with complex and variable composition. Its formula is Ba(AlSiO₃).5H₂O. Mohs' hardness, 4.7-5.0; specific gravity, 2.45. The crystals are white and translucent. 

Dana 17.


harpoth. A cross-cutting (igneous) body of sickle shape. A harpolith is assumed to have been injected into previously deformed beds of dolomite. Holmes then had the latter to have been stretched horizontally in the direction of maximum (mountain-making) displacement. Thus, the tunnel channel is typically situated beneath one edge of the sickle after this has been ex- pressed by erosion. Stokes and Vernet, 1925.

harpooen log. A log which consists essentially of a rotator and distance registering device combined in a single unit, which is towed through the water. It has been largely re- placed by the taffrail log, which is similar except that the registering device is located at the taffrail, with only the rotator in the water. HBG 8C.

harry. a. Harpoon. To rob; to take all the coal that can conveniently be mined with- out attempting to systematically remove the whole. b. Rapid chipping of harry; to strip; to depop; to rob. Fay.

harrow. Trammers, putters, or drawers em- ployed to carry away the dirt from the working face. They may help load the trucks. C T D.


Harris process. Process for the removal of silver which is removed in a sub- sequent desilvering operation. CCD 6d, 1934.

Hartmann log. A log which consists of a rotator and distance registering device combined in a single unit, which is towed through the water. It has been largely re- placed by the taffrail log, which is similar except that the registering device is located at the taffrail, with only the rotator in the water. HBG 8C.

Hartmann lines. The same as Laden lines. A.S.M. Gloss.

Hartza salt, a mixture of sylvite and kieserite, with some anhydrite, found in the Staufs salt deposits. Kaufmann.

Hartshofer. A strongly bonded and partly silicious rock; associated with other rocks of mylonitic habit, in which the alternating bands have been produced from ultramy- lonite by recrystallization and metamorphic differentiation. Holmes, 1928.

Harvard brick. A term originally applied to clear, red, common brick, which were over- burned, and especially so on one end or side, so that these harder burned parts were bluish-black. The name is more loosely used nowadays. Fay.

Harrylene. To subject the face of a steel plat- te to a process of cementation in which the carbon in that portion of the plate, producing a plate with a comparatively soft front face and a very hard back face. Fay.

Harveyize. To subject the face of a steel plat- te to a process of cementation in which the carbon in that portion of the plate, producing a plate with a comparatively soft front face and a very hard back face. Fay.


Harsite. A type of joint for glass pipes designed by William Hassall in the late 19th century. Bitumen rings are attached to the outside of the glasses, opposite the top of the socket of the fired pipe; a thin smear of cement is rubbed around these rings just before the pipes are laid, the spigot of one pipe then being pushed into the socket of the next. Liquid cement is finally poured
Hassall joint

through holes in the socket to complete the joint. Dodd.

hassock. A. A flat, large horse trolley, 12 ft. or more in depth. The鲍

hassock英格。Soft carbonaceous sandstone. Ark.

hassock bedding; hassock structure. See con

volute bedding. Pattijan.

hassock structure. See hassock bedding.

hassoon; hassing. Scot. A vertical gutter between water rings in a shaft. See also ASA MTAI-1958.

hasson deal. Scot. A cover for a hasson. Fay.


Hastings beds. A series of clay and sand deposits in the Lower Cretaceous of southeast England, the Fairlight Clays on the base of these deposits have been used for brickmaking near Hastings and Bexhill. Dodd.

hastellite. A member of the hornblende series, CaNaMgAl₂SiO₇(OH,F); monoclinc. Dana 17.


hatch. Brit. A door or gate. Webster 2d. b. A stroke or line used in engraving or drawing to give the effect of shading. Webster 3d.

hatch conveyer. Any of several types of conveyors adapted to loading or unloading bulk materials, packages, or objects to or from ships or barges. See also belt conveyor; slat conveyor; portable conveyor.


hatchettime. Surname for hatchettie. Fay.

hatchettie; hatchettie. A yellowish-white, water-soluble, hydrate of bismuth with the approximate composition, Bi₂O₃·H₂O; usually found inside septarian nodules and geodes. It melts at 46°C, is sparingly soluble in boiling alcohol and cold ether, and is soluble in hot water. Dana 17. See also geodes. It melts at 46°C, is sparingly sol-

hatch hammer. A black variety of bismuth rich in ferrous iron. A member of the mica group. Inner, 1955.

hast. a. The distance from the coal face to pit bottom or surface, in drift mining; the distance quarried or extracted products must be moved to the treatment plant or construction site; the distance from the shaft or elevator pit to the haulage face. Nichols. d. To pull along the level by animals or mechanical means. C.T.D. c. Average haul--the average distance a grading material is hauled; as, 1 long or a short haul. Standard, 1956. f. The distance over which anything is hauled; as, 1 long or a short haul. Standard, 1956.

hastabout. A steel barge with large hatchways and coal transporters used for coaling ships. Webster 3d.

hanging. a. The drawing or conveying, in cars or otherwise, or movement of men, supplies, ore and waste both underground and on the surface. Pat, 195. b. In dividing the transportation system according to the area served there is: (1) primary or face haulage; (2) secondary haulage; and (3) main-line haulage. Kentucky, p. 210. See also intermediate haulage; relay haulage; locomotive haulage; underground haulage. c. Applied generally to truck mining as opposed to conveyor mining, although both conveyor systems are sometimes referred to as belt haulage. B.C.T. d. The system of haulage coal out of a mine. Tonsor, c. S. Afr. A drive used for mechanical transport. Berman.

haulage boss. In bituminous coal mining, a foreman who supervises mine haulage operations underground or at the surface. D.O.T. 1.

haulage brake. See brake. Nelson.

haulage cars. Rail haulage cars for surface or mine shaft operations are used to carry ore and equipment to and from the digging site. There are several types of self-propelled, and include dump cars, flat cars, personnel cars, etc. Beis, 372.

haulage distance. a. The average distance a grading material is used in haulage in and inside the orebody. The usual type attains the grasp on the rope by means of two jaws which may be tightened by either a screw or a lever movement. The con-

haulage clip. a. A device to effect a secure attachment of tug to the haulage top, chiefly with endless rope haulage. The usual type contains the rope on the rope by two jaws which may be tightened by either a screw or a lever movement. The con-

haul distance. The distance measured along the center line or most direct practical
haul distance

route between the center of the mass of excavation and the center of mass of the fill as finally placed. It is the distance from the center of mass of the fill to the center of mass of the fill as finally placed.

haulier. Same as driver. Fay.

haulier. A mine worker who drives a horse pulling a haul road. A road built to carry loaded trucks from the point on the slope haulage or pit bottom and returns with the empty trams. Also called pony driver. Nelson.

haulage. The drawing or conveying of the product of the mine from the working places to the bottom of the hoisting shaft, or slope. Zena.

hauling engine. An engine employed to move tubs on an underground engine plane. Pelt.

haul. In a shaft built to carry heavily loaded trucks at a good speed. The grade is limited on this type of road to usually less than 7 percent of climb in direction of load movement. Bureau of Mines Staff.

haulage shaft. A portion of an arch which is midway between the backwall and the crown. A.R.I. b. In pipe, the side of the pipe. Nichols.

haul. Coal sold at the pithead. See also land sale. Nelson.


haul. See also land sale. Fay.

haulage DK/51 drilling machine. A machine developed for underground drilling either in the open-pit or for underground exploration. The DK/51 is a compressed-air rotary drill with a 9 horsepower motor which provides a rotational speed of 160 revolutions per minute. Traversing is performed by a 4 horsepower motor driving a central feed spindle. A forward thrust of 6 tons is available also. See also Nord and Grafer IV/6 drilling machine. Nelson.

haul. A mineral, MgO, NaCl, or MgO-

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haulage. A series of closely packed, parallel fibers of crocidolite which impart to it a blue color. In form and sheen, it resembles tigereye. Differs from sapphire quartz, in which fibers are not parallel. Also spelled hawk-eye. See also hawk-eye.


hawse. A local English term for a clay that is crumbling but becomes plastic when worked up with water. Dodd.

hawser. a. Any wire rope used for towing on lake or sea; b. In shipbuilding, wire rope composed of three strands laid up right-handed. Zerm. b. A large rope, varying from 5 to 24 inches in circumference, of 6 to 9 strands being laid up left-handed. Standard, 1964.

hawse. a. Of fiber rope, one with three strands of yarn, twisted left-handed, these strands being laid up right-handed. Priy, 3. b. If wire rope, it is called cable le laid.

hawser. Wire rope usually consisting of 6 strands, 37 wires, and a hemp core, or 6 strands, 24 wires, and 7 hemp cores HBG, p. 130.


Hayden process. A series method of electrolytic refining. Unrefined copper anodes are suspended in an acid electrolyte, one side of each anode acts as an anode and the other as a cathode. Priy, 3.

Hay. Trade name; a lightweight expanded clay aggregate named after inventors, S. J. Hayde.

hayman or haymaker. A term to designate the personnel operating or attending the machine or equipment, when involves either the pulling back, or complete recasting of the waste, usually above and behind the machine, which itself is located on the spoil pile. Austin.

Hay yield projection. This projector can be made at any workshop from a few short pieces of piping and an old oil drum. It may be fixed at an open end, and placed in an open area, capacity placed 12 to 15 yards back from the face of the hard heading. The water at the bottom of the drum is forced down by a pump. The water is added at the rate of 4 ounces to 5 gallons of water. About 2 minutes before firing.

H casing. Air is turned on and ejection of water is in the form of a coarse mist fill the heading. This continues for a period of 6 minutes after the firing. In this manner, the heading is filled with air and a cloud of droplets which outndater the dust particles; the latter are effectively wetted or become attached to the droplets, so result that the dust rapidly settles out of the air. This mist projector has a high efficiency, particularly where the ventilation is low. Mason, r., pp. 305-306.

hawse. A rope made of hay, used in the making of foundry cores. The rope is wrapped around a core bar, then covered with loam, the core forming a mass which is then carried off. Crispin.


hazard. Eng. Ironstone nodules worked for iron in the Weald. Also called balls. Arkell.

H casing. A method for casting liquid metal or steel continuously into rolls for sheet or plate. The steel is poured on the outer surface of a broad steel cylinder of very large diameter (up to 6 meters) which is supported and revolved by a roll turning inside it. The molten steel is carried a short distance to a roller revolving above the ring, which rolls the almost solidified steel into a thin plate or strip. Osborne.

Hazen and William formula. Friction head in pipes is commonly calculated by the formula:

H = \[ \frac{147.85}{C} \times \frac{Q}{X} \] \[ \frac{2.63}{D} \]

where H = friction head in feet per 1,000 feet of pipe
Q = gallons per minute
D = diameter in inches

C = 100 for pipe of 15 years' service handling clear water and is the value generally used; 120 for smooth, new wrought-iron pipe; 90 for 25-year-old ordinary pipe. Levis, pp. 647-648.

Hazen's law. A law relating to the permeability of soils, based on their effective grain size. See also effective size. Ham.


hbm. A core bit manufactured and used in Canada having set inside and outside diameters of 2.875 and 3.875 inches, respectively. The matching reaming shell has an outside diameter of 3.906 inches. Long.

H casing. Flush coupled and/or flush joint casing, made and used in Canada, having a minimum inside diameter of 3-15/16 inches and an outside diameter of 4-5/16 inches. Long.
H drill rod

H drill rod. A Canadian outside-flush-coupled drill rod having an outside diameter of 3/8 inches, the couplings of which have an inside diameter of 1/4 inch.


headage. a. The top portion of a seam in the ground.

header. a. A lift. Fay. 1. A large pipe into which the air is fed or exhausted. Fay. 2. The return of air to the surface. Fay. 3. A large pipe into which air is introduced. Fay. 4. A large pipe into which air is exhausted.

header cable. See hand cable.

header coal. Scot. Formerly, the stratum of a coal next the roof. More usually now, the top portion of a coal seam when left unworked, either permanently or to be afterwards taken down; the top coal on a loaded wagon. Fay.

header end. a. Usually the ultimate delivery end of a conveyor. A M.I.A.-1938. b. That part of a mining belt conveyor which includes the head section, a power unit and, if required, the connecting section. ASA MH4.1-1958. b. The head end of a conveying system. See also gallows frame. Fay. c. Also, the structure on a hillside to control the lowering of coal to the tipple. B.C.I.

header gear. a. A passage leading from the gangway. The main entry in a coal mine is laid out with the precision of a main avenue in a city. From it at right angles headings run like cross streets, lined on each side with breasts, or chambers. Ker. 1. A mining entrance for driving a heading. Also called heading man. C.T.D. d. Pieces of plank—longer than a step—extending over more of the roof and supported by two props, one at each end. Ricketts. 1. a. A rock that heads off or delays progress. Fay. 1. A blasthole at or above the head. Fay. g. A brick laid in a wall on its largest face with its longest dimension at right angles to the face of the wall. A. R. H. 2. The headframe of a mine shaft. Mason. d. The top portion of a seam in the ground. C.T.D. e. The headframe and its auxiliary machinery. Fay. f. The frame which supports pulleys over a shaft. Hudson. d. The headframe of a mine shaft. Mason. d. The part of a mining machinery apparatus that remains on the surface at the headframe; also, a watergate or floodgate of any apparatus. B. C. I. f. A covered timber framing at the head of a slope into which the shaft guides are continued that carry the cage or elevator. The term is sometimes applied to the structure containing the hoisting engine, boilers, and other machinery, in addition to the actual hoisting cage, etc. Stauffer. b. The house or building that encloses the headframe. See also gallows frame. Fay. c. Also, the structure on a hillside to control the lowering of coal to the tipple. B.C.I.

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heading

headwater erosion

wheel. Long, b. Height between the floor and the roof in a mine opening. Long. heading. In any system of shafting, that rope which is used to pull the loaded transportation device toward the discharge point. In shafting, the hoist rope pulls the loaded scoop from the face to the dumping point. Jones.


headwater erosion. a. The horizontal timber at each side of a rectangular heading which supports the headboard. See also side trees. Han. b. Eng. A piece of wood, on top of a prop, to support the roof. Newcastle coalfield. Fay. c. The cap piece of a heading set. Stauffer. d. Eng. A piece of wood set on a prop. The term cap is sometimes used to indicate the piece of timber placed between the top of a prop and back or girder on a roadway. Also called cap; lid. SMRB, Paper No. 61.

headwork. a. The water up stream from a structure. See also forby Stell. b. A stream. See also forby Stell. c. 1. . .

headwater rights. A term which has been employed to describe undivided interests in mine rails. A.R.I. 1961.

headwall. a. Distance between the drill platform and the bottom of the sheave
headwater erosion

the main stream east back, and as secondarily develop from these, and still others from these, the flat-topped divides are narrowed and more or less slope downwards which the runoff can flow. This extension of the tributaries is accomplished by gnawing back at the upper portions, a process that may be called headwater erosion. A.G.I.


health physics. That branch of radiological science dealing with the study of environmental hazards, including the accumulation of radioactive material within the body. See also N.R.C. Std. 1964, p. 289.

heap. a. N. of Eng. A man who looks after the sorting and cleaning of the coal at the mine mouth. Also called heap-sitter. b. Ark. The cutting of coal parallel to the principal cleat. c. The principal cleat in coal. N. of Eng. Parallel with the main cleavage plane or cleat of the coal. Also called headway course.

health ends. A. A. Newfoundland. The refuse at the pit's mouth. Also called headway ends. C.T.D.

health hazards. The danger to health arising from exposure to ionizing radiation. It may be due to external irradiation or to radiation from radioactive materials within the body, N.C.B.

heating. a. hearing stone. A slate or tile for roofing. b. Ark. The cutting other work done at the face of an entry. Fay.


earth bottom. A furnace bottom soaked in a heating furnace, Bessemer converter. See also section on earth bottom. Fay.

heat balance. a. In furnaces, heat engines, etc., the distribution of the known input of energy (as heat); also, the method of determining, or the graphical or tabular record of such distribution. Bureau of Mines Staff. b. In fluidization roasting, the thermodynamic calculation used to control addition or removal of heat in order to maintain the desired temperature in the reaction vessel. Fay.

heat budget. The total amount of the sun's heat received on the earth during any one year must exactly equal the total amount which is lost from the earth by reflection and radiation into space. The portion reflected by the atmosphere does not affect the earth heat budget. The portion absorbed must balance the long-range radiation into space from the earth's entire system. The portion absorbed into the oceans causes the surface warming critical to the phenomenon of layer depth. Transpiration by crops further extends the distribution of heat. See also heat transport. Fay.

heat capacity. a. Of a substance, heat per unit mass, per degree of rise, required to produce a very small rise in temperature. Bureau of Mines Staff. b. Of a body, heat per unit mass of change in the temperature of the body. Bureau of Mines Staff. c. The quantity of heat necessary to raise the temperature
heat capacity

ture of a system or a substance by 1 degree of temperature, usually expressed in calories per degree centigrade. Compare specific heat. Lowenthal.

heat crack. A pattern of parallel surface cracks that are formed by alternate rapid heating and cooling of the extreme surface material, sometimes due to high thermal gradients and piercing punches. There may be two sets of parallel cracks, one set perpendicular to the other. ASM Gloss.

heat conductor. The oceanic heat receive by conduction through the sea bottom. Since the amount is very small, only 50 to 80 grams per hour. Webster, p. 380.

heat content, rate of change in. Rate of change in heat content or enthalpy of air per unit time. May be sensible, latent, or total. Measured in British th. units. Webster, p. 380.

heat cramps. Painful spasms of the muscles, especially those of the abdomen and limbs, after prolonged exposure to high temperature while engaged in strenuous labor. The cramps may be slight or may be severe enough to cause convulsions. Kentucky, p. 380.

heat-damaged stone. A stone that has been artificially heated to the proper temperature with the intention of improving or completely altering its color. The induced color is permanent in most materials, but may fade, disappear, and be lost in a few years. See also stained stone. Shipley.

heat energy. Energy in the form of heat.

heat engine. A mechanism (as an external-combustion or an internal-combustion engine) for converting heat energy into mechanical energy. Webster 2d.


heater drain. Self-regulating pumps capable of dealing with water at fairly high temperatures and pressures. They are used to return heater condensate to the boiler instead of waste. Sinclair, IV, p. 125.

heat exchanger. Any device that transfers heat from one fluid to another or to the environment. LBL.

heat exhaustion. Collapse from the effect of heat, from the sun, or from other sources. It occurs more often when the humidity is high. The patient is seldom unconscious but may feel weak. The face appears pale and is usually covered with cold perspiration. Kentucky, p. 380.


heat coal. Heat or tough coal. Arkell.


heating. b. A chamber back of a forge in which the air intended for the blast is heated. Standard, 1964.


heating furnace. The furnace in which the blown-out pipes are heated before returning to the blast. Strock, 10.

heating medium. A fluid used for conveying heat from a heat source to heat dissipating devices; includes air, water, and steam. Strock, 10.

heatings. The heat generated before an actual fire occurs. Heatings, or incident fires, are detected in mines by smell and by analysis of air samples. In mines liable to spontaneous combustion, trained officials and workmen employed to detect and deal with heatings and fires and they become expert in these duties. Sinclair, IV, pp. 285-286.

heating surface. That surface in a steam boiler or similar apparatus from which heat passes to the water to be evaporated or heated; the fire surface. Standard, 1964.

heating tendency. The ability of a coal to fire spontaneously. This phenomenon can occur when the air intended for the blast is generated from oxidation reactions in a coal exceeds the heat dissipated. This characteristic varies for different types of coals and even for the same classification but of different origin. R. J. 6221, 1963, p. 2.


heat interlayer. See acclimatization. Roberts, 1, p. 132.

heat of adsorption. Quantity of heat evolved in adsorption of a definite quantity of gas on a bare surface.

heat of absorption. The heat of reaction resulting from the complete burning of a substance and expressed variously (as in calories per gram or per mole, or especially for fuels in British thermal units per pound or per cubic foot). Webster 3d.

heat of combustion. As air passes down shafts and along inclined workings it is compressed. Heat is always generated when air is compressed, and although the reverse process of decompression and cooling takes place as the air ascends the upcast shaft, the net effect is to raise the air temperature underground. Muon, v. 1, p. 191.

heat of crystallization. Heat evolved when unit weight of a salt crystallizes from a large amount of a saturated solution. Osborne.

heat of dilution. The quantity of heat absorbed or evolved upon diluting a solution with water, or upon mixing a strong solution with a weaker solution of the same substance. It is usually expressed as British thermal units per pound, or calories per gram. American Bureau of Standards.

heat of formation. The number of calories absorbed when 1 gram-atomic weight of carbon reacts with 1 gram-molecular weight of oxygen to form 1 gram-molecular weight of carbon dioxide. Neuman, p. 172.

heat of solution. The latent heat required to change a solid to a liquid. MacCracken.

heat of hydration. The quantity of heat required to change a solid substance when a substance takes up water. Osborne.

heat of ionization. The quantity of heat absorbed when a substance (a) is broken up completely into positive and negative ions. Osborne.

heat loss. The energy necessary to break a chemical bond. Osborne.

heat of liquid. The heat necessary to raise the temperature of the liquid material, distinguishing from the heat of vaporization. Strock, 10.

heat of mixture. That quantity of heat evolved when two liquids which do not react together are mixed. It is calculated from the temperature change and the specific heat of the mixture, and expressed in gram-calories per gram of mixture. Osborne.

heat of neutralization. Amount of heat evolved when 1 gram-equivalent of an acid is neutralized by a base. Osborne.

heat of reaction. Amount of energy of heat consumed or liberated in a chemical reaction, as heat of combustion, heat of neutralization, or heat of solution. Hazeltine's Chem. Dict. b. The number of calories of heat absorbed when 1 gram-atomic weight of carbon reacts with 1 gram-molecular weight of oxygen to form 1 gram-molecular weight of carbon dioxide. Neuman, p. 172.

heat of sublimation. The latent heat required to change a solid to a gas. MacCracken.

heat of sublimation. Heat evolved or absorbed when a liquid and a solid surface are in contact. Osborne.

heat pump. A mechanical refrigerating system used for air cooling in the summer and which, when the evaporator and condenser effects are reversed, absorbs heat from the outside air or (water) in winter and raises it to a higher potential so that it also can be used for winter heating. Strock, 10.

heat recuperation. The recovery of heat from waste gases. Fay.

heat-resisting glass. Glass able to withstand high thermal shock, generally because of low-expansion coefficient. ASTM C162-66.

heat-resisting steel. A steel with high resistance to oxidation and moderate strength at high temperature; that is, above 500° C. Alloy steels, of a wide variety of compositions, which usually contain large amounts of one or more of the elements chromium, nickel, or tungsten, are used. C.T.D.

heat-setting refractories. A refractory mortar consisting of 10% to 20% by weight of cement and ground or dust refractory components which develop a bond at a lower temperature than would occur otherwise. American Bureau of Standards.

heat-setting refractories. Compositions of ground refractory materials which require...
heat-setting refractories

relatively high temperatures for the development of an adequate bond, commonly called heat setting.

heat-shock test. Designed to indicate comparative resistance of enamelware to rapid temperature changes (CER-3).

heat sink. Anything that absorbs heat; usually a part of the environment, such as the air, a river, or outer space.

heat-strengthened glass. Sheet glass, cut to size, heated to softening point then quickly air-cooled. A thinned out by blast of cold air. Bennett 72, 1962 Add.

heat table; heat-sickness tablets. Ten-grain compounded vacuum-pan salt tablets, sometimes with dextrose, starch, or other additives to aid in disintegration, for relief of thermoplegia, heat sickness. Kaufmann.


heat-treatment. The horizontal component of the heat-treating machine, automatic. See Gillett. bead treated done. Same as heated stone.

heat-treated. A term sometimes used for the heavy transport. Meteorological phenomena under consideration.

heat transmission coefficient. See coefficient of heat transmission. Stock, 10.

heat transfer. Applied to indivuals whose bodies are constitutionally capable of adapting to sudden changes in heat conditions, as the Eskimo.

heat transmission coefficient. See coefficient of heat transmission. Stock, 10.

heat treatment. The horizontal component of the heat-treating machine, automatic. See Gillett.

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heavy. The hollow sound produced when rapped. Pryor, 3.

heavy aggregate. Concrete made with specially heavy ground.

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which the crystals of quartz imbedded in the body of the feldspar resemble Hebrew granite.

heel. A name proposed by Brøgger for certain syenitic rocks that are poor in feldspar but which are described in the same way as granite. A. F. By.

heel of a coal. A designation for certain segments of the mining advance in which the face of the mine is exposed. See also foot wall.

heel tap. An imperfection in which the base or bottom of a bottle is very thick in one area and very thin in another. ASTM C162-66.

heeling. Temporary planting of trees and shrubs. Nichols.

heel tap. A condition of support at the ends of a beam or edge of a plate which prevents displacement of the edge of the neutral surface, but permits rotation in the plane of bending. Compare fixed; supported. Ro.

heeling is. A. Temporary planting of trees and shrubs. Nichols. A prefix used to denote one hundred.

heel of coal. A small body of coal left under a larger body as a support. Fay.

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heel tap. An imperfection in which the base or bottom of a bottle is very thick in one area and very thin in another. ASTM C162-66.

heel tap. A condition of support at the ends of a beam or edge of a plate which prevents displacement of the edge of the neutral surface, but permits rotation in the plane of bending. Compare fixed; supported. Ro.
of inclusions preserved within coarse crystals of minerals. The strings of inclusions are interpreted as relict structures in heterogeneous parallel fabric, either sedimentary or metamorphic that existed prior to growth of the porphyroblasts. A.G.I.


**heliorograph**. An instrument designed to reflect sunlight in flashes so that a survey station can become visible from a distance. **Ham**.

**helium**. a. A whitish to reddish-gray aventureine oligoclase with internal yellowish or reddish firelight reflections. **Helv.** b. Symp. for homogeneous helvite in a specific locality. **Helv**.

heliotrope. A variety of chalcody (crypt-crystalline quartz); deep green, color with utmost greenish-blue, as a deep green. Also called bloodstone. **Helv**.

**helium**. An inert, monatomic (He), colorless, odorless element, the lightest of the rare gases, occurring in the atmosphere of the sun and stars, and constituting about 1 part in 200,000 parts by volume of the earth's atmosphere. Also found in natural gas of the southwestern United States, occurring in the atmosphere of the sun and stars, and constituting about 1 part in 200,000 parts by volume of the earth's atmosphere. Also found in various natural gases by liquefaction processes. Symbol, He; valency, 0; atomic number, 2; atomic weight, 4.0026. C.T.D. Its chief source is the natural gas of the southwestern United States. **Crinn**.

**helium age**. The age of a rock as calculated by substituting into the age equation radioactivity data and a value for all the radioactive helium formed since crystallization, computed from the analyses and helium retentions. **American Journal of Science** v. 239, Aug. 1941, p. 609.

**helium**. b. A diving bell in which the occupants breathe a mixture of oxygen and helium, which enables them to work at great depths. **Ham**.

**helium age**. The value obtained by substituting helium and radioactivity values into the age equation as used in the determination of the age of a rock. **American Journal of Science**, v. 239, Aug. 1941, p. 609.

**helix angle**. Generally, the angle which a helix makes with a plane containing the axis about which the helix is developed. An exception is the case of oblique, worm, and threads where the helix angle is taken from a diametral reference plane rather than an axial plane. **ASM Class**.

**helizitic**. Refers to metamorphic structure characterized by metacrysts consisting of oriented inclusions of earlier schist minerals. A.G.I. **Supp**.

**helix**. a. Large detached cresses; a confused pile. **Arkell**. b. Bare tracts of limestone. **Arkell**.

**helianite**. A very rare, weakly radioactive, monoclinic mineral, Ca (Al, Y) Fe, PO4, OH, Si2O7. Contains crystals with hematite, allanite, and thorite; brown or red in color. **Crasy**. pp. 102-103.

**helianthrite**. Normal nickel carbonate, 2NiCO3.6H2O, occurring with zaratite at the Lord Bracey nickel mine, Harewood, Tasmania. **Hey, M.F., 1961**.

**helium**. a. A hard hat worn for protection from falling objects. An inflatable piece of headgear worn by the operator to avoid inhaling of injurious dust particles during sandblasting operations. **Exem. Dict**.


**helictite**. A pair of similar coxial coils with their distance apart equal to their radius, which permits an accurate calculation of the magnetic field between the coils. Used in calibration of magnetometers. A.G.I.

**helper**. a. Miner's assistant who is not especially trained but who is learning mining work, such as miner's helper, track layer's helper, etc. **Fay**. b. G.C.I.

**helper grades**. A grade on which helper engines are needed to assist road locomotives; for economical operation, a helper grade should be steep enough to utilize the combined capacity of road and helper engines, which may be taken at 90 percent of the sum of the individual locomotive capacities. **Ungurian**, Sec. 2, p. 26.

**helper springs**. A truck rear axle, an upper spring that carries no weight until the regular spring changes shape under load. **Nichols**.

**helper-up**. a. Aust. An assistant to a trammer when the roads are bad. **Fay**. b. See pig tail. D.O.T. 1.

**heliodobe**. An igneous dike rock consisting essentially of albitite and epidote considered primary by some petrologists. **Johannsen**, c. 3, 1927, p. 142.

**helve**. a. Eng. The handle of a pick or mattock. **Helve**. b. A lift hammer for forging blooms. **Fay**.

**helve hammer**. A frame of a mechanically driven trip hammer, formerly used in forging work, such as miner's helper, track layer's helper, etc. **Arkell**.

**helvetian**. Lower middle Miocene. A.G.I. **Supp**.

**helvite**. a. A mineral, complex silicate of beryllium, manganese, and iron. It is the most plentiful potential ore of beryllium but is of low grade. **IN, 1955**.

**hem**. Scot. Grain; second; quartering way; bate; shelling piece. **Arkell**.


**helvite orbitrite**; **albitite**. A brownish-red to earnet-red, transparent to translucent, slydymous manganese arsenite, 6MnO.5A12O3.-3H2O; soon turns black; Mohs' hardness, 3; specific gravity, 3.5 to 3.6; rare; from Nordmark, Sweden. **Larsen**, p. 38.

**hematite**. Another spelling of hematite. **Fay**.

**hematoidite**. Mineral found in various shades of brown to red having 1 perfect cleavage. 8MnO(A1 Mn)O. A1O3. BHO; Mohs' hardness, 3.5 to 3.6; 3.416; from Moss mine, Nordmark, Sweden. **Larsen**, p. 38.

**hematopalmolite**. Synonymous with hematopalmolite. **Spen.slf, 1964**.

**hematolite**. In Greek compounds: signifying half. A.G.I.

**hematocryalline**. a. Those rocks of igneous origin which contain some interstitial glass, in addition to crystalline minerals. Synonymous with holocrystalline. C.M.D.


**hematolinite**. That form in a crystal composed of two parallel dometic planes in the triclinic, orthorhombic, or tetragonal system of crystals in the monoclinic system of crystalization. **Standard**, 1964.

**hematohedral**. a. In crystallography, having a lower grade of symmetry than, and only half as many faces as, the corresponding form of I.G. or normal symmetry for the system. **Fay**. b. Having different properties in opposite direction or on opposite crystal faces. **Fay**.

**hemihedral**. Of, pertaining to, or denoting hemihedrons in which all the octants contain half the whole number of similar planes. **Standard**, 1964.

**hemimorphic**. In crystallography, having no transverse plane of symmetry and no center of symmetry, and composed of forms belonging to only one end of the axis of symmetry. **Fay**.

**hemimorphism**. The development of polar symmetry in minerals, in consequence of which different forms are exhibited at the ends of intergrown crystals. Hemimorphism shows this character in a marked degree. C.M.D.

**hemisenorhodite**. A hydrous zinc silicate, Zn(SiO3)2(OH)2; orthorhombic. Compare calamine. **Dana** 17.

**hemipelagite**. Middle Miocene. A.G.I. **Supp**.

**hemipelagite**. Same as semi pelag. English.

**hemipelagic**. Sharing neritic and pelagic characteristics. A.G.I. **Supp**.

**hemipelagic-oligyal**. Refers to sediments of...
hemipelagie-abyssal

the deep sea that contain terrestrial detritus.


hemipiramida. A form consisting of two pairs of prisms cutting the three axes in the monoclinal system of crystallization. Stan

hemisphere hemites. The temperature at which the height of the specimen is equal to half the base, its shape being approximately hemispherical. B.S. 1016, 1961. Pt. 16.

hemisphered. Brongniart's name, current among the French, for certain dioritic rocks that contain a large amount of calcite, presumably an alteration product. Fay.

hemispheric. Crystals that appear as if composed of two halves of a crystal turned partly round and united. Examples of this structure may often be found infeldspar and certain calcic fayalite. Fay.

hemispherical machines. Machines used for grinding flat surfaces, such as knife blades and tile. Fay.

hemoglobin. An iron-containing protein pigment occurring in the red blood cells and functioning primarily in the transport of oxygen from the lungs to the tissues of the body. Webster 3d.


hemitermite. A black fibrous mineral. CaH2

V2O5·2H2O; from the J.J. mine, Paradise Valley, Montrose County, Colo., and the Eastside mine, San Juan County, New Mex. Hey, M.M., 1964; Fliischer.

Henderson process. The treatment of copper oxide ore containing silver with salt to form chlorides, which are then leached out and precipitated. Henderson originally proposed to precipitate the chlorine in the leach and the leach and precipitation are not original with him. Longmaid and many other metallurgists have modified them in various modifications. Fay.

hemitellurite. A yellow-crystal sulfide with about 22 percent copper and nickel (Cu2FeS3). Minute pyritohedral crystals. Isometric. Probably a mixture of siegenite and pyrite. Formerly called cobaltined-wurtzite. From Munen, Westphalia, Germany. English.

Hennig Parish. Soda ash brucite; used to remove oxides and nonmetallic inclusions in steel manufacturing. Bennett 2d, 1962.

Henry. Unit of electrical induction. With electromotive force of 1 volt and current of 1 ampere. One Henry (1) = 10 electron-magnetic unit. Symbol H. Pryor, 3.

Henry's Law. The mass of a gas dissolved by a given-volume of liquid at a given temperature is proportional to the pressure. The mass dissolved is independent of pressure. Pryor, 3.


hepatic mercurial ore. See hepatic cinnabar. Fay.


hepatica. An amorphous limonite, of a liver-brown color, and containing a small percent age of copper. Fay.

hepatite. A variety of barite, so called from the feathery odor it exhalates when heated. Standard, 1964.

hepplewhite-Grey lamp. This lamp drew its air from the top, the air passing down four tubular pillars into the base, where it was admitted to the flame through a gauze ring. The outlet was through a metal chimney closed by a gauze disc. In the modified design an ordinary gauze was introduced above the conical glass. The lamp was exceptionally safe in high-velocity air currents. Pryor, 3.

heptagonal figure with seven sides and angles. Gordon.

heptahydric. A compound with seven molecules of water. Webster 3d.

heptane. A paraffin hydrocarbon; C7H16; colorless; liquid; melting point, 16.8° C; and specific gravity, 0.68. There are nine paraffins having this formula. The following properties relate to the heptane, which is a constituent of gasoline and resembles hexane in its chemical behavior. C.T.D.

3-heptanol. A liquid; CH3CH2CH(OH)CH3; specific gravity, 0.827; boiling point, 156.2° C; flash point, 140° F. and slightly soluble in water. A solvent for other, a solvent for asphalt and a diluent in coatings, and as intermediates. CCD 6d, 1961.


heptavariant. a. Having a valence of 7. Also heptaphyllite. b. See septavalent. Pryor, 3.

heptane, a. A one-phase current type direct arc furnace common to the three-phase current type with the electrodes spaced sufficiently far apart to prevent arcing between them. Bennett 2d, 1962.

heptane process. See Hall process.

heptane sulfate. Antimony ore with coal to the oxide in a cupola or blast furnace, the volatile trioxide being condensed after leaving the furnace. Bennett 2d, 1962.

heptane. Copper-stained blue and green smithsonite from Albarradon, Mexico. Shipley.


hepburnian. a. A pattern resembling the lateral skeletal configuration of a herring; specifically a pattern (as on a fabric) made up of adjacent rows of parallel lines where any two adjacent rows slope slightly in reverse directions. Webster 3d. b. Two series of reeves that intersect at about 120° along a central line or strip of reeves to prevent arcing between them. Bennett 2d, 1962.

hepburnian furnace. See chevron crossing bed. PETTIJOHN.

hepburnite. A gear in which the teeth slope both ways from the center line of the sprocket. Fay.
herringbone gear

the gear face, as would be the case if two spiral gears, one left hand and one right hand were fastened together; used for heavy work on mining machinery, etc. Grinn.

herringbone marking. See vibration mark; ruled groove; chevron mark. Pettijohn.

herringbone roller conveyor. A roller conveyor consisting of two parallel series of rolls having one or both series skewed. See also roller conveyor. ASA M14.1-1958.

herringbone tiling. Method used in flatishRand stope panels 500 feet to 1,000 feet long for breaking and moving ore. Stope is divided into 20 foot panels, each worked by its own gang. A light tramming system delivers severed rock to a central scraper conveyor. ASA M14.1-1958.


herringbone tiling. A method of setting timber supports in a roadway with a weak roof and strong sides. Arms or struts notched into the sides at parallel with the roadway. The bar is supported by struts notched into the sides at parallel series of rings which contain additionel elements to the carbon, for example, pyridine. Pryor, 3.

heterodyne. The action between two alternating currents of different frequencies in the same circuit; they are alternately additive and subtractive, thus producing two beats; for example, the sum of, and difference between, the two original frequencies. H.T.


heterogeneous. a. Having more than one constituent or phase, thus exhibiting different properties in different portions. Pryor, 3. b. A term used in alloys with structures composed of more than one constituent. Rolfe. c. Unlike in character or quality, structure or composition; consisting of different elements or ingredients of different kinds; not homogeneous. Standard, 1964.

heterogeneous reactor. A nuclear reactor in which the fuel is separate from the moderator and is arranged in discrete bodies, such as fuel elements. Most reactors are heterogeneous. IBL.

heterogeneous substance. A substance out of which any portion taken at random may not have the same composition and properties as every other portion; for example, mixtures.


heterometallic. Relates to deposits, not necessarily, or in part, of unlike metals or metals of different geological provinces. Schieferdecker.

heteromorphic rock. Rocks with idelltiCal or different mineral composition; as, for example, mixtures.

heterotactic. Refers to mineral fabric whose properties in different portions. Pryor, 3.

heterotactous. Irregular; lacking uniformity in stratification or arrangement of parts; heterogeneously arranged. Standard, 1964.

heterotaxial. Refers to strata more or less widely separated, that are not equivalent as to their relative position, in the geological series. Schieferdecker.

heterozoanically. geologically assigned to a type of orbicular rock in which orbicules are formed around different kinds of nuclei. rolley.

heterotomous. Having a cleavage unlike that which is characteristic of the mineral in its ordinary form, as a variety of fieldspar. Standard, 1964.

heterotropical. Relates to synchronous deposits of different geological provinces. Schieferdecker.

heterotonic. See heath. Arkell.


hew. hewn. hewed. a. Scot. A place where coal or other mineral is dug; a pit or seam. Fay. b. A slit with guarded sides; a crag. Standard, 1964. c. An old English term for coal seams or coal workings. Zamkiew, 1954. d. The steep face of a quarry or other excavation (quarry brush); an excavation for coal, originally open; a coal pit; coal seam. Schieferdecker.


heumite. A name proposed by Brøgger for a dike rock composed of minerals too small to be recognized with the eye alone, but which under the microscope, prove to be natrium orthoclase, natrium microcline, barite, baryte, biotite, and in small amount, nepheline, sodalite, and diopside. The accessories are apatite, magnetite, pyrite, and titanite. The silica in two dikes was found to be respectively 47.10 and 48.46. The name was derived from Heum, a small town on Lake Farris, Norway. Fay.


hever. a. Eng. In the Newcastle coalfield, one who undercut the coal with a pick. A coal miner. Fay. b. Eng. A workman employed in getting coal by hand. 3 MR, Paper No. 61, c. N. of Eng. One who may use a hand pick but usually a pneumatic (windy) pick to win coal. Takes out pieces of breaking in or making a nicking, digging out the coal, and filling onto a conveyor belt or into tubs. Schieferdecker.

heverite. A very rare hydrosilicate of vanadium and calcium, CaV2O5·H2O, occurring as slender, orthorhombic crystals in the vanadium deposits of Peru. C.M.D. Hewettite is a deep red, weakly radioactive mineral. Crosby, p. 124, b. Hewettite, Co3V2O7·H2O, (comprising both the hewettite and the metahewettite of Hillebrand. Merwin, and Wright), exists in at least three hydrate forms with n=3, 4, and 5 (probably, and 9. American Mineralogist, v. 40, No. 7-8, July-Aug., 1955, p. 691. Also spelled hewettite.

heverite. a. Eng. In the Newcastle coalfield, undercutting or mining the coal. Fay. b. The dressing of timber by chopping or by breaking from an edged tool. Grinn.


heverite. b. Eng. The sides of a calcer or roasting furnace, from which having been formerly built with hewn stone. Fay.

hexa-. Having 6 atoms or groups. A hexavalent substance can combine with 6 H-atoms or elements to carbon, for example, pyridine. Pryor, 3.
hexagonal. a. A system of solids which have one line of atoms running through the two right angles, but these latter intersect each other at an angle of 60°. Gordon. b. The crystal system enclosed by 6 equal sides of equal length; pointed hexagon if two parallel and equal-length sides are differing from epsomite in containing six molecules of water. Webster 3d. c. Hexagonal. Said of crystals having atoms at the corners of the hexagonal unit cell and at the centers of those rhombic bases, and at the corners of those having atoms at the corners of the hexagonal unit cell. The two sets of atoms are not crystallographically equivalent. Fay.

hexagonal close-packed crystals. Crystals having atoms at the corners of the hexagonal unit cells that are right prisms with rhombic bases, and at the corners of those (not as in (a)) the prisms that are similarly located halves of the hexagonal unit cells. The two sets of atoms are not crystallographically equivalent. Fay.

hexagonal system. In crystallography, that system of crystals in which the faces are referred to four axes—a principal or vertical axis and three lateral axes perpendicular to it. Fay.

hexagon cut. Any style or cut, the outline of which is hexagonal. Called square hexagon if two parallel and equal-length sides are of equal length; pointed hexagon if two parallel and equal-length sides are much longer than others; called oblong hexagon if those sides are but slightly longer than the others. Fay.

hexagonalite. Pink tremolite; contains a little manganese. Hess.

hexabedrite. A group name for those iron meteorites which have a cubic cleavage and which, on being etched, reveal a system of fine lines (Nau mann lines) due to twinning parallel to the octahedral faces. Holmes, 1920.

hexabedron. In crystallography, a form in the isometric system enclosed by six faces each perpendicular to an axis; a cube. Fay.

hexahydrite. A chemical compound with 6 molecules of water. Webster 3d.

hexahydrite. A white or greenish-white hydrous sulfate of magnesium, MgSO₄·6H₂O, differing from epsomite in containing six molecules of water instead of seven. Thick tabular crystals; also, columnar and fibrous. Monoclinic. From Orroville, Wash.; Littleport District, British Columbia; Crimea, U.S.S.R. English.

hexamethylene; cyclohexane. The bivalent radical (CH₂)₆, derived from normal hexane by the removal of one hydrogen atom from each carbon atom. Web. 2d.

hexane. C₆H₁₄; five compounds have this formula. Normal hexane; colorless; liquid; methanoic acid; pentaerythritol; pentaerythritol. A system of solids which have specific gravity 0.981 (1st) and specific gravity 0.966 (2d) at 20° C. A powerful explosive used in dynamite compositions. Bernds 2d, 1962.

hexamethyldiphosphorane. A mineral. P. Ch. 


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high-density metals. The heaviest of the alloy-forming metals, with melting points above that of iron. They are similar to high-pressure compounds and are used in manufacturing and construction.

high-expansion foam. A method of fighting underground fires that involves the formation of a high-expansion combustible foam. Large volumes of the foam are drawn or blown over and around the fire until it can no longer be sustained due to lack of oxygen. This foam is made from a mixture of liquid and water, with the liquid being a high-expansion agent.

high-expansion concrete. A type of concrete that expands upon hydration due to the addition of a high-expansion agent. This expansion can be up to 50 times the volume of the original mixture.

high-expansion roof. A roof that is designed to expand and contract with changes in temperature and humidity. This is achieved through the use of high-expansion materials.

high-expansion rubber. A type of rubber that expands upon exposure to high temperatures. This expansion is due to the chemical changes that occur in the rubber molecules.

high-expansion silicate. A type of silicate that expands upon exposure to high temperatures. This expansion is due to the chemical changes that occur in the silicate molecules.

high-expansion tile. A type of tile that expands upon exposure to high temperatures. This expansion is due to the chemical changes that occur in the tile materials.

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high-expansion polymer. A type of polymer that expands upon exposure to high temperatures. This expansion is due to the chemical changes that occur in the polymer molecules.

high-expansion rubber. A type of rubber that expands upon exposure to high temperatures. This expansion is due to the chemical changes that occur in the rubber molecules.

high-expansion concrete. A type of concrete that expands upon hydration due to the addition of a high-expansion agent. This expansion can be up to 50 times the volume of the original mixture.

high-expansion foam. A method of fighting underground fires that involves the formation of a high-expansion combustible foam. Large volumes of the foam are drawn or blown over and around the fire until it can no longer be sustained due to lack of oxygen. This foam is made from a mixture of liquid and water, with the liquid being a high-expansion agent.
Hind effect. The porosity of a dried cast

Hilt's law. A principle which states

Hinjosa topaz. See Williams' hinged-hammer crusher. See Fay.

Hinjosa del Duero, District of Cordova, Spain. Heat-treated to a fiery red-orange color as distinguished from the Madera wine color of the so-called Madera topaz. See also Spanish topaz, Shiplay.

hinaudite. A dark or greenish hydrous sulfate and phosphosphate of lead, aluminum, and strontium, \(2(\text{Pb},\text{Sr})_2\text{O}_3\cdot\text{Al}_2\text{O}_3\cdot6\text{H}_2\text{O}\), coarse and granular. Pseudohomohedral. From Hinshaw County, Colo. English.
Ditch. A miner who cuts places in the coal to mask a bound- arcy slope or plane engaging the clips or grips by means of which mine cars are attached to a hoisting cable or chain used in transporting them between two machines. A machine in which the burning of a coal seam in Spitsber gen takes place. (slushed) to the delivery point. Pryor, 30.

Ditching. Installing hoes in which the teeth or cutting edges are replaced by cutters, and similar tools, where the teeth are not arranged along a helical thread, or are not arranged along a helical thread, used for generating gear teeth or other evenly spaced forms on the periphery of a cylindrical workpiece. The hob and the workpiece are rotated in timed relationship to each other. In a hobbing machine of interior coal, Arkell. A thick soild pared off before cutting peat. Also called hub. Arkell. A pottery bottle oven in which the firemouths projected 18 to 24 inches out of the cages, gave the signals, and operated the break hand. Arkell. A clay pipe burned in the making of thin plas- tic needlelike crystals of calcite Schlier- decker.

Ditchless. A stone set up to mask a bound- ary line; a landmark; specifically, a per- manent monolith. Standard, 1964.

Ditchless. The name applied to the work- piece in which the teeth are not arranged along a helical thread, or are not arranged along a helical thread, used for generating gear teeth or other evenly spaced forms on the periphery of a cylindrical workpiece. The hob and the workpiece are rotated in timed relationship to each other. Hobbing machine of interior coal, Arkell. A thick soild pared off before cutting peat. Also called hub. Arkell. A pottery bottle oven in which the firemouths projected 18 to 24 inches out of the cages, gave the signals, and operated the break hand. Arkell. A clay pipe burned in the making of thin plas- tic needlelike crystals of calcite Schlier- decker.

Ditchless number. See transmission number.

Ditchless style guide. A guide containing test documents which are arranged along a helical thread, used for generating gear teeth or other evenly spaced forms on the periphery of a cylindrical workpiece. The hob and the workpiece are rotated in timed relationship to each other. Hobbing machine of interior coal, Arkell. A thick soild pared off before cutting peat. Also called hub. Arkell. A pottery bottle oven in which the firemouths projected 18 to 24 inches out of the cages, gave the signals, and operated the break hand. Arkell. A clay pipe burned in the making of thin plas- tic needlelike crystals of calcite Schlier- decker.

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...

holder-op. Skill d man who inserts hot rivets.

Holden/I daennosse ops bum Temperature in-

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hollowed out of a close-grained, hard, white chalk by hand or machine. 2. a drill or core having a hole through it. 3. a core taken by a core drill. 4. a cavity in the ground. 5. a hole or passage through the solid or surface of a thing. 6. a hollowed-out or hollowing-out instrument. 7. a hollowed-out or hollowing-out apparatus. 8. a hollowed-out or hollowing-out machine. 9. a hollowed-out or hollowing-out tool. 10. a hollowed-out or hollowing-out implement. 11. a hollowed-out or hollowing-out device. 12. a hollowed-out or hollowing-out appliance. 13. a hollowed-out or hollowing-out apparatus. 14. a hollowed-out or hollowing-out mechanism. 15. a hollowed-out or hollowing-out apparatus. 16. a hollowed-out or hollowing-out device. 17. a hollowed-out or hollowing-out apparatus. 18. a hollowed-out or hollowing-out mechanism. 19. a hollowed-out or hollowing-out apparatus. 20. a hollowed-out or hollowing-out device. 21. a hollowed-out or hollowing-out apparatus. 22. a hollowed-out or hollowing-out mechanism. 23. a hollowed-out or hollowing-out apparatus. 24. a hollowed-out or hollowing-out device. 25. a hollowed-out or hollowing-out apparatus. 26. a hollowed-out or hollowing-out mechanism. 27. a hollowed-out or hollowing-out apparatus. 28. a hollowed-out or hollowing-out device. 29. a hollowed-out or hollowing-out apparatus. 30. a hollowed-out or hollowing-out mechanism. 31. a hollowed-out or hollowing-out apparatus. 32. a hollowed-out or hollowing-out device. 33. a hollowed-out or hollowing-out apparatus. 34. a hollowed-out or hollowing-out mechanism. 35. a hollowed-out or hollowing-out apparatus. 36. a hollowed-out or hollowing-out device. 37. a hollowed-out or hollowing-out apparatus. 38. a hollowed-out or hollowing-out mechanism. 39. a hollowed-out or hollowing-out apparatus. 40. a hollowed-out or hollowing-out device. 41. a hollowed-out or hollowing-out apparatus. 42. a hollowed-out or hollowing-out mechanism. 43. a hollowed-out or hollowing-out apparatus. 44. a hollowed-out or hollowing-out device. 45. a hollowed-out or hollowing-out apparatus. 46. a hollowed-out or hollowing-out mechanism. 47. a hollowed-out or hollowing-out apparatus. 48. a hollowed-out or hollowing-out device. 49. a hollowed-out or hollowing-out apparatus. 50. a hollowed-out or hollowing-out mechanism.
The texture in which the constituent minerals are of approximately the same size, a kind of uniformity that is due to recrystallization. Holmes, 1928.

homoeoblastic structure. A metamorphic texture in which the constituent minerals are of the same order of magnitude in size. A.G.I.
A crane hoist, to which a swivel hook is connected, and a different tooth face giving a variation in rake at each spit.

Hood's model. A method of making the eyes of the letters project from a wooden plate, by making the глаз through the plate and then turning the letters around. The technique involved about 100 possible steps, and the result showed the need for improvement.

Computing and measurement such as the measurement of the height of a crane or the measurement of the height of a hook and a crane beam was considered.

Hodgkin's disease. A patient with Hodgkin's disease was treated with a radiotherapy technique consisting of high localized treatments. Hodgkin's disease, often referred to as a chronic inflammatory disease of unknown cause, is characterized by the presence of large, non-specific, nodular masses in the lymph nodes, liver, and spleen.

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Hollard's method. A method of making the eyes of the letters project from a wooden plate, by making the глаз through the plate and then turning the letters around. The technique involved about 100 possible steps, and the result showed the need for improvement.

Hood's hook. A hook attached to a train of cable, consisting of a screw or a pulley, which is used to direct the cable to a conveyor, feeder, or chute.

Hook chain. A chain coal sifter built in the United Kingdom was used in a factory in Yorkshire. The chain was designed to handle a large amount of coal and was used in a factory in Yorkshire.

Hookworm. A parasitic nematode of the order Ascarididae. See also Walker (1928).

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hooper

sailing the contents of a wagon. Fay, 1. A place of deposit for coal or ore. Fay. g. Eng. In the Derbyshire coalfield, a dish used by miners to measure ore. It varied from 7 1/2 to 10 ps in different localities. Fay.

hopper barge. A barge which is towed by a tugboat, and which is used to transport dredged material to a dumping ground. Ham.

hopper car. A car for coal, gravel, etc., shaped like a hopper, with an opening to discharge the contents. Standard, 1964.


hopper dredge, self-propelled. A dredge designed as a ship for mobility on the high seas. The dredging equipment sits high above the water on the top deck. The remainder of the vessel consists of bulk-loaded hoppers, into which dredged material is fed, and from which the water is then drained off. Coron, p. 354.

hopperings. In gold washing, gravel retained in the hopper of a cradle. Fay.

hoop. See also radius. Webber 3d, 327. A vessel for measuring ore. Pryor, 3.

horizontal. In geology, any plane parallel to the horizon. Fay. b. As used by some Brit- ish geologists, one or several consecutive beds characterized by a certain fossil or group of fossils; a zone. Fay. c. One of the layers of the soil profile, distinguished principally by its texture, color, structure, and chemical content. See also A-horizon; B-horizon; C-horizon. ASCE P1826, d. An identifiable rock stratum regionally known to contain or be associated with rock containing valuable minerals. Compare marker, a. Long. c. An imaginary border line, such as Long. l. A horizontal layer. Nichols, g. S. Afr. Level of a geographical formation observed at different places. Berman, in surveying, a plane normal to a plumbline at the observer's station. An artificial horizon is a reflecting level surface, such as a bank of mercury. Pryor, 3.

horizontal bedded formation. Any bedded rock formation which is suitable for inclining, and perhaps faulted, coal seams. Main stone headings are driven at opencast coal levels, from the winding shaft to intersect and gain access to the seams to be developed. The stone headings, or hori- zons, are from 100 to 200 yards vertically apart, depending on the seams available and their inclination. The life of each horizon varies from 10 to 30 years. Con- nections between horizons at inbye points are by either shafts or driveways in coal. Also called horizontal mining; con- tinental mining. See also lateral. Nelson.

horizontal auger. A rotary drill usually powered by a petrol engine, for drilling horizon- al blasting holes in quarries and open- cast pits. See also auger. Nelson.

horizontal balance. Much used than the vertical type. It is quite similar to it in construction except that the magnetic needle is approximately verti- cally instead of horizontally. Dobrin, p. 282.

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horizontal cell tile. A structural masonry tile having cells whose axis is horizontal when placed in the wall. ACGS, 1963.

horizontal circle. The circular horizontal plane of a theodolite, accurately divided so that horizontal angles can be precisely measured. Ham.


horizontal drift. See underhand stoping, a. Fay.

horizontal departure. The amount, expressed in feet or degrees, a borehole has digressed horizontally from the intended target. Long.


horizontal fault. A fault in the earth's crust with no vertical displacement. Webster 3d.

horizontal intertension. The intensity of the horizontal component of the magnetic field in the plane of the magnetic meridian. Hx.

horizontal line. A straight line that is parallel to the horizon or water level. Jones, 2, p. 87.


horizontal-loop methods. Inductive methods in which the coil, that causes the current flow in the earth, is laid horizontally on the ground surface. Schieferdecker.

horizontal magnetometer. Instrument to measure changes in the horizontal com- ponent of magnetic field intensity. Schieferdecker.

horizontal pendulum. Having a mass moving horizontally. Schieferdecker.

horizontal perforation. Having a mass moving horizontally. Schieferdecker.

horizontal paper. An intermittent unit for the production of town gas from coal; it is constructed in a polygon by machines that have been de- veloped to obtain the advantages of low lead room requirement. Mitchell, p. 135.

horizontal plane. The distance measured in the strike of the fault line between the two outcapping parts of a faulted bedding plane. Schie- ferdecker.

horizontal sided,l. See top side- ing and cove caving. Fay.

horizontal siding. See top side- ing (descending). Fay.

horizontal slipping. The movement of the horizontal component of the net slip. A.G.I.

horizontal stoping. A mechanism in which the takeup or movable pulley travels on an approximately horizontal plane. NEMA MBI-1951.

horizontal throw. The heave of a fault. Hux.

horley-sedgley water finder. An instrument used for ascertainment of the amount of water in a tank containing oil. Fay.

horn, a. Derb. A line at an angle of 45° with the face of the coal. Fay. b. Spacing line. c. M. Clean. Hax. d. A spire of bedrock left where cirques have eaten into a mountain from more than one side, so that the bottom is a cirque wall; for example, Matterhorn of the Swiss Alps. Leet.

horobala. A monoclinic amphibole, Ca2Mg3Si2O7(OH)2, color between black and white, through various shades of green, in lining to bluish-green; also dark brown; rarely yellow, pink, rose-red. In part a natural metalis- tite of Ca, iron, magnesiuim, RbO, usually from, also manganese, and thus in general analogous to the pyroxenes. The alkali metals, sulfur and potas- sium, also present, and the rock commonly so with pyroxene. The name of the mineral is prefixed to many rock names. Dana 17; A.G.I.

hornblende. A metallic, dark-yellow, iron- nickel sulfide that is closely related to pyrrhotite, and is found massive. Stan- dard, 1964.

horn blende. A monoclinic amphibole, Ca2Mg3Si2O7(OH)2, color between black and white, through various shades of green, in lining to bluish-green; also dark brown; rarely yellow, pink, rose-red. In part a natural metalis- tite of Ca, iron, magnesiuim, RbO, usually from, also manganese, and thus in general analogous to the pyroxenes. The alkali metals, sulfur and potas- sium, also present, and the rock commonly so with pyroxene. The name of the mineral is prefixed to many rock names. Dana 17; A.G.I.

hornblende granite. A type of granite, usu- ally with small, pink, or rose-colored, lam- inating hornblende as an essential constituent; with decreasing quartz, grades through tonalite into normal diorite. C.M.D.
hornblende jade. A term sometimes used for smaragdite. Shipley.


horn lead. Lead chlorite. Fay.

hornito. A gas-emitting vent on and originating horns; horn in the metal. Fay.


horseflesh. Fibrous carbonate of lime. Arkell.


horn corel. See black coal. Shipley.

hornstone. A fine-grained, nonschistose metamorphic rock resulting from contact metamorphism. Large crystals may be present and can be either porphyroblasts or relic phenocrysts. A.G.I. b. A dense compact rock produced from slate by the contact action of some igneous intrusion, especially granite. Various microscopic minerals are developed in it. Fay.


horseplay. Rough or boisterous play. Webster 2d.

horsepower. A standard unit of power equal to 746 watts in the United States and nearly equivalent to the English gravitational unit of the same name that equals 550 foot-pounds of work per second. Abbot, 1. p. 82.

horsepower applied. See power upon the air. Kentucky, p. 81.


horseshoe. a. A frame or support. Nichols. i. A large block of stone cut from a cow horn and scraped thin; also called a pinch. Long. b. A saw horse or other simple horseplay. Rough or boisterous play. Webster 2d.

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horseshoe flute casts

hot miller

that contains the inclusions of smaller crystals of a different mineral species. Bureau of Mines Staff. Comparative granite.

hot element. A mineral element which is substituted by a trace element in a rock mineral, Schieferdecker.


hose. Ham. A heated floor, usually concrete with imbedded steam pipes, for use in drying refractory brick and shapes. A.R.I.

host rock. The rock of an epigenetic ore deposit. A.G.I.

hot. Applied to a mine or part of a mine that generates methane in considerable quantities. Fay.

hotbed. An area adjacent to the runout point where hot rolled metal is placed to cool. Sometimes called the cooling table. ASM Gloss.

hot blast. Air forced into a furnace after having been heated. Fay.

hot-blast circulating duct. See blast pipe. Dodd.

hot-blast main. A duct, lined with refractory material, through which hot air passes from a hot-blast stove to the blast pipe of a blast furnace. See also hot-blast stove; blast pipe. Dodd.

hot-blast stove. Cowper stove. A unit for heating the air delivered to the tuyères of a blast furnace. It is a cylindrical furnace, about 80 feet high and 20 feet in diameter, lined with fire clay refractories. There is a combustion chamber 20 feet up the side; fire clay checker bricks (usually special shapes known as stove fillings), fill the remainder of the space. The checker bricks are heated by the combustion of blast furnace gas in the combustion chamber and then, on reversal of the direction of gas flow, they deliver heat to incoming air which then passes to the blast furnace tuyères. See also stove fillings. Dodd.

hot-blast system. The plenum system of ventilation. Webster 2d.

hot-carbonate process. A process developed by the U.S. Bureau of Mines in which a hot solution of potassium carbonate is used to absorb impurities from gases and is then regenerated for reuse in a continuous cycle with maximum efficiency and minimum heat loss. Also called hot-potash process; Benfield process. Bureau 4th Mines Staff.

hot-cast process. See opaline.

hot-cell. A heavily shielded enclosure in which radioactive materials can be handled remotely through the use of manipulators and viewed through shielded windows so that there is no danger to personnel. LBL.

hot cement. Cement which retains some of the heat generated during grinding. Taylor.

hot channel. The coolant channel in a nuclear-reactor core with the highest temperature. LBL.


hot-chlorine process. A process developed as a means of producing chlorine from sodium chloride by electrolysis, and suitable for use in the production of chlorine for the manufacture of other chlorine-containing products. LBL.

hot-dip galvanizing. Immersion of iron or steel articles in bath of melted spelter, to produce a zinc coating. Pryor, 3.

hot-dip fluxing. Elongation of wire, tube or rod by drawing it while heated through a constricting orifice. Opposite of cold drawn. Pryor, 3.


hot end. Those manufacturing operations concerned with hot glass, that is, melting, forming, annealing. ASTM C162-66.

hot face. An alternate name for insulating refractory. It generally consists of a refractory base containing a voluminous order, such as vermiculite or diatomaceous earth. Francis, 1963, v. 2, p. 653.

hot floor. A heated floor, usually concrete with imbedded steam pipes, for use in drying refractory brick and shapes, A.R.I.

hot-forming. Working operations such as bending, drawing, forging, piercing, pressing, and heading performed above the recrystallization temperature of the metal. ASM Gloss.

hot-house. A heated building or chamber for drying pottery or other wares; drying room. Standard, 1964.

hot laboratory. A laboratory designed for the safe handling of radioactive materials. Usually contains one or more hot cells. LBL.

hot-laid mixtures. Plant mixes which must be spread and compacted while in a hot condition. Asphaltic concrete is included in this type. API Glossary.

hot-laid type. A bituminous pavement which is mixed and laid in a hot condition, generally above 250° F. This type is the highest type pavement that can be laid. It has greater durability and lower maintenance than any other type. Pit and Quarry, 53rd, Sec. E, p. 70.

hot-metal ladle. A ladle for the transfer of molten iron from a blast furnace to a mixer furnace and from there to a steel furnace; alternatively, the ladle may transfer molten pig iron direct from blast furnace to steel furnace. Such ladles are generally lined with fire clay refractories but for severe conditions high-alumina and basic refractories have been tried with some success. Dodd.

hot-metal mixer. A large holding furnace for molten pig iron. The capacity of these furnaces, which are of the tilting type, is up to 1,400 tons. Hot metal mixers may be used (that is, the pig iron is merely kept molten until it is required for transfer to a steel-making furnace). In either case, the bottom and walls of the furnace are made of magnesium refractories and the roof of silicon refractories. Dodd.

hot mill. To heat metal, then shape it. A.G.S.

hot miller. A tool operated by compressed air, fitted with cutting wheels which mill
the hot cutting edges or rock drill bits to the required angle. See also detachable bit. Nam.

hot mold. The process of forming glassware in uncooled molds. ASTM C162-66.

hot patching. The repair of the refractory lining of a furnace while it is still hot; this is most commonly done by spraying a refractory slurry through a cement gun. See also airborne sealing; spray welding.

hotplate spalling test. A spalling test designed specifically for the testing of silica refractories. Dodd.

hot-potash process. See hot-carbonate process.

hot preparation. See steam tempering. Dodd.

hot-pressing. a. In powder metallurgy, forming products formed by pressing while the mixture is held at an elevated temperature. ASM Gloss.

hot press. b. The technique of forming a heated profile to or in a plunger lift in which the valves or clacks are fixed. Fay.

hot rolling. The passing of hot steel bars through pairs of steel rolls to form rolled-steel sections. The final dimension of the product is approached in stages by adjusting the height of the rolls. This height is controlled by the mill operator. The trend towards automatic control is increasing. The completely automatic mill, in which every operation is performed without human aid, appears to be fast approaching. See also steelworks. Nelson.

hot saw. A circular saw for cutting hot bar iron in small pieces. Fay.

hot-short; red-short. Said of metals that tend to be brittle at temperatures at which hot-working operations are performed, and which can only be worked with difficulty, if at all. C.T.D.

hot-shortness. Embrittlement of steel or wrought-iron when hot, usually due to excessive sulfur content. Pryor, 3.

hot spot. a. A small portion of the furnace that is warmer than the rest. It indicates a thin lining. Fay, b. The zone of a surface of the ingot or casting as inserted into the tip of the mold and is supported at various heights to feed the ingot directly. Bryant.

hot wire anemometer. This instrument is particularly suited to the measurement of very low air velocities and the fluctuating velocities that occur in turbulent flow. Basically, it consists of a wire or wires, usually platinum, supported in a frame and heated electrically. When exposed to an air current the heated wire cools, and as a result its electrical resistance alters. The heated wire forms one arm of a Wheatstone-bridge-type circuit, and measurements of resistance change may be correlated with the velocity of airflow which caused that change. Roberts, I. P. 55.

hot working. Deforming metal plastically at such a temperature and rate that strain hardening does not occur. The low limit of temperature is the recrystallization temperature. ASM Gloss.

hot zone. The area of a continuous furnace where the major amount of heat is supplied. Bryant.

hot miller. 554

hot mold. To roll (metal) while hot or with difficulty, if at all. C.T.D.

hot preparation. See steam tempering. Dodd.

hot-potash process. See hot-carbonate process.

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hot-pressing. a. In powder metallurgy, forming products formed by pressing while the mixture is held at an elevated temperature. ASM Gloss.

hot press. b. The technique of forming a heated profile to or in a plunger lift in which the valves or clacks are fixed. Fay.

hot rolling. The passing of hot steel bars through pairs of steel rolls to form rolled-steel sections. The final dimension of the product is approached in stages by adjusting the height of the rolls. This height is controlled by the mill operator. The trend towards automatic control is increasing. The completely automatic mill, in which every operation is performed without human aid, appears to be fast approaching. See also steelworks. Nelson.

hot saw. A circular saw for cutting hot bar iron in small pieces. Fay.

hot-short; red-short. Said of metals that tend to be brittle at temperatures at which hot-working operations are performed, and which can only be worked with difficulty, if at all. C.T.D.

hot-shortness. Embrittlement of steel or wrought-iron when hot, usually due to excessive sulfur content. Pryor, 3.

hot spot. a. A small portion of the furnace that is warmer than the rest. It indicates a thin lining. Fay, b. The zone of a surface of the ingot or casting as inserted into the tip of the mold and is supported at various heights to feed the ingot directly. Bryant.

hot wire anemometer. This instrument is particularly suited to the measurement of very low air velocities and the fluctuating velocities that occur in turbulent flow. Basically, it consists of a wire or wires, usually platinum, supported in a frame and heated electrically. When exposed to an air current the heated wire cools, and as a result its electrical resistance alters. The heated wire forms one arm of a Wheatstone-bridge-type circuit, and measurements of resistance change may be correlated with the velocity of airflow which caused that change. Roberts, I. P. 55.

hot working. Deforming metal plastically at such a temperature and rate that strain hardening does not occur. The low limit of temperature is the recrystallization temperature. ASM Gloss.

hot zone. The area of a continuous furnace where the major amount of heat is supplied. Bryant.

hot miller. 554
hugger belt conveyor. Two belt conveyors
Hubbard distributor. A continuous distribu-
ting of a steel open-topped box
huck joint. A joint formed at the apex of
hull. Corn. A mine; a variant of wheal. Fay.
hullite. Partly oxidized material with the composition
huberzkobelite. Particularly oxidized material with the composition
Hugoniot curve. A pressure-volume curve which obeys the Hugoniot
equation.
(huller)kobellite. Partly oxidized material with the composition
Humboldt distributor. A continuous distribu-
ting of a steel open-topped box
Humboldt rotary kiln. A kiln designed for
burning cement; the batch is fed to the kiln at high rate of lead, with consequent economy in fuel consumption. Dodd.
humectant. A term denoting affinity for water,
with stabilizing action on the water con-
tent of an article; thus, a humectant keeps
within a narrow range of the moisture con-
tent fluctuations caused by volatile or
humidity fluctuations. CCD 64, 1961.
humic. Derived from plants, carbonaceous.
Compare bituminous. A.G.I. S. F.
humic acids. a. A name first suggested by
Dobereiner and used by Sprengel as ap-
plied to the brown gelatinous material
participated by mineral acids from an alkali
extract from peat, soil, or other decayed plant materials. Many formulas for
problematic humic acids have been proposed.
Tomkeieff, 1954. b. Any of various complex
organic acids supposed to be the partial
decay of organic matter. An indefi-
nite term of widely varying usage. Humi-
cid acid is generally considered to be an effective
adsorbent, but regarding its acid properties and its role in weathering and soil forma-
tion, opinions differ widely. See also ultins.
A.G.I.
humic canal coal. See pseudocannel coal.
A.G.I.
humic coals. a. A group of coals, including
the ordinary bituminous varieties, which
have been formed from accumulation of
vegetable debris that have maintained their
morphological organization with little de-
cline. The majority of them are banded and have a tendency to develop jointing or
cleat. Chemically, humic coals are charac-
terized by hydrogen varying between 4 and
6 percent. Tomkeieff, 1954. b. Coals in
which the attritus may be composed pre-
dominantly of transparent humic degrada-
tion matter. A.G.I. c. Introduced in 1906
by H. Potonic to describe coals, the original
definition of which has been broadened to include any coal in which the
organic matter is free from carbonized plant remains.
Tomkeieff, 1954. c. A group of bituminous
bituminous coals. The original term of widely varying usage. Humir:
A.G.I. d. A group of bituminous coals; bituminous coals which the attritus may be composed
predominantly of transparent humic degradation matter. A.G.I.
humic degradation matter. Finely commi-
dated degrada-
tion matter. A.G.I. c. Introduced in 1906
by H. Potonic to describe coals, the original
definition of which has been broadened to include any coal in which the
organic matter is free from carbonized plant remains.
Tomkeieff, 1954. c. A group of bituminous
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humidifying effect

hour) times the latent heat of vaporization at the evaporating temperature. Strock, 10.

humidity. a. Moisture or dampness; the quantity of moisture in the air. Crispin. b. The condition of the atmosphere with respect to water vapor. When the word humidity is used without a qualifying adjective the relative humidity is usually meant. Humidity may be expressed in many different ways; for example, absolute humidity, mixing ratio, saturation deficit, and specific humidity. A.G.I. See also absolute humidity; relative humidity.

humidity drier. A drier in which the humidity is controlled. ACSG, 1963.

humidity drying. Process of heating in a moisture-saturated atmosphere and then drying after the product becomes hot and the water content is lower.

humidity of air. See absolute humidity.

humidity ratio. See specific humidity. Strock, 10.

humidity test. A test involving exposure of specimens to controlled levels of humidity and temperature. ASM Gloss.

humidostat. An instrument for regulating the humidity. ACSG, 1963.

humidification. As part of coal formation, the growth of peat beds first as bogs with plants at surface, next after these have sunk to the bottom of the swamp and been converted to peat by biological agencies. Peat lignite and coal are sometimes classified as humoliths, in distinction from sapropelites. Pryor, 3.


huminites. In coal, amorphous brown to black substances formed by natural decomposition from vegetable substances, insoluble in alkali carbonates, water and benzol. Hess.

humite. a. A basic fluorossilicate of magnesium, Mg5(SiO4)(F,OH)2, orthorhombic; fraction subconchoidal to uneven; brittle; luster, vitreous to resinous; white, light yellow, honey-yellow to chestnut-brown and garnet, or honey-red, color. Dana 17. b. A term applied by R. Potonic in 1924 to deposits but containing less fat and protein than sapropelic material. Dana, 1924.

huminite group. A group of isomorphous minerals consisting of olivine, chondrodite, humite, and clinohumite, and closely resembling one another in chemical composition, physical properties, and crystallization. Webster 3d.

humiferous screen. Ore screen used to size unincorporated in the form of mounds or hillocks. Fay.


hummocked ice. Ice piled in the forms of mounds or hillocks. Hy.

hummocky. Lumpy, or in small uneven knobs. Fay.

hummocky. Peat derived from humic material and in rank corresponding to sapropelic. Tomkiewicz, 1954.


humulitic. A collective name for humic gels occurring in subbituminous coal, such as: spergulite, zyttava, etc. Tomkiewicz, 1954.


humulitic series. Humic material and coal in order of increasing rank: humopel, humocoll, humonigritite, humonigriffite, humosite. See also sapropellic series. Tomkiewicz, 1954.

humonigriffite. A black bituminous coloring matter found in sediments, such as black chalk, etc. Tomkiewicz, 1954.

humopeelite series. Series of organic and coaly material intermediate between humolith (pseudovolcanic) and the sapropellic series. Tomkiewicz, 1954.

humosite. A microscopical constituent of torbitane; translucent, subisotropic. Tomkiewicz, 1954. See also gelosite; matisoite; retinite.


hump. a. The crest of an anticline. Arkell. b. A large ball of clay centered on the wheel from which several smaller pots are thrown and cut off. ACSG, 1963.


humpfey's spiral. A concentrating device which exploits differences in densities of mixed sands and the relative motion of sludging and centrifugal action. The ore pulp gravitates through a stationary spiral trough with 5 turns (6 for coal treatment) of mean radius 8 inches with a fall per turn of 13 inches. Heavy particles stay on the inside and the lightest ones climb to the outside, and the resulting sands are separated at convenient points. Pryor, 3.


humus coal. a. Coal of an anthracite of varying proportions and of varying thicknesses, associated with semianthracites. A.G.I. b. Amorphous brown to black coal formed from vegetable matter and insoluble under continuous boiling in caustic alkali, also insoluble in water and benzol. Hess.

humus layer. The top portion of the soil that owes its characteristic features to its content of humus, which may be incorporated or unincorporated in the mineral soil. A.G.I.

humus tank. The final settling tank from which sewage effluent is taken to flow toward the nearest stream. Harris.

hundredweight. A weight commonly reckoned including the point of maximum efficiency. Liddell 2d, p. 494.

Hungarian cat's-eye. An inferior greenish cat's-eye obtained in the eastern Carpathians of Hungary, and formerly in Bavaria. No such stone occurs in Hungary. C.M.D.

Hungarian mill. A rotating, grinding mill used in Hungary for removing small portions of gold from quartz by mixing with mercury; one of the many forms of pan amalgamators. Fay.

Hungarian opal. a. A white opal with a fine play of color, found in former Hungary—now Czechoslovakia. Shipley. b. A name widely used by the importing trade for any white opal regardless of where it was found. Shipley.

Hungarian riffs; transverse riffs. Riffs used in unincertainties that are small angle tris or pieces of wood shod with iron. Lewis, p. 386.


hunghire. Delay in a blowing explosion caused by dampness of the powder or by too slow combustion of the fuse. Korson.


hung shot. A shot which does not explode immediately upon detonation or ignition. Zern. See also hangfire. Fay. b. A delayed shot. Hudson.

hung. a. Eng. To sit with the balls of the feet upon the ground and the knees bent, so that the thighs rest on the calves of the leg. This position is said to be uncomfortable for miners from the nature of their underground work. Fay. b. A term used in India for yellowish clay containing concretionary nodules. Fay.

Hunt and Douglas process. Consists in roasting matte carrying copper, lead, gold, and silver at a very high temperature, forming copper sulfate and oxide, but not silver sulfate. This product is leached with dilute sulfuric acid, and the copper precipitated as sulfide by passing SO2 through the solution. The cuprous chloride is then reduced to cuprous oxide by milk of lime, regenerating calcium chloride, and the copper oxide is smelted. Liddell 2d, p. 494.

Hunt continuous filter. A horizontally revolving continuous vacuum filter. It consists of an annular filter belt, usually of triangular wooden slats filled with coarse sands. The vacuum is withdrawn part of the pulp moisture as soon as the bed is formed. A spray then washes it after which the vacuum dries it, and the material is then scraped off. Liddell 2d, p. 391.

hunting. a. Unstable conditions occur with hunting selective forces and lead to the elimination of populations. Hunt and Douglas process. Consists in roasting matte carrying copper, lead, gold, and silver at a very high temperature, forming copper sulfate and oxide, but not silver sulfate. This product is leached with dilute sulfuric acid, and the copper precipitated as sulfide by passing SO2 through the solution. The cuprous chloride is then reduced to cuprous oxide by milk of lime, regenerating calcium chloride, and the copper oxide is smelted. Liddell 2d, p. 494.

Hungarian sinks. A name applied to shallow hollows or large sinks of land, possibly the result of solution of dolomite. Shipley.
hunting


c. A boy who draws %utches. Fay.

d. See also automatic control; integral control; corrective change

hurricane air stemmer. A mechanical device for the rapid stemming of shotholes. It consists of a sand funnel connected by a T-piece to the charge tube, one end of which is provided with a valve and fittings to permit compressed air and the tube is gradually withdrawn as the hole is being filled. Net.

e. See putter, a. Nelson. b. Generally a small train or wagon. C.T.D. c. A cistern or box for washing ore. See also hutch b. A water wheel. See also hurdy-gurdy wheel.

hurricane. a. To clear away (soil) from ore joints. Eng. b. A wheel barrow. Stand.


d. A field name in Hampshire. Arkell.


hurtle. a. A rare, scarlet vermilion to deep cherry-red sulphide of lead, silver, and thallium, Pb(SiAg)2S2As2S. b. A temporary screen or curtain for clearing gas out of a pit. Nelson. c. A car for conveying heavy minerals that pass through the meshes of the screen in a jig. New, p. 69. d. See also automatic control; integral control; corrective change


d. A field name in Hampshire. Arkell.

e. See putter, a. Nelson. b. Generally a small train or wagon. C.T.D.

hurricane drill. A hand auger used to drill boreholes in soft rock or rock material, often used in mining camps. English, as for mineral prospecting. Long.

d. To clear away (soil) from ore joints. Eng.

c. A car for conveying heavy minerals that pass through the meshes of the screen in a jig. New, p. 69.

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hurt. To haul. Mason.

d. A car for conveying heavy minerals that pass through the meshes of the screen in a jig. New, p. 69.

c. A car for conveying heavy minerals that pass through the meshes of the screen in a jig. New, p. 69.

d. See also automatic control; integral control; corrective change


c. A field name in Hampshire. Arkell.

d. A cistern or box for washing ore. See also hutch

hurt. To clear away (soil) from ore joints. Eng. b. A railroad. See also hutch


d. A railroad. See also hutch

e. A railroad. See also hutch

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Huygen's principle. A very general principle which states that every point on the instantaneous position of an advancing phase front (wave front) may be regarded as a source of secondary spherical wavelets. The position of the phase front a moment later is then determined as the envelope of all of the secondary wavelets (ad infinitum). This principle, stated by the Dutch physicist, Christian Huygens (1629-1695), is extremely useful in understanding effects due to refraction, reflection, diffraction, and scattering, of all types of radiation, including sonic radiation, for example, hyalos. Thomas, 1955.

hyaline. A variety of opal (hydrous silica) which occur in clear globular or botryoidal form resembling drops of melted glass. Sandford, 1955.

hyalite. An opaque variety of glass, frequently black, green, brown, red, etc., resembling porcelain, and valuable owing to its strength. Standard, 1964.

hyalo. A prefix added to certain rock names to signify a glassy rock. The term was adopted by Harker (1904) for magmatic rocks formed by the mixing of two compositionally contrasting primary magmas, now it is used more generally to include all igneous rocks formed through the mixing of materials from several sources, as by assimilation of solid igneous rocks by later intrusions from the same source, or by assimilation of country rocks. Synonymous with contaminated rocks in this latter sense. See also hybrid, A.G.I.


hydrolithogenesis. The process by which mineral deposits are formed from magmatic solutions high in water content. Also used for all deposits formed from aqueous solutions whether the waters were magmatic, vadose, or phreatic. Holmes, 1920. See also mineralization.

hydrotropic. Pertaining to substances in a liquid condition; said of substances in a liquid condition; said of substances dissolved in water. A.A.G. 1956.

hydrosol. A highly ferruginous variety of olivine. Fay, 1928.

hydromulicide. A fluoroaluminate of lead, barium, and calcium, approximately Pb, Ba, CaO, 2B2O3, 24SiO2, P2O5, also contains a little BeO, KO, etc.; 25.11 percent PhO, 37.83 percent BaO, 0.39 percent F; vitreous and glassy. Its hardness, 3-3.5; specific gravity, 3.81; from Langban, Sweden. Dana 6d, p. 455.

Hydromulicide. A process used for refining of crude rock materials. These are placed in reinforced concrete tanks lined with asphalt. The nickel anodes are solved electrochemically and the impurities such as copper and iron, pass into a solution. The cathodes are surrounded by bags of closely woven canvas duck, fastened on wooden frames, and pure nickel electrolyte is passed continuously into the mass in order to maintain a higher solution level inside the cathode compartment than outside. By this means, the pure solution flows through the pores of the cathode and is prevented from touching the anode compartment from which the impurities are excluded. The cathode compartment is isolated from the anode compartment by a diaphragm. Nelson, 1904.

Hydromulicide. A method of refining iron ores by electrochemical means; the term was adopted by Harker (1904) for magmatic rocks formed by the mixing of two compositionally contrasting primary magmas, now it is used more generally to include all igneous rocks formed through the mixing of materials from several sources, as by assimilation of solid igneous rocks by later intrusive from the same source, or by assimilation of country rocks. Synonymous with contaminated rocks in this latter sense. See also hybrid, A.G.I.


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b. Also denotes a hydroxide, such as calcium hydrite (hydrated lime). Webster 3d.

c. Hardening or setting under water, as pay or waste by means of water. Austin.

Cover all water in motion, but term is extended to other substance and represented as actually containing water. Webster 3d. b. Also denotes a hydroxide, such as calcium hydrite (hydrated lime). Webster 3d.

Hydrated. Combining water (as in a hydrate); hydrogen. Webster 3d.

Hydrated. Stated oxide. See alumina trihydrate. CDC 64, 1961.

Hydrated. Many substances have the power of combining directly with water to form compounds in which the water is more or less loosely held. These compounds are called hydrated, and, on heating, generally give up their water of hydration or water of crystallization. Cooper.

Hydrated. The process of adding water, or the element or water with another substance. A.G.I. b. Also called hydration. hydrate.

Hydrated. Ion. One surrounded by oriented molecules of water Pryor, 3.

Hydrated. A dry powder obtained by hydrating quicklime with enough water to satisfy its chemical affinity, forming a hydrate due to its chemically combined water. It may be high calcium, magnesium, dolomite, or hydralic. Baynton. Also called slaked burned lime.

Hydration. a. The chemical combination of water with another substance. A.G.I. b. The process of adding water, or the element of water (oxygen and hydrogen combined in the hydroxyl radical), to any substance. Bureau of Mines Staff.

Hydraulic. a. Strictly, having to do with what is in motion, but term is extended to cover all liquids which convey, store, or transport pressure energy to reactants. Pryor, 3. b. To move material—either pay or waste by means of water. Austin.

c. Hardening or setting under water, as pay or waste by means of water. Austin.

d. The chemical combination of water with another substance. A.G.I. b. The process of adding water, or the element of water (oxygen and hydrogen combined in the hydroxyl radical), to any substance. Bureau of Mines Staff.

Hydraulic. The mechanical loosening and removal of materials by the action of water. Austin.

c. Hardening or setting under water, as pay or waste by means of water. Austin.

Hydraulic. The mechanical loosening and removal of materials by the action of water. Austin.

c. Hardening or setting under water, as pay or waste by means of water. Austin.

Hydraulic action. The process of removing soil by hydraulic means. Austin.

c. Hardening or setting under water, as pay or waste by means of water. Austin.

Hydraulic air compressor. One in which water falls down a pipe or shaft, entraining air which is released at the bottom and returned under compression to do useful work; the water leaves the system after rising to a lower escape level. Such air is appreciably lower in oxygen than is ordinary compressed air. Pryor, 3.

Hydraulic blasting. Fracture using a hydraulic pistion operated device used to split c., 7 Pryor, 3.

Hydraulic cartridge. a. A device used in mining to split coal, rock, etc. In blasting 12 small hydraulic rams in the sides of a steel cylinder. Fay. 2. See coal burster. Nelson.

Hydraulic cement. A cement which is capable of binding suitable aggregate into a concrete that can set and harden under water. Nelson.

Hydraulic cementing. A borehole-cementing operation using a downdee cement injection. See also cement injector. Long.

Hydraulic chock. A steel face support structure consisting of one up to four hydraulic legs or uprights. The four-legged chock is mounted in a strong fabricated steel frame with a large head and base plate. In one type, the chock can be set to a load of 11.2 tons to 1,000 pounds per square inch to yield at 120 tons. It is controlled by a central valve system which operates either on the four legs simultaneously or on the front and rear pairs separately. See also self-advancing support. Nelson.

Hydraulic classifier. Tank into which ore is fed steadily and subjected to the sorting effect of a stream of hydraulic water which rises against the rate. Heavier or coarser equal settling particles gravitate down and away via a bottom discharge, while lighter ones are carried up and out. Pryor, 3.

Hydraulic converter. A device used in mining to split coal, rock, etc. In blasting 12 small hydraulic rams in the sides of a steel cylinder. Fay. 2. See coal burster. Nelson.

Hydraulic discharge. The discharge of ground water in the liquid state directly from the zone of saturation upon the land or into a body of surface water. Hydraulic discharge may be divided into discharge through springs, well, infiltration ditches and infiltration tunnels. States and Varnes, 1955.

Hydraulic dredge. a. A dredge that consists of a hull on which is mounted a suction pipe and support, pump with motor and controls, and a discharge line. Commonly used in dredging coal and in providing fill for the creation of land in near shore or low-lying areas. Have been used to mine sodium-carbonate deposits in Canada. Presently, these dredges are operating at depths of about 200 feet below the water level. Metro, p. 249-251, b. A floating pump that sucks up a mixture of water and soil, and usually discharges it on land through pipes. Nichols.

Hydraulic drill. A hand-held or machine-mounted rotary drill for boring shot-firing holes in coal and other material. The drill weighs about 32 pounds. Nelson.

Hydraulic elevator. An arrangement for lifting gravel and sand up to the drainage level. A jet of water is used to create a powerful suction in a hopper and the water and sand are carried up a pipeline and then run down the sluice boxes. This appliance was widely used in various goldfields to the end of the 19th century. Nelson.

Hydraulic engineering. One who handles the engineering works of design, erection, and construction of sewage-disposal plants, waterworks, dams, water-operated power plants, etc. Griswold.

Hydraulic engineering. That branch of engineering chiefly concerned in the design and production of hydraulic machinery, pipelines, pipe lines, etc. C.T.D.

Hydraulic excavation. Excavation by means of a high pressure jet of water, the resulting excavated material being co-conducted through flumes to the desired dumping point. Ham.

Hydraulic extraction. A term which has been given to the processes of excavating and transporting coal or other material by water energy. Also called hydraulic-shipping. Nelson.

Hydraulic feed. A method of imparting longitudinal movement to the drill rods or a diamond or other rotary-type drill by a hydraulic mechanism instead of mechanically by gearing. See also feed cylinder. Long.

Hydraulic fill. b. A general term, for which there is no generally accepted American or international standard. Strefy, 1.

Hydraulic filling. Wasting water material, such as mill tailings and ground waste rock, into stopes with water in order to prevent failure of rock walls and subidence. Problems involved in its use are stoppage preparation, choice and mixing of material, its particle size distribution, wear on pipe, and removal of water which transports the material into the mine. Compressed air may be used to force the water. Lewis, P. 79.

Hydraulic fluid. A fluid supplied for use in hydraulic systems. Low viscosity, low rate of change of viscosity with temperature, and low pour point are desirable characteristics. Hydraulic fluids may be of petroleum or nonpetroleum origin. Ham.

Hydraulic flume transport. The transport of coal, pulp, or mineral by the energy of flowing water in semicircular or rectangular channels. The channel gradient should not be less than 3%. Coal movement in flumes commences at a water velocity of about 3 feet per second in practice, and at a velocity of at least 6 feet per second is arranged. Nelson.

Hydraulic flushing. Synonym for hydraulic stowing. Also called hydraulic sluicing; hydraulic sifting. Nelson.

Hydraulic fracturing. a. Method in which sand, water, and long gas or oil are forced into underground wells under pressure. This pressure splits the petroleum-bearing sandstone, thereby allowing the oil or gas to move towards the wells more freely. Bureau of Mines Staff.

b. A general term, for which there are numerous trade or service names, for the fracturing of rock in an oil or gas

Nelson.
hydraulic fracturing

reservoir by pumping a fluid under high pressure into the well. The purpose is to produce artificial openings in the rock in order to increase permeability. A.G.I. See also fracturing.

hydraulic-fracturing sand. A sound, rounded, light-colored quartz sand free of aggregates and possessing high uniformity in specified size ranges which, when immersed in a suitable carrier and pumped under great pressure into a formation, increases fluid production by generating greater effective permeability. Commonly referred to as Sandrac. AIME, p. 771.

hydraulic friction. A force-resisting flow which is exerted on contact surface between the fluid and its containing channel. It usually includes the normal eddies and crosscurrents attendant upon turbulent flow and is influenced by the roughness characteristic of the boundary surface, moderate curvature, and normal channel variations. When ever possible, the effects of excessive curvature, eddies, impact, obstructions, and pronounced channel changes are segregated from the effects of hydraulic friction. Seeley, 1.

hydraulic giants. Usei for working large placer deposits. They are made in various sizes with nozzles ranging from 2 to 10 inches in diameter. The smaller sizes have a single joint of the universal type; larger sizes have double joints and are ball bearing to lessen the frictional resistance to turning. The upper and lower parts are held together by a bolt called the king bolt. As a safety measure in case the king bolt should break, four hooks hold the two flanges together. When water is under pressure the giants are fitted with special tips or deflectors. By turning these slightly the reaction of the stream of water moves the giant in the opposite direction. Lewis, p. 386. Also called hydraulic monitor.

hydraulic gradient. In a closed conduit, a line joining the elevations to which water could stand in visors. In an open conduit, the hydraulic gradient is the water surface.

hydraulic gradient line. A line joining the points of highest elevation of water in a series of vertical, open pipes rising from a pipeline in which water flows under pressure. Webster 3d. b. Loss of hydraulic head per unit distance of flow. See also critical hydraulic gradient. ASCE P1026, c. The slope of the hydraulic gradient line. The slope of the surface of water flowing in an open conduit. Seeley, 1.

hydraulic gravel-pump mining. Consists of the use of high-pressure water jets to disintegrate ore-bearing ground, together with gravel pumps to elevate the spoil to a transport plant. In mining operations consist of the establishment of the mine hole or padcock. This is achieved by sinking or digging downwards with monitors and removing the spoil by pumping, the pump being lowered as the hole deepens. Institution of Civil Engineers, Symposium on Opencast Mining, Quarrying, and Alluvial Mining, London, 16-19 November 1954, Paper 21, p. 567.

hydraulic mud. A synonym for hydraulic swivel head. Long. b. The height of a fluid column, usually considered as water, which pressure is required to prevent a rise in the amount of pressure being directly propor-

portional to the depth of the fluid standing above the point at which the pressure is +kpn. This pressure may be given in pounds per square inch as simply as the height of the water column in feet or inches. Pure water at 60° F exerts a pressure of 0.434 pounds per square inch for each foot of depth. Long.

hydraulic holding. See hydraulic transport.

hydraulic hose. The flexible hose used to direct a stream of water against a wall or face of drift. Fay.

hydraulic hydrated lime. A chemically impure form of lime with hydraulic properties of varying extent that possesses appreciable amounts of silica, alumina, and usually some iron, chemically combined with much of the lime. It is employed solely for structural purposes. Boynton.

hydraulic jump. The sudden and usually turbulent passage of water from low stage below critical depth to high stage above critical depth during which the velocity passes from supercritical to subcritical. It represents the transition of the condition of the surface curve wherein it tends to become perpendicular to the stream bed. Seeley, 1.

hydraulic jump. Excavating alluvial or other mineral deposits by means of high-pressure water jets. Bureau of Mines Staff. See also hydraulic mining; hydromechanization; monitor.

hydraulic lime. Lime in which a high proportion of the calcium oxide is combined with silica, alumina, and iron oxide. It is made from limestone or chalk, which contains calcareous materials. It will set and harden under water. Fay.

hydraulic limestone. A limestone which contains some silica and alumina (usually as clay) and upon calcination yields a hydraulic cement that will set to form a strong, solidified mass under water. Fay.

hydraulic lead cell. A safety device developed by the U.S. Bureau of Mines for taming pressure changes, thereby warning in advance of bumps. The cells are embossed in the walls and roofs of coal mines. Bureau of Mines Staff.

hydraulic loading. Ratio of amount of silica of coal or other material broken down by water jets along the floor and into flumes. Coal will flow back towards the flume if insufficient water is available and the gradient is not less than 6° to 7° in favor of the flow. Flexible low-pressure hoses (150 to 200 pounds per square inch) are sometimes used to assist in the flushing operations. Nelson.

hydraulic machinery. A borehole-drilling machine on which the bit-feeding mechanism is hydraulically actuated. Long. b. A machine powered by a fluid actuated by the controlled flow of a stream of liquid, such as oil or water under pressure. Long.

hydraulic mean depth. The cross section of water flowing through a channel is divided by the wetted perimeter of the conduit. See also Barnes' formula. Ham.

hydraulic mine. A placer mine worked by means of a stream of water directed against a bank of sand, gravel, or talus; soft rock similarly worked. Hess.

hydraulic mining. Filling a mine with water and material transported by water. Fay.

hydraulic miner. In metal mining, one who tends riffles, sluices, and does other work in connection with the hydraulic placer mining of gold. In this type of mining, gold bearing gravel, usually in a bank, is excavated by the erosive action of a high-pressure stream of water being directed at the bank through a nozzle. The gravel is then forced out of the bank by the jet, and the gravel particles sink and are caught by riffles (sleats) along the sluice bottom. D.O.T. 4.

hydraulic mining. Mining by washing sand and dirt away with water which leaves the desired mineral. MacRaken, b. The process by which a bank of gold-bearing earth and rock is excavated by a jet of water, discharged through the converging nozzle of a pipe under a great pressure, the earth or debris being carried away by the same water, through sluices, and discharged on lower levels into the natural streams and watercourses below, where the gravel or other material of the bank is cemented, or where the bank is composed of masses of pipe clay, it is shattered by blasting with powder. Ricketts, 1. Also used for other ores, earth, anthracite, culm, etc. Made unlawful and prohibited in certain river systems where it obstructs navigation and injures adjoining landowners. Fay. c. In underground hydraulic mining, the extraction of coal by high-velocity water jets, directed at the seam: from a monitor or powerful jet, which can withstand high water pressures. The jets are also used to impel the broken coal along the floor to the point of collection. Nelson.

hydraulic monitor; giant; monitor. A device for directing a high-pressure jet of water, also called a swivel head. Long. b. A device for directing a high-pressure jet of water in hydraulic mining. In a monitoring order the mule is entirely automatic. Nelson.

hydraulic mug. A main (pipe) for collecting and condensing the volatile matter given off in carbonization of coal, in coke ovens, or in the coke ovens. Mersereth, 4th, p. 364.

hydraulic mean depth. The cross section of water flowing through a channel is divided by the wetted perimeter of the conduit. See also Barnes' formula. Ham.

hydraulic oil. A light, nonviscous, neutral,
hydraulic oil

A fluid-resistant oil used as an actuating fluid in hydraulic cylinders or systems.

hydraulic or fluid couplings. A fluid coupling transmits power from the driving member to the driven member through oil. A rotatable coupling, when attached to the drive shaft, throws \( \theta \) directly against a turbine or engine. Fluid couplings permit the use of heavy loads in the engine or the motor. Fluid couplings are particularly advantageous in starting heavy loads since the motor or engine is permitted to run at high efficient speeds while the coupling output shaft gradually accelerates the load to running speed. Pit and Quarry, 53rd, Sec. D, p. 68.

hydraulic permeability. With respect to water, it is the capacity of a rock or a soil to transmit water under pressure. In some rocks and soils, it varies in different directions. Stokes and Warner, 1955.

hydraulic pipe transport. The conveyance of water, coal, or other materials by waterborne material by pipeline. Two such pumps, placed in series, have been used in Trelewis Drift, Wales, to pump out slurry. Pipe transport of materials by water has been used in Trelewis Drift, Wales, to pump out slurry. Pipe transport of material by water has been used in Trelewis Drift, Wales, to pump out slurry. Pipe transport of material by water has been used in Trelewis Drift, Wales, to pump out slurry. Fly and Quarry, 53rd, Sec. D, p. 68.

hydraulic power. The use of pressure oil or soluble oil and water for operating face machines and steel supports. The fluid is supplied by rotary pumps driven by electricity located at points near the face. Hydraulic power has the advantage that the space required is considerably less than that for conventional drills. See also pressure pump.

hydraulic press. A press in which fluid pressure is used to actuate and control the ram movement.

hydraulic pressure. a. The total thrust, expressed in pounds or tons, that the hydraulic-feed mechanism on a drill can impose on a British rock. b. The pressure of the liquid within the hydraulic cylinders, generally expressed in pounds per square inch. Long. b. Synonym for hydraulic head. See also hydraulic head, b. Long.

hydraulic profile. A term applied to the vertical section of the piezometric surface of an aquifer. A.G.I.

hydraulic prop. A prop consisting of two telescoping steel cylinders which are extended by hydraulic pressure which may be provided by a hand-operated pump built into the prop. The prop holds about half a gallon of mineral oil and is fitted with a yoke valve which relieves the pressure when the load exceeds that for which the prop is set. An hydraulic prop enables quicker setting, uniform initial loading, and it can be withdrawn from a remote, safe position. The first hydraulic prop was introduced and used in 1937; today there are more than one million in use. Nelson.

hydraulic prospecting. See costean; hushing. Nelson.

hydraulic radius. A measure of water depth in a channel defined as cross-sectional area of flowing water divided by the length of wetted perimeter, approximates mean depth in a wide channel. A.G.I. See also hydraulic mean depth.

hydraulic reservoir. A device or assembly that forces running water to a higher level by utilizing the kinetic energy of flow, only a small portion of the water being so lifted by the velocity head of a much larger portion when the latter is suddenly checked by the closing of a valve. Webster 3d. b. A device for lifting water by the water hammer produced by checking the flow periodically. See also hydraulic press. C.T.D. d. A device whereby the pressure head produced when a moving column of water is brought to rest is caused to deliver some of the water under pressure. C.T.D.

hydraulic ratio. The weight of a heavy mineral multiplied by 100 and divided by the weight of a hydraulically equivalent light mineral. A.G.I. Supp.

hydraulic refractory cement. A refractory cement containing aluminum hydraulic cement, for example, ciment fondu, so that it sets at room temperature. See also refractory cement. Dodd.

hydraulic stowing pipe. A steel pipe used to stow mine stalling. A.G.I.

hydraulic stowing. The filling of the mine stalling. A.G.I.

hydraulic setting refractories. Compositions of ground refractory materials in which some of the components react chemically with water to form a strong hydraulic bond. These refractories are commonly known as castables. H.W.

hydraulic shovel. A revolving shovel in which drums and cables are replaced by hydraulic rams and/or motors. Nicholls.

hydraulic sluicing. The process of moving materials by water; colloquially, hydraulic picking. See also hydraulic pumph. 1.

hydraulic stowing. The filling of the water in mines by waterborne material by pipeline. See also pneumatic stowing. Nelson.

hydraulic stowing pipe. A steel or iron pipe used for transporting the material in hydraulic stowing. Ordinary pipes wear very rapidly due to the chippings in the water, therefore they are lined with about \( 200 \) inch thick rubber. This lining gives a very much longer life to the pipe. Nelson.


hydraulic swivel. See hydraulic swivel head.

hydraulic swivel head. A Swivel head of a drill machine equipped with hydraulically actuated cylinders and pistons to exert pressure on a drill rod and turn it longitudinally. See also swivel head. Long.

hydraulic theory. A theory of oil and gas migration which suggests that migration is caused by the movement of underground water which carries along oil and gas. A.G.I.

hydraulic transport. Movement of ore by water, flowing through pipe lines. Includes hydraulic hoisting. Pryor, 3. See also pipeline transport.

hydrogen underreamer. An underreamer with cutting tools that can be expanded or retracted by a hydraulically actuated device. See also underreamer. Long.

hydrocarbon valve. A valve controlling the distribution of water in the cylinders of hydraulic elevators, cranes, etc. Cripin.

hydroxyl sulfate; disodium sulfate; diammonium sulfate. White; crystalline; \( \text{NH}_4\text{H}_2\text{SO}_4 \); very soluble in hot water; soluble 1 part in 33 parts of cold water; insoluble in alcohol; stable in storage but contact with alkali or oxidizing agents should be avoided; specific gravity, 1.37; and melting point, 254° C. Used in the analysis of minerals, slags, and fluxes; in the determination of arsenic in metals; and in the separation of polonium from tellurium. CCD 6d, 1961.

hydride. A compound of an element with hydrogen, for example, \( \text{CaH}_2 \) (hydrolith). Pryor, 3.

hydrid-pro. A commercial process for the production of hydrogens by reaction of caustic soda on aluminum. Osborne.


hydro. The term was proposed by K. Arai at the 1955 meeting of the International Committee for Coal Petrology to denote a very common microthinite in Japanese Tertiary coal. It consists mainly of resinite, micrinite, degradinite and exinite. The proportions of these materials may vary very considerably. The greater part of the exinite is generally resinite, associated with sporinite and culinite in varying amounts. Sclerinite may be present in small amounts: micrinite, semisulfinite, and fusinite are extremely rare. On the basis of the maceral content it is possible to distinguish between degradinite-rich hydride (hydride D) and exinite-rich hydride (hydride E). In microscopic analysis only bands having a width of more than 50 microns are recorded as hydride. The density increases with increasing coalification. In hydrides of more than 25 percent volatile matter, the specific gravity is lower, the higher the exinite content. The density of hydride is only slightly different from that of vitrinite; that of pure hydride is somewhat lower than that of the corresponding vitrinite. However, because the exinite component is commonly heavier than vitrinite, the density of the entire hydride is generally higher than that of vitrinite. The strengths vary according to the rank, and is generally higher than that of vitrinite (26 to 45 kilograms per square millimeter). The dull bands of many Japanese Tertiary tuffaceous coals consist largely of hydride and generally occurs alternating with vitrinite as microfine bands, one or the other predominating. IHCP, 1963, part 1.

hydrous. From the Greek hydros, a prefix meaning water or the presence of hydrogen. Webster 3d.

hydrophosphate. An amphibole containing double the amount of water (5.78 percent) required by Warren's formula, \( \text{H}_2\text{O}_6\text{Si}_4\text{Al}_2\text{O}_4 \). Colorless, acicular, resembling tremolite from Montana. Osborne County, England. English.


hydrozoic acid; azomide. A mineral, \( \text{H}_2\text{O}_6\text{Si}_4\text{Al}_2\text{O}_4 \). Molecular weight, 561; colorless; liquid; specific gravity, 1.09 (at 25° C); refers to water at \( 0^\circ \) C; melting point, 37° C; and soluble in water, in
hydrozoic acid; azomide


hydrocyanic acid; hydrogen cyanide; prussic acid. Unstable; volatile; colorless; extremely poisonous; gas or liquid; HCN; soluble in water, in alcohol, and in ether; only slightly dissociated with water; and an odor resembling that of bitter almonds. Formed by decomposing metallic cyanides with hydrochloric acid. Standard, 1964; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-179.

hydrocyanic gas indicator. Depression of an approximately linear sample to enter a graduated test tube filled with a chemical reagent. The presence of hydrocyanic gas changes the reagent from white to blue in color, and the length of dis-coloration is directly proportional to the percentage of the toxic gas present. Bests, p. 586.

hydrodynamics. a. The branch of science dealing with the energy of falling water. Ham.

hydroelectric power. Electrical energy derived from natural or artificial waterfalls. Ham.

hydroelectric scheme. A complete project for water power development which will include the design and construction of a dam, tunnels, spillways, power station intakes, and many other constructional works over a wide area. Ham.

hydroextraction. See hydraulic extraction. Nelson.

hydrofluoric acid; hydrogen fluoride. Colorless; fuming; corrosive; gas or liquid; HF; strong; highly corrosive acid; and soluble in water, in alcohol, in ether, and in benzene. Used in the acidizing (activation) of petroleum reservoirs; reduction (manganesenichrome, tantalum, tin, tungsten), and in pickling and in metal cleaning. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-179.

hydrofluoric acid test. See acid-dip survey. Long.

hydrofluorosilicic acid. See fluorosilicic acid.

hydrofranklinite. See chalcolithite.

hydrogen. a. A diatomic (H2) gaseous element; colorless; odorless; tasteless; flammable; and lighter than any other known substance. Has the lowest density of all metallic and non-metallic properties and a valence of 1. Widely distributed on earth as water, in many minerals, in petroleum, and in living matter. Manufactured by heating water with iron at 100 atmospheres pressure, from water gas, and by the electrolysis of caustic soda solution. Used in the oxygen blowpipe, for filling balloons, in the Haber process for the fixing of nitrogen, and in the hardening of fats (for example, in the manufacture of margarine). Handbook of Chemistry and Physics, 45th ed., 1964, p. A-1, atomic number, 1; atomic weight, 2.0158; and density of gas, 0.0899 gram per liter. Fay; C.T.D. b. H2, lightest of all gases; isomeric when solid; molecular weight, 2.0159; boiling point, -259.14° C; melting point, -252.8° C; specific gravity of liquid, 0.070 (at -252.9° C); and soluble in water and in alcohol. Occurs uncombined in the earth's atmosphere only to the extent of less than one part per million by volume. Water is the most abundant of all elements in the universe; constitutes more than 90 percent of all atoms; and if combined with oxygen is the most massive of all the elements in the universe. All the heavier elements may have been formed from hydrogens and helium and perhaps are still being formed from these two lightest elements. The two rare isotopes of hydrogen are hydrogen 2 (deuterium) and hydrogen 3 (tritium). Deuterium occurs naturally as 0.015 percent of all hydrogen, and tritium is radioactive with a half-life of 12.26 years. Handbook of Chemistry and Physics, 45th ed., 1964, pp. B-6, B-114, B-178.

hydrogenation. Form of reduction in which hydrogen, in its gaseous form, is caused to react with a substance in the presence of a catalyst at high pressure. Bennett 2d, 1962.

hydrogenation of coal. See coal liquefaction.


hydrogen bomb. A nuclear weapon that delivers energy largely from nuclear fusion. LIL.

hydrogen bond
hydrogen bond

curring in water, does not require marked ionization. Peyer, 3.

hydrogen bound. existing in a hydrogen atmosphere, usually in a furnace. ASM Gloss.


hydrogen embrittlement. A condition of low ductility in metals resulting from the absorption of hydrogen. ASM Gloss.

hydrogen equivalent. Acidity of an acid as defined by the number of reacting H-atoms per molecule; alkalinity of a base in terms of reacting hydroxyls per molecule. Peyer, 3.

hydrogen fluoride indicator. This instrument utilizes an aspirator bulb to draw air across a filter paper which is impregnated with a chemical reagent. The hydrogen fluoride-reagent reaction produces a pink color which can be compared with color standards. Concentrations can be determined in the range of 0.5 to 5 parts per million (ppm). Besf, p. 386.

hydrogen gas. Prepared by Grabau for an aqueo-chemically precipitated rock (rock salt, gypsum, etc.). A.G.I.


hydrogen bond. The treatment of ores, contain-
centrates, and other metal-bearing materials, wet processes, usually involving the solution of some component, and its subsequent recovery from the solution.

**Hydrometamorphism.** a. Metamorphism of rocks produced by water and heat at low pressure and temperature. Contrasted with pyrometamorphism. Standard, 1964. b. The alteration of rocks by the addition, subtraction, or exchange of material brought or carried in solution by water without the influence of high temperature or pressure. A.G.I.

**Hydrometasomation.** Metasomatic alteration of rocks through hydrothermal agencies. Schiefferdecker.

**Hydrometer.** Long. An instrument used for determining the density or specific gravity of fluids, such as drilling mud or oil, by the principle of buoyancy. The instrument is in the form of a glass tube, which is floated in the fluid and sinks to a greater or lesser depth depending on the density of the fluid, the amount of submergence being indicated by graduations or divisions on the stem of the instrument. These divisions vary according to various systems, and may be marked according to the Baumé or Twaddell specific-gravity system or measurements. See also Marsh的商品名, Bach, specific-gravity hydrometer; Twaddell hydrometer. Long.

**Hydrometric method.** The method employed by the U.S. Bureau of Mines for the determination of the apparent specific gravity of coal and coke. The apparatus employed consists of a brass hydrometer immersed in a galvanized iron cylinder filled with water to a waterline. There are two copper pans on the top of the hydrometer, the upper one being used for weights and the lower pan for the sample. Suspended from the lower pan is an air-tight copper buoy, and below this is a well-perforated brass cage which allows the air to escape freely. This cage carries the sample when it is weighted in water. Kentucky, p. 401.

**Hydrometrolaphograph.** An instrument for determining and recording the quantity of water discharged from a pipe, orifice, etc., in a given time. Osborn.

**Hydrometry.** The measurement and analysis of the flow of water. Selye, 1.

**Hydromics.** See illite.

**Hydromica schist.** A field term that has been used extensively in the Eastern United States for finely micaeous schists in which the micaeous mineral is sericite, paragonite, or some other mineral of similar appearance. Hess.

**Hydrominum ion.** Saturated H-ion, (H₃O)⁺.

**Hydromorphic anomaly.** An anomaly where the dynamic agents are aqueous solutions.

**Hydromorphic soil; ground-water soil.** An intrazonal soil resulting from impeded drainage. The common diagnostic features are: a pale gray to black surface horizon grading sharply into a pale, bluish-gray subsoil often with rusty streaks, mottling, or coarseness. This is known as a "high mica" member of the mica family. Hay, 2d, 1955.

**Hydromut.** Name applied to the sea Tuonftrs concentrates, and other metal-bearing materials by wet processes, usually involving the solution of some component, and its subsequent recovery from the solution. Hay, 2d, 1955.

**Hydrophane.** A variety of common opal, used extensively in the Eastern United States for finely micaceous schists in which the micaceous mineral is phlogopite, or some other mineral of similar appearance. Hess. A member of the mica family from Staszic. It is weighted in water. Fay, 1964.

**Hydrophilic.** Relating to or produced by the joint action of heat and water, resulting in fusion or in crystallization at a lower temperature than by heat alone. Standard, 1964.

**Hydronium jarosite.** A mineral of the jarosite family from Staszic, Holy Cross Mountain, Poland; contains only 0.21 percent sodium, 0.18 percent potassium, and 3 percent iron. The author considers the name carphosiderite inappropriate since A. A. Moss has shown that original carphosiderite and many occurrences subsequently described as carphosiderite are in fact jarosite or natyrojarosite. On the other hand, the name carphosiderite is widely accepted for the artificial material. Hey, M.M., 1961.


**Hydropneumatic.** Relating to or produced by the combined action of water and air or gas. Standard, 1964.

**Hydropneumatic riveter.** A squeezer riveter operated by compressed air and having a piston of two different diameters. Hay, 1964.

**Hydrophane.** A highly hydrated phase than scarboite, Al₂(CO₃)₅.12Al(OH)₃ occurring along with scarboite at South Bay, Scarborough, and dehydration irreversibly on exposure to air. Hey, M.M., 1961.

**Hydroscope.** An instrument for determining moisture, especially in the air. Standard, 1964.

**Hydroseparatar.** Essentially, a shallow tank, usually cylindrical, which is kept agitated by hydraulic water and/or stirring devices. Pulled to the tank is separately discharged as a free-settling fraction containing the coarser and heavier particles and an overflowed fraction containing the finer, lighter material. Pryor, 3.

**Hydrosorptivine.** A mineral, Mg₅Si₇O₁₆(OH)₂, a swelling serpentine. Hey, M.M., 1964.

**Hydrosilica.** A water-laid deposit of pure quartz sandstone with varieties caused by simple admixtures. A.G.I.

**Hydrosol.** A colloidal solution in water. Bateman.

**Hydrosol.** The aqueous envelope of the earth, including the oceans, streams, and underground waters, and the water vapor in the atmosphere. Schiefferdecker.

**Hydrotail.** A contrivance or apparatus to prevent the explosion of steam boilers. Webster 3d.

**Hydrostatic.** Relating to pressure or equilbrium of fluids. Nichols.

**Hydrostatic balance.** A balance for weighing substances in water to ascertain its specific gravity. Webster 3d.

**Hydrostatic head.** The pressure exerted by a column of fluid usually expressed in pounds per square inch. Brantly, 1.

**Hydrostatic joint.** Used in large water mains, in which the sheet lead is forced tightly into the bell of a pipe by means of the hydrostatic pressure of a liquid. Strock, 3.

**Hydrostatic pressure.** A large ram, the surface of which is acted on by liquid in contact with a small ram. See also hydraulic jack. Ham.

**Hydrostatic pressure.** a. The pressure of, or corresponding to, the weight of a column of water at rest. Bateman. b. The pressure in a liquid under static conditions; the product of the unit weight of the liquid and the difference in elevation between the two surfaces, one being the free-water elevation. See also excess hydrostatic pressure; hydraulic excess pressure. ASCE P1826.

**Hydrostatic roller conveyor.** A section of roller conveyor having rolls suitably weighted with liquid to control the velocity of the moving objects. See also rollre
hydrothermal stage. One of the successive hydrothermal solution. A hot-water solution. A mineral deposit that contains water chemically combined. Gordon.

hydrothermal deposit. A mineral deposit that contains water chemically combined. Gordon.


hydrostatic weighing. Weighing of a substance at a constant level of water, as in a reservoir; an electric high and low-water indicator. Standard, 1964.

hydrostatic weighing. Weighing of a substance at a constant level of water, as in a reservoir; an electric high and low-water indicator. Standard, 1964.

hydrostatic tension. Three equal and mutually perpendicular tensile stresses. ASM Gloss.

hydrostatic test. On a boiler, the closing of all openings and pumping water into the boiler at a pressure (such as 50 per cent) greater than the normal operating pressure. The purpose is to locate leaks or prove that there are no leaks. Strock, 1964.

hydrostatic weighing. Weighing of a substance at a constant level of water, as in a reservoir; an electric high and low-water indicator. Standard, 1964.

hydrostatic tension. Three equal and mutually perpendicular tensile stresses. ASM Gloss.


hydrotungstite. A hydrous tungstic oxide, WO₂\(\cdot\)H₂O, similar in appearance but distinct from tungstite (WO₃\cdotH₂O); from Ontario, Bellvitte, Upper Thames River, Ont., 1843.

hydrothermal. A term used to describe processes occurring at high temperatures and pressures, typically at the Earth's crustal levels. ASM Gloss.

hydrothermal fluky, for example, silicification or removal of minerals by means of fluids at rest and then in water. The technique is used to enhance the properties of certain materials, such as rocks or ore deposits, alteration products, and in which they are concerned; and the rocks or ore deposits, alteration products, and springs produced by them. Holmes, 1928.

hydrothermal alteration. The mineralogical changes resulting from the interaction of hydrothermal-stage fluids (hydrothermal solutions) with preexisting minerals, such as the kaolinite of feldspars, etc. Also changes in rocks resulting from the addition or removal of minerals by means of hydrothermal fluid, i.e., for example, silification.

hydrothermal deposit. A mineral deposit that originated from hot, ascending solutions derived from a magma. Schierlärderke.

hydrothermal ore deposits. Those deposited from aqueous solution during the final stages of magma differentiation. Schierlärderke.

hydrothermal stage. One of the successive stages of consolidations of magma during which basic components exude between crystals, aqueous solutions, and aqueous gases. Schierlärderke.


hydrothermal deposits. One of the successive hydrothermal stages of consolidations of magma during which basic components exude between crystals, aqueous solutions, and aqueous gases. Schierlärderke.

hydrothermal water. Water held in the soil in equilibrium with atmospheric water vapor at the ground surface. Stokes and Varnes, 1955.

hydrotherapeutic. Pertaining to the beneficial effects of heat, particularly in the treatment of diseases. ASM Gloss.

hydrotherapeutically. Pertaining to the beneficial effects of heat, particularly in the treatment of diseases. ASM Gloss.

hydrotherapeutic. Pertaining to the beneficial effects of heat, particularly in the treatment of diseases. ASM Gloss.

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hydrotherapeutic. Pertaining to the beneficial effects of heat, particularly in the treatment of diseases. ASM Gloss.

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hypersthene. Applied to igneous rocks consisting, wholly or almost entirely, of mafic minerals; color index—90 to 100. A.G.I. Supp.

hypothetical. An iron-nickel magnetic alloy of the Permalloy type containing 50 percent of each metal; it is melted and annealed in hydrogen, which increases the initial and maximum permeabilities. C.T.D.

hyperion. A class of short-lived elementary nuclear particles with masses greater than that of the neutron. L.G.

hypersonic. The change in a rock by the introduction of a new mineral into, or the removal wholly or in part of an old mineral from the original rock mass, for example, dolomitization of limestone. A.G.I.

hyperventilation. A term applied to pumice consisting entirely, or almost entirely, of holinite. Holmes, 1926. b. A feldspar-free rock composed of crystallized minerals and partly of glass; same as hypohyaline. Fay.

hypocrystalline. Partly crystalline; the texture of some igneous rocks which consists partly of crystallized minerals and partly of glass; same as hypohyaline. Fay.

hypsometric map. Any map showing the elevation above sea level by determining the atmospheric pressure through observing the boiling point of water. Standard, 1964.

hypsometric flats. Colors on maps to indicate various elevations. Bureau of Mines Staff.

hypersometry. The art of determining, by any method, surface elevations on the earth with reference to sea level. A.G.I.

hysol. A borosilicate glass of high thermal endurance and chemical resistance used for contact lenses. Dodd.

hypsometry. The art of determining, by any method, surface elevations on the earth with reference to sea level. A.G.I.

hysteretic. a. A lag in the return of an elastically deformed specimen to its original shape after the load has been released. A.G.I. b. An effect, involving energy loss, found to varying degrees in magnetic, electric, and elastic media when they are subjected to variation by a cyclical applied force. In such media the polarization or stress is not a single valued function of the applied force. Bureau of Mines Staff.

hysteresis loop. Entire pattern of hysteresis showing how a body with magnetic susceptibility can remain polarized after the disappearance of the original magnetizing force. Bureau of Mines Staff.

hysteresis loop. Separation by alternating current which depends on magnetic properties of coercive force and remanence. Bureau of Mines Staff.

hysterostatic. Applied to rocks of the series of rocks related to the diabases but differing from them in often having quartz, brown biotite, and brown hornblende, the last mineral sometimes replacing the augite. There may also be some glass. Fay.

hysteresis loop. Proposed by Naumann and applied to minerals in igneous rocks that are the product of secondary crystallization. Obsolete. A.G.I.

hysteromorphic. Applied to secondary deposits due to surface agencies. Fay.
i

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ice cake. A single, flat unbroken fragment of sea ice of no specific size. A.G.I.

ice cake texture. Rounded and corroded remnants of the earlier ice unit in a later mineral. Schieferdecker.

ice cap. A cover of perennial ice and snow; specifically, a glacier forming on an extensive area of relatively level land, and flowing outward from its center. Webster 3d.

ice cave. a. A pit at the bottom of which snow accumulates and forms ice. Schieferdecker. b. A cavern in which underground glaciers are formed. c. A cave so protected from summer heat that ice remains in it throughout the year or for a long time. Webster 3d.

ice cliff. An abrupt shore of arctic ice, more or less interstratified and covered by earth and vegetation. Standard, 1964. See also ice ledge, Fay.

ice concentration. The percentage of ice cover in a given area of water, usually expressed in tenths. H. Schieferdecker.

ice concrete. A dense frozen mixture of sand, broken aggregate, and water. A.G.I.

ice-contact form. A see, a rounded arctic drift form, such as a kame, a kame terrace, or an esker, deposited in contact with melting sea ice. A.G.I.

ice-contact slope. The fosse. This depression is supposed to mark the resting place of the ice sheet. Pettijohn. A large flat sheet of floating ice. See also ice float. Standard, 1964.

ice crystal beds. A layer of ice crystals. Commonly sand-filled and appearing as straight, slightly raised ridges on base of sandstone beds. Pettijohn.

ice drift. Loose floating ice. Standard, 1964. Leffall. a. A frozen waterfall or similar mass of ice. Webster 3d. b. A falling of ice, as from an iceberg or glacier. Webster 3d.

ice field. A large flat sheet of floating ice. See also ice float. Standard, 1964.

ice floe. A flat free mass of floating ice of usually visible extent larger than a pan and smaller than an ice field; broadly, a large floating fragment of sheet ice. Webster 3d.

ice foot. A wall of ice formed by sea water and frozen from below along the shore in near regions. Also called an ice ledge. Standard, 1964. b. An ice step which is attached to the coast and is not moved by tides. Schieferdecker.

ice-free port. A port in which ice formations sufficient to interfere with navigation in the harbor or the terminals have not been recorded. Hy.

ice front. a. A frozen waterfall or similar mass of ice. Webster 3d. b. A falling of ice, as from an iceberg or glacier. Webster 3d.

ice ledge. A mass of ice floating on the surface of the water. Webster 3d.

ice mark


Ice mill. A place where a glacier abrades the underlying rock through the action of rub-


Ice no. A large area of floating ice floes.

MacCracken.

Ice pedestal. A glacier table. A.G.I.

Ice period. The time between first appearance

and final clearance of ice during any year. Hy.

Ice pillar. A pedestal of ice on a glacier, sup-

porting a broader piece of rock, which has


Ice plug. An ice obstruction formed by a cir-

culating medium freezing inside the drill-

rod couplings while the rods are racked

up or standing. Standard, 1964.

Icequake. The concussion

producing high above-glacial névé, and extending

upwards toward the higher mountain peaks. Standard, 1964.

Ice rock. See ice foot. Fay.

Ice wool. Abridged by ice; specifically, rubbed,


Idenite. A fossil footprint. Synonym for ichno-


Ichnofossil; organic hieroglyph. General term

for fossil trails, tracks, and burrows. Pettij-

ohn.

Ichnolite. See ichnite.

Ichnology. The science which treats of the footprints of extinct animals. Pay.

Ichor. Proposed by Soderholm (1933) for a

granitic juice or liquor capable of granitiz-

ing rocks and derived from a granitic

core or granite. Synonym for mineralizer; residual

magma. A.G.I.


Icosidente. A line extending from the north-

pole to the south-pole, along the earth's equator, and divided into 90° by degrees of

longitude. Fay.

Ice shtet. a. Inland ice is a vague geographic

term. For strict accuracy, the terms

ice caps, and some highland glaciers are

limited to such stones as chryscolla, mala-

chite, diopside, azurite, and peridot. Shipley.

Idiodyne. Suggested by Poseply for those

deposits which are contemporaneous in origin with the wall rock. The word means

the same as xenogeneite. Compare xenogenite; heterogenize. Fay.

Idiogenous. Applied to a mineral deposit that

is contemporaneous in origin with the rock in which it occurs, that is, a primary min-

eral deposit which is a constituent of the rock in which it occurs. Fay.

Idiomorphic. Applied to an igneous rock mineral which is completely bounded by

its characteristic crystal faces. Synonym

for euhedral; automorphic. Holmes, 1928.

Idiomorphic crystal. An individual crystal that has grown without restraint so that

the habit plane is clearly developed. Compare allotriomorphic crystal. ASM.

Gloss.

Idiomatic. Exhibishing interference figures

in crystals without the aid of the polar-

scope. Webster 3d.

Idiomorphic component. In in-

ductive circuits where reactance is not
cancelled out by capacity reactance or

otherwise, the current flowing when the

electromotive force is zero. Since power

is a product of electromotive force and

current, it will be zero at that instant.

Maune, F.E., p. 419.

Idr. a. A sheave or pulley running loose

on a shaft to guide or support a rope,
cable, drive belt, or drive chain. Long. b.

An assembly of an idler roll or rolls with a

supporting structure that makes a unit

suitable for mounting on the conveyor

frame, so that it will support or guide a

portion of the conveyor belt. NEMA MB1-

1956. c. A wheel or gear which changes

the direction of rotation of shafts, or the
direction of movement of a chain or belt.

Nichols.

Idler. A device used for holding the belt

in proper position on certain types of box-

car loaders. See also boxcar loader. ASA


Idler gear. a. A gear meshed with two other

gears that does not transmit power to its

the eye. See also determinative gemmology. Shipley.
idler gear

shaft; used to reverse direction of rotation in a transmission. Nichols, b. Same as idle wheel.

idler hanger. A support for the roll or rolls. NEMA MB1-1956.

idler roll. A roll that does not transmit power. NEMA MB1-1956.

idler shaft. A shaft that carries a gear that reverses direction of rotation in a transmission. Nichols.

idler spacing. Customary to place idlers at uniform spacing on both top and return run, based on averages of tension and material weight for various belt width. Has important influence on conveyor friction. Bureau of Mines Staff.

idler stand. A unit structure for supporting the idler roll or rolls in which the shaft center or centers are above the base or the point at which it is attached to the conveyor frame. The idler stand includes bearings if these are not a part of the roll or rolls. NEMA MB1-1956.

idle time money. See lying money. Nelson.

idle wheel. a. A wheel interposed in a gear train, either to reverse rotation or to obtain the required spacing of centers, without affecting the ratio of the drive. Also called idler. C.T.D. b. A roll used to guide the driving belt, to increase its tension, or to increase its arc of contact on one of the working pulleys. Standard, 1964.

Idose. See vesuvianite. Fay.

Idria furnace. See Leopold furnace. Fay.

Idria. A dark, earthy variety of bituminous substance, approximately GtAl, found in nature mixed with cinnabar, clay, etc. In a purified state it is white and crystalline. From Idria, Carniola, Yugoslavia. Tomkeieff, 1954.

Idyl. A black material obtained from the sources of igneous action; includes pyrite, pyrrhotite, brucite, and hornblende. Bodeker considered it as the radical of idrialite. Fay.

IE. Abbreviation for industrial engineer. Webster 3d.


igneous. Pertaining to an igneous rock or to the process of rock formation by crystallization. Webster 3d.


igneous cycle. The sequence of events usually followed in igneous activity; it consists of an eruptive phase, a plutonic phase, and a phase of minor intrusion. C.T.D.

igneous fusion. Fusion by heat alone, assisted by solution in the water of crystallization. Webster 3d.

igneous intrusion; igneous intrusive. a. Any of the several forms of emplacement of igneous rocks. See also batholith; dike; laccolith; lopolith; phacolith; sill; stock. C.T.D. b. All intrusive masses fall into one of two categories. They are either concordant and parallel the bedding or strata of the country rock or they are discordant and cut across the bedding or strata of the country rock. Among the concordant igneous intrusions are laccoliths, lopoliths, phacoliths, and sills, and the discordant igneous intrusions include batholiths, dikes, and stocks. Bureau of Mines Staff.

igneous magma. A high-temperature, mobile mass of plastic solids, liquids, and gases that was generated within the depths of the earth and from which igneous rocks are derived by crystallization. C.T.D.

igneous metamorphism. The high-temperature process that includes the effects of magmas on adjacent rocks. It is nearly the same as contact metamorphism but it also includes the effects of igneous injection and pegmatitization. Stokes and Barnes, 1955.

igneous ore. Ore formed by cooling and solidifying from the molten state. Merriam, 4th, p. 382.

igneous rock. Rock formed by the solidification of molten material that originated within the earth. C.T.D.

igneous rock series. Originated by Brögger (1904) for an assemblage of igneous rocks in a single district, belonging to a single period of igneous activity, and characterized by a certain community of chemical, mineralogical, and textural properties. See also consanguinity. A.G.I.

igneous sandstone. Applied to a stone or mineral that sparkles when struck with steel or iron. Standard, 1964.

igneousite. A silicic volcanic rock forming thick, massive, compact sheets that cover a wide area in the central part of the North Island, New Zealand. The rock is chiefly a fine-grained rhyolitic tuff formed mainly of glass particles (Ahar), in which crystals of feldspar, quartz, and occasionally hypersthene or hornblende are embedded. The crystals are first welded, then bent around the crystals, and evidently were of a viscous nature when they were deposited. The deposits are believed to have been produced by the eruption of dense clouds of incandescent volcanic glass in a semimolten or viscous state from a group of volcanoes. Idler is synonymous. A.G.I.

igneousite. An assessment of the ease with which a coal can be ignited. B.S., 3233, 1960.

igneous temperature. To heat a gaseous mixture to the temperature at which combustion takes place. C.T.D. b. To set fire to. Mason.

igneous temperature point. a. A deliberate temperature at which a combustible gas mixture was used to fire an explosive charge. C.T.D. b. In mining, a metal cylinder which connects a main fuse with separate fuses which are only limited; the number of blasts to be fired. Standard, 1964. c. A device to relight safety lamps internally by friction. One type uses a waxed strip with igniting matches at intervals, while another type has a small burled wheel operating against a piece of cerium or something of a similar nature. Electrical devices are sometimes employed. Fay. d. One that ignites; as [1] a charge usually of black gunpowder used to facilitate the ignition of a propelling charge and sometimes of a bursting charge; (2) a device for igniting fuel mixture (as in an internal-combustion engine, a jet engine, or a rocket engine) which is a separate energized electrode used for restricting the arc in an ignitron. Webster 3d.

igniter. a. A cord which passes an intense flame along its length at a uniform rate to light safety fuses in succession. B.S. 3618, 1964, sec. 6. Two types are manufactured, a fast cord having a nominal burning speed of 1 second per foot and a slow cord having a nominal burning speed of 10 seconds per foot. Both igniter cords possess excellent water resistance and good storage properties and they will withstand a reasonable amount of rough handling. The burning speeds are reliable and consistent even under adverse conditions, as, for example, when burning underwater or in a direction opposite to a strong wind. McCadem II, p. 61.

ignites. Used by M. E. Wadhurst to include all pyrotechnic minerals. Fay.

ignitability (dust cloud). The relative ignitability of a dust cloud may be defined as the degree of ease with which it can be ignited. Sinclair, I, p. 250.

ignition. a. The act of igniting, or the state of being ignited; specifically, the act of exploding the charge of gas in the cylinder of an internal-combustion engine. Standard, 1964. b. A charge used as ignition material. Standard, 1964. c. The firing of an explosive mixture of gases, vapors, or other substances by means of an electric spark. C.T.D. d. An outburst or fire or an explosion. Mason.

ignition arch. A flat or curved refractory roof over a furnace at the point of entrance which promotes ignition by reflection of heat. ASI, No. 24.

ignition charge. A charge usually of black powder used to facilitate the ignition of the main charge. Webster 3d.

ignition delay. Time interval between contact of an oxidant and a combustible and ignition. I.C. 8137, 1963, p. 76.

ignition point. a. Of solids and liquids, the minimum temperature at which combustion can occur, but at which it is not necessarily continuous. Pryor, 3. b. Of combustible gases, the flashpoint. Pryor, 3.

ignition temperature. a. The ignition temperature of a substance is the lowest temperature at which that substance starts to burn. The temperature of ignition varies greatly with different substances. Morris and Cooper.

ignition temperature
ignation temperature

p. 28. All solid fuels must be heated to their ignition temperature before they will burn continuously by the process known as combustion. [Eq. b.] The temperature required to effect the ignition of a combustible oxidant system at a specified pressure; in general, the minimum temperature is implied. [C. D.]; 1963, p. 5.

Iginition test. See standard ignition test. Rice, George S.

Iginition tube. A heavy-walled test tube of hard glass for examining the behavior of heated substances. Webster 3d.

I.G.Y Abbreviation for International Geo-

Illuminating oil. Certain oil that is especially distillation of crude petroleum. Cris-

Illuminating gas. (1) Coal and carbonized water gas and their various mixtures. (2) The different classes of oil gas. (3) Acetylene, gasoline gas, and producer gas. The first is the most important for illuminating purposes. Producer gas is the most important for fuel and power gas. Crispin.

Illuminizing star or triplet. See star doublet.

Illumination. Deposition in an underlying layer of soil (soil horizon B) of colloids, soluble salts, and small mineral particles which have been leached out of an overlying soil layer (soil horizon A). The action occurs in humid climates. A.G.I.

Ilimanite. A mineral, FeO.TiO2; streak, black to brownish-red; submetallic luster; sometimes with some replacement of iron by magnesium or manganese. Resembles magnetite in appearance but is readily distin-


Ilmenite. A black titanium oxide containing iron in the form of ferrous titanate, ni-


Immanorite. A black titanium oxide containing iron in the form of ferrous titanate, ni-


Immature stone. A solid rock composed of quartz and alkabe, formed by interaction between a nepheline-syenite magma and graywacke. Holmes, 1928.

Imbibition. The particular case of absorption or adsorption of a liquid by a solid in which the solid increases in volume. A typical example is the swelling of Na-bentonite when it takes up water. Dodd.


Imbricate structure. The shingle structure displayed by a series of rock slabs, either thick or thin, separated by high-angled reverse faults or thrust faults. The faults dip toward the source of stress and the strata usually dip in the same direction as the faults and at similar angles. A zone of imbricate faulting is probably always underlain by a sole fault, marked by a decollement; and it may be overlain by a low-angle thrust. The terms schuppenstructure, distribution of shingles, the distinguishing structure have been applied to the same feature. Stokes and Varne, 1955.

Imhoff tank. A two-storied tank in which sewage is subjected to fermentation, forming methane gas. The sludge settles and is drawn off to the drier, having become offensive. Ham.


-imine. The suffix -imine is often used to indicate the presence of one or more -imines in the molecule. Pryor, 3.

Imitation cameo. See cameo. Shipley.

Imitation doublet. See doublet. Shipley.

Imitation foil back. See Foil back. Shipley.

Imitation lacquer back. See lacquer back. Shipley.

Imitation stones. a. In the broadest sense, any other than genuine gem material. A genuine stone that imitates a more desirable one is sometimes called its imitation. It is also its substi-

Imitation star sapphire. See star doublet. Shipley.

Imitation stones. Materials such as glass or the plastics which may resemble genuine stones in color and appearance, but differ from them in composition and physical properties Anderson.

Imitation triplett. See triplet. Shipley.

Imitation stones. A conglomerate composed of unsorted or poorly sorted debris and much unstable material. A.G.I.

Imitation stones. A rock of quartz and alkabe, formed by interaction between a nepheline-syenite magma and graywacke. Holmes, 1928.

Imbrite. A rock composed of quartz and alkabe, formed by interaction between a nepheline-syenite magma and graywacke. Holmes, 1928.

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Imbrite. A rock composed of quartz and alkabe, formed by interaction between a nepheline-syenite magma and graywacke. Holmes, 1928.
immediate roof. Lowest layer or layers of rock immediately above an underground opening. BuMinnes Bull. 587, 1960, p. 2. See also roof; nether roof. Pryor, 3.

imperf. b. A combination of different materials baked together or united by a cement; said of porcelain, etc. Standard, 1964, p. 246.

impact. Color thickened with an appropriate vehicle applied in relief on the raw clay surface. C. G. Seal. 1964.

impedance. The total opposition offered to the flow of an alternating current. It may consist of any combination of resistance, inductive reactance or capacitive reactance. It is expressed in ohms, and its symbol is Z. Hy. p. 177.

impeller. Rotating member of centrifugal pump, which receives inflowing water or ore pulp at or near its center and accelerates it radially to the periphery, where it is discharged with the kinetic energy (initial + added) needed to carry it through the pumping system. An open impeller is a disc with projecting vanes which grip the ps sufficiently to urge it along. A closed impeller has hollow compartments formed by vanes between side plates. Impellers are also used to aerate and mix pulps in flotation cells, leach tanks and mixing vats. Pryor, 3.

impeller diameter. This dimension usually determines the size "rating" of similar fans. The diameter va... the quantity as the square but has no effect on head. Hart., p. 246.

impervious. A stratum that cannot be drilled through. Williams.

impervious combination. A term meaning that not all of the fuel is oxidized to its highest degree; for example, if carbon monoxide is formed instead of carbon dioxide. Neutron, p. 246.

impervious frame. A structural frame with fewer members than are required to make it stable. Ham.

impeccability factor. The ratio between the amount of rain which runs off a surface, and as moved forward on the screen. Liddell 2d, p. 301.


impact factor. The factor of from 1 to 2 by which the weight of a moving load is multiplied in determining its full effect on the structural design of a floor or bridge. Ham.

impact fracture. Shattering of particles by direct fall upon them of crushing bodies. Pryor, 4.

impact idler. A carrying idler in which the rolls and/or its mounting are designed to reduce the impact shock on the conveyor belting due to the loading of material. NEMA MB1-1961.

impact loss. The head loss as a result of the impact of particles of water; included in and scarcely distinguishable from eddy loss. Seeley, 1.

impact mill. A crushing unit in which a rapidly moving rotor projects the charged material against steel plates; impact mills find use in the size-reduction of such materials as feldspar, perlite, etc. Compare disintegrator; hammer mill. Dodd.

impact pressing. A process for forming refractive shapes, in which the ground particles of refractory material are packed closely together by rapid vibration. Hy.

impact resistance. A measure of the capacity of a substance to withstand shock or impact. The unit of measurement is frequently given by the Izod number. See also Izod test. Malli.

impact roll. An idler roll covered with a resilient material or plastic tire to absorb the shock of loading material onto the conveyor belt and so minimize damage to the belt and its supporting bars. Pryor, 3.

impact strength. Same as impact energy. ASM Glott.

impact test. a. A test to determine the behavior of materials when subjected to high rates of loading, usually in bending, tension, or torsion. The quantity measured is the energy absorbed in breaking the specimen by a single blow, as in the Charpy or Izod tests. ASM Glott. b. An efficiency test used to determine the resistance of a ceramic surface to charge. When a steel weight is dropped on the object one or more times, from known heights, until breakage to the base metal occurs. Enam. Dict. c. A method of determining the resistance of a ceramic article to fracture upon the application of a dynamic pressure. ASCG, 1963.

impact toughness test. This method involves determining the impact toughness of a roof by dropping a weight from successively greater heights until such a height is reached that the specimen is fractured. Lewis, p. 246.

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impact toughness test. This method involves determining the impact toughness of a roof by dropping a weight from successively greater heights until such a height is reached that the specimen is fractured. Lewis, p. 246.

impalpable. Extremely fine, so that no grains or grit can be felt. Webster, 3d.


impact test. a. A test to determine the behavior of materials when subjected to high rates of loading, usually in bending, tension, or torsion. The quantity measured is the energy absorbed in breaking the specimen by a single blow, as in the Charpy or Izod tests. ASM Glott. b. A combination of different materials baked together or united by a cement; said of porcelain, etc. Standard, 1964, p. 246.

impact. Color thickened with an appropriate vehicle applied in relief on the raw clay surface. C. G. Seal. 1964.

impasto. Color thickened with an appropriate vehicle applied in relief on the raw clay surface. C. G. Seal. 1964.
impermeable. Rocks. Those which bar further descent of surface water. Pryor, 3.

impermeable rocks. Those which bar further descent of surface water. Pryor, 3.

impervious. a. Impassable; applied to impervious rock, such as clays, shales, etc., which will not permit the penetration of water, petroleum, or natural gas. Fay, b. Applied to a bed or a stratum through which water will not move under ordinary hydrostatic pressure. Fay, c. In hydrology, it is applied to a rock that does not admit the passage of water or other liquid under the pressures and conditions usually found in sub surface water. Impervious rock may be of two kinds: porous, like clay or nonporous, like massive unbroken granite. In the first case, the pores are too small to admit water to pass except by very slow capillary creep. Although pores are necessary for permeability, they must be of fairly large size and be interconnected to allow free and continuous passage of solutions. Stokes and Barnes, 1955. That degree of variation evidenced visually by complete resistance to dye penetration. ASTM C 262-60. See also nonvitreous; semivitreous; vitreous.

impervious bedding. Geologically, one which prevents induration downward of meteoric water, or alternatively, which caps pervious rocks, therefore, preventing uprise of water, or alternatively, which caps pervious rocks, therefore, preventing uprise of water, or alternatively, which caps pervious rocks, therefore, preventing uprise of water, or alternatively, which caps pervious rocks, therefore, preventing uprise of water, or alternatively, which caps pervious rocks, therefore, preventing uprise of water.

imperviousness. That quality or condition of a material that minimizes percolation. Pryor, 3.

impervious rock. As the term is used in hydrology, an impervious rock is one that does not admit the passage of water or other liquid under the pressures and conditions usually found in sub surface water. Impervious rocks may be of two kinds: porous, like clay or nonporous, like massive unbroken granite. In the first case, the pores are too small to admit water to pass except by very slow capillary creep. Although pores are necessary for permeability, they must be of fairly large size and be interconnected to allow free and continuous passage of solutions. Stokes and Barnes, 1955.

impingement. a. To collect (water) as by damming a stream for irrigation purposes, or the like; used for impounding. Webster 3d. Used in connection with the storage of tailings from ore-dressing plants and hydraulic mines. Fay, c. To collect in a reservoir or sump provided near a borehole the water, drill cuttings, etc., ejected therefrom. Long.

impounding dam. One in which tailings are collected and settled; also, a water-storage dam. Pryor, 3.

impounding reservoir. A reservoir which stores water for use in connection to a dry area, as distinct from a service reservoir. Ham.

impregnated. a. Timber impregnated with various substances to enable it to better resist the decomposing influences of the atmosphere. Crippin, b. A metallic material in which fragments of diamond or other hard substances (in unincorporated distribution) are intermixed and embedded. See also impregnated bit. Long. d. Containing metallic minerals scattered or diffused throughout the mass. Properly used in referring to the country rock containing a disseminated metallic mineral, or minerals, similar to those in the ore deposit.

impregnated bit. A sintered, powder-metal matrix bit with fragmented bort or whole diamonds of selected screen sizes uniformly distributed throughout the entire crown section. As the matrix wears down, new, sharp diamond points are exposed; hence, the bit is used until the crown is consumed entirely. Long.

impregnated-tape metal-arc welding. An arc-welding process in which coalescence is produced by heating with an electric arc between a metal electrode and the work. Shielding is obtained from decomposition of an impregnated tape wrapped around the electrode as it is fed to the arc. Pressure is not used and filler metal is obtained from the electrode. Coal Age, v. 66, No. 3, Mar. 1961, p. 92.

impregnated dirt. Timber c. Which has been treated to make it either flame-resistant or to protect it from destruction by fungi and insects. Timber impregnated with arsenic is often vacuum-pressure impregnated with a flame-retardant preservative for safety and to comply with the flame-proofing requirements of the Coal Mines Act covering escape roadways. Nelson.

impregnation. a. The treatment of porous castings with a sealing medium to stop pressure leaks. ASM Gloss. b. The process of filling the cores of a sintered compact, usually with a liquid such as a lubricant. ASM Gloss. c. The process of mixing particles of a nonmetallic substance in a matrix of metal powder, as in diamond-impregnated tools. ASM Gloss. d. An ore deposit consisting of the country rock impregnated with ore and without usually definite boundaries. Fay, e. Preservation of mine timber by soaking it in creosote, zinc chloride, or other chemicals. Pryor, 3.

implosion block. A bell-shaped or hollow, tubular device filled with wax or other water-resistant plastic materials, which is lowered onto an artificial setting on the bottom of a borehole. The plastic material molds itself about the lost article, and by inspection, the driller can determine which fishing tool is best fitted to recover the lost article. Long.

impression account. One in which payments are made from a sum set aside to deal with a specified matter or amount thereof, disbursements being periodically returned to the imprest. Pryor, 3.

improved dial; telescopic dial. A miner's dial in which a telescope replaces the usual visual vane. B. S. 3619, 1963, sec. 1.

improved paragon. Trade name for nonrotating wire rope of 18 x 4 over 3 x 24 construction.

improvement. An artificial change of the physical condition of the earth in, upon, or so reasonably near the mining claim as to evidence a desire to discover mineral therein or to facilitate its extraction, and in all cases the alteration must be permanent in character. Ricketts, I.

improving. See softening. C.T.D.

impound. a. To collect in a reservoir or sump provided near a borehole the water, drill cuttings, etc., ejected therefrom. Long. Impoundage dam. One in which tailings are collected and settled; also, a water-storage dam. Pryor, 3.

impound reservoir. A reservoir which stores water for use in connection to a dry area, as distinct from a service reservoir. Ham.

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incandescent
incarbonization. Same as coalification. Tom-
incase. An incandescent spark is an el-
icative, intensive to ignite
inctile. Eng. Term used in Lancashire for
incation. A twelve inch = 1 foot; 25.34001 cen-
timeters. Symbol; °, Pryor.
inch pressure. The height in inches of a
column of water or of mercury as a meas-
ure of hydrostatic pressure. Standard, 1864.
inciling. See jogging. Pit and Quarry, 53rd,
Sec, D, p. 13.
inciling starter. In one form, electrical gear
which allows power to be applied gently
to a stationary ball mill so as to avoid a
high starting strain. The mill is said to be
incched over as it begins slowly to rotate.
Pryor, 3.
inch, miner's. See miner's inch. C.T.D.
inch of water. A unit of pressure equivalent
to 0.036136 pound per square inch. Strock,
1886.
inch pennyweights. In valuation
a pound 1 inch; a unit of work or of energy.
inch-pound. The work done in
1 pound 1 inch; a unit of force. Nichols.
inch starting. See inciting; igniting.
inclination. a. The angular dip of a vein, a
bed, etc., measured in degrees from the
horizontal plane. Fay, b. Angle between the
directions of the horizontal field and the
horizontal plane. Schieferdecker.
inclinometer. Instrument to determine the in-
culation of the magnetic field. Schiefer-
decker.
incline. a. A shaft not vertical; usually on
the dip of a vein. See also slope. Fay, b.
Any inclined plane, whether above or be-
neath the surface; usually applied to self-
acting planes above ground, as in the bi-
tritious confine. Fay, c. A sloping tunnel
along which rails are laid from one level to
another; a mechanically worked inclined
gola or gondola on a coal mine. C.T.D. d.
A slanting shaft. Gordon. e. In mines, an
inciden
drift driven upwards at an angle from
the horizontal. Francis, f. An open-
ing driven upward or driven the pitch. Hudion.
incline buggy. Scot. A wheeled carriage for
inclinators, constructed with a horizontal
platform so that cars can be run on it and
be conveyed up and down the incline or
slope. Fay.
incline bedded formation. Any bedded for-
mation of rock where the dip of the bed-
incline marching. Marching commonly in sandy deposits. the strata,
incline railway. An inclined railroad operator. See inclined rail-
incline railroad浩oldism. See dump
incline shaft. See incline, a. Fay.
incline traverser. A traverser which moves
mine cars laterally and vertically by travel-
ing on an inclined plane. It is sometimes
used at the pit bottom for the transfer of
cars from a higher deck level to a lower
deck level on the opposite side rail track.
The cars are held upright in a
framing, and can handle loaded or empty
cars to and from the two levels. Nelson.
incline tube manometer. A manometer in
which one of the limbs (the reservoir) of the
U-gage is many times larger than the
cross-sectional area of the other limb (the
incidence tube). This causes part of the fluid,
when a small differential pressure is ap-
plied, to take place mainly along the
incidence tube. Inclined tubes are useful up to
a range of up to 2 inches water gage and
can be read to 0.01 or 0.001 inch de-
pendent upon scale graduation. Roberts, 1,
pp. 25-27.
inclined U-gage. A sensitive form of wa-
ter gage, giving readings of greater accu-
ricacy. It consists of a glass U-tube of uniform
3/4-inch diameter bored with limbs about
20 inches in length, the ends being bent
over for attachment to rubber tubing.
The U-tube is mounted on a wooden
base and a graduated scale in inches and
tenths or centimetres and millimeters
marked underneath the two limbs. The wooden
base carrying the U-tube is inclined at a
small angle to the horizontal. An angle of
1 in 10 gives a ten-tenth-magnification of the
readings. The water gage is fixed on the
leveling stage of a "teodolite or
dumpy tripod. It is used mainly for venti-
lation pressure investigations at
a mine. It consists of an ordinary U-gage
fixed to a plate of known inclination to
the horizontal. Sometimes the gage is
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Roberts, 1, pp. 7-17.
incline engine. A stationary haulage engine
at the top of an incline. C.T.D.
incline hoist. See incline. Bear.
incline hoist. Same as angle hoist. Long.
incline man. In anthracite coal mining,
inclined coal mining, a laborer who con-
trols the movement of cars on a self-acting incline (loaded car going
down one track puller going on
on other), hooking cars to loaded or empty
cars, starting them down the incline, and
applying brake to cable drum by a lever
to control their speed. Also called dilly boy; drum runner; monitor
operator; plane man; wheel runner.
D.O.T. 1. Also called jinny.
incombustible. a. Applies to substances that will not burn. Mersereau, '4th, p. 210. b. Any building material which contains no matter subject to rapid oxidation within the temperature limits of a standard fire test of not less than 2½ hours duration. Materials which, when burned, produce soot and smoke but do not burn during this time period are termed combustible. ACSG. c. See noncombustible. ACSG, 1963.


inclusion. a. A crystal, a fragment of another rock enclosed in a more fine-grained matrix. A.A.G.I. b. Particles of foreign matter, such as nonmetallic inclusions, or during recrystallization following fracturing, small portions of the minerals, or during recrystallization following fracturing, small portions of the minerals, or during recrystallization following fracturing, small portions of the mineral grains. Most of these fluid inclusions are small (0.001 to 0.01 millimeter in diameter) and frequently contain a small bubble of a gaseous phase in addition to the liquid (usually hydrous) phase.

inclusions. a. A term applied to crystals and inclusions of one mineral involved in another and to fragments of one rock enclosed in another, as when a volcanic flow picks up portions of its conduit. Bureau of Mines Staff. b. Particles of foreign matter, solid, liquid, or gas, enclosed within a gem stone. The nature of such inclusions provides a powerful clue to the origin of a stone, and enables natural stones to be distinguished from their synthetic counterparts. Anderson.

incline repairman. a. In anthracite coal mining, a man who oils, greases, repairs, and replaces pulleys or carriages traveling on rails. See also turned vertical shaft; underlay shaft. Nelson.


incompatible. a. Applied to strata, a formation, a rock, or a rock structure not combining sufficient firmness and flexibility to transmit a thrust and to lift a load by bending; consequently, admitting only the deformation of Bowen. See also competent, a. St. and d., 1964. b. Soft or fragmented rocks in which an opening, such as a large crack or a fault, may be found. In this case an indeterminate place, cannot be maintained unless artificially supported by casing, cementing, or timbering. Long.

incompatible bed. A bed that, in a particular case of folding, has yielded to the lateral pressure by plastic adjustment and flow. This may result in the bedding being thrown into complex structures or in the development of more regular interlocking structures, particularly drag folds and fracture cleavage. The bed tends to thicken towards the hinges and to thin in the limbs, of the folds. Chalimer. See also competent bed.

incompatible folding. See flow folding. A.G.I.

incomplete combustion. A term applied to combustion in which all of the fuel is not burned; for example, leaving unburned coal in ashes. Newton, p. 246.

incomplete ripples. A term used to describe isolated crests of ripple mark. Also called starved ripples. Pettijohn.

incongruent melting. Dissociation of a compound upon heating, with the formation of another compound and a liquid of different composition from the original compound. HW.

incongruent melting point. The temperature at which a solid phase changes into another solid phase plus a liquid, both having a composition that differs from the original solid. Also called the peritectic point. A.G.I.

inconsequent stream. A stream whose drainage system does not appear to have any direct relation to the structure of the underlying rocks but is quite independent of it. A.G.I.

incorporation. A process by which material contributed to coal formation responds to diagenetic and metamorphic agencies of coalification and becomes a part of the coal without undergoing any material modification. See also coalification. Cooper.

increment. The quantity of coal or coke taken by a single operation of the sampling instrument, as the unit, Pt. A.G.I.

incrustate. A. To form a new phase or phases until one of the two processes is completed. From this time period are termed combustible. ACSG, 1963. b. Precipitate. See also peritectic point. A.G.I.

index contour. A. A crust or a coating on a rock, such as carbonate forms on sandstone. Von Bertalanffy. b. A crust or hard coating of anything upon or within a body, as a deposit of lime inside a steam boiler. Webster, 3d. A. A method of ornament that consists in applying or in inlaying one (usually a finer) material upon another, as colored marbles, mosaics, lacquers, or enamels upon wood, stone, or metal; also the material so applied. Standard, 1964.

indexed bars. A special type of steel reinforcing bars for concrete, having a series of indentations and ridges which increase the mechanical bond with the concrete. See also helical reinforcement. Ham.

indexed bolt. An anchor bolt with indentations forged upon it to ensure a better grip in concrete or grout. Ham.

indented shoreline. See crenulate shoreline.

indexing. In structural brickwork, the omission of a suitable series of bricks so that recesses are left into which any future work may be bonded. Dodd.

indexing roller. A roller having a raised pattern cast on its surface which, when rolled over battens, produces a non-slip texture. Ham.

indentation hardness. The resistance of a material to indentation. This is the usual type of hardness test, in which a pointed or rounded indenter is pressed into a surface under a substantially static load. A.S.M. Notebook.

independent. A. Nongelatinous permissible explosive; used in mining. Bennett 2d, 1962. b. Independent construction. In mining operations, one who exercises independent control over the mode and method by which he produces the results demanded by the contract. Ricketts, 1.

independent-Gelatinous permissible explosive; used in mining. Bennett 2d, 1962.

independent subsidence. The condition in sedimentation in which each floc or particle floats freely from that is, its movement is not influenced in any way by other flocs or particles in suspension. Mitchell, p. 610.

independent wire rope core. This core may be 6 by 7, 7 by 7, 7 by 19 construction and the individual wires shall be of an appropriate grade of steel in accordance with the best practice and design, either bright (uncoated) galvanized, or drawn galvanized wire. ASA M11.1-1960, p. 8.

indeborite. Hydrous calcium and magnesium borate mineral, CaMgBo11O11H2O, as monoclinic crystals from the Inker bonate deposit, Kazakhstan. Named from locality. See also metahydroboracite. Spencer 16, M., 1945.

inderlite. Hydrated magnesium borate, 2MgO·3Bo·15H2O, as nodular aggregates of acicular crystals; pseudosphoritic. Named from locality, Inder, Kazakhstan, southwest Siberia, U.S.S.R. Spencer 15, M., 1940.

indestructibility of matter law. See law of indestructibility of matter. Cooper.

indestructibility of matter law. See law of indestructibility of matter. Cooper.

index. To divide into equal marked parts, such as quadrants or degrees of a circle. St.

index contour. Certain contour lines (usually every fifth contour) accentuated by a heavier line than the intervening contour.

incrustation. a. A crust or a coating on a rock, such as carbonate forms on sandstone. Von Bertalanffy. b. A crust or hard coating of anything upon or within a body, as a deposit of lime inside a steam boiler. Webster, 3d. A. A method of ornament that consists in applying or in inlaying one (usually a finer) material upon another, as colored marbles, mosaics, lacquers, or enamels upon wood, stone, or metal, also the material so applied. Standard, 1964.

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indented shoreline. See crenulate shoreline.

Schiefzylinder.
/errors in observed angle. The level which a sound would have at a point one yard from the point in which it occurs. Synonym for guide point. A.G.I.

**index minerol.** A mineral, the first appearance of which in passing from lower to upper stages of metamorphism, or of the reverse, marks the outer limit of the zone in question. A.G.I.

**index of overall concentration.** See overall concentration. Nelson.

**index of physiological effect.** A method which is based on the heart rate for relating the stress of a body to its environment. Roberts, J., p. 136.

**index of plasticity.** The difference between the water content of clay at its liquid and plastic limits showing the range of water contents over which the clay is plastic. Ham.

**index of refraction; refractive index.** The ratio of the velocity of light, or of other radiation, in the first of two media to its velocity in the second as it passes from one to the other, the first diurnum usually being taken to be a vacuum or air. Symbol, n. Webster 3d.

**index plane.** The surface of any bed, dike, or fault which, if extended, would be regarded as a plane and used as a base for measuring fault movements. Fay.

**index properties.** Properties which can be used to identify the soil type. The proper ties are of two kinds: (1) soil grain properties, and (2) soil aggregate properties. See also soil classification. Nelson.

**index property tests.** Tests to determine index properties which in turn serve to identify the soil type and indicate its consisteny. Nelson.

**India.** A remarkably fast-cutting, long-wear ing oilstone made from alundum. Fay.

**India cut.** In lapidary work, a cut approxi mately in the form of a brilliant, but done in such a way as to retain as much weight as possible. Cut in India. Webster 2d.

**India-cut stones.** India-cut stones are clumsy and are usu tally recut for Western markets. Fay.

**Indianite.** A white clay from Lawrence County, Ind., composed largely of meta halloysite; a small amount is used in making porcelain to increase translucency. Bureau of Mines Staff.

**Indian red.** A clayey greenish ochre which is based on hematite imported from the East, but of the culet; such stones are generally recut for Western markets. Fay.

**Indian agate.** A name for mocha stone or moss agate. Same as dendritic agate. Shipley.

**Indian pond stone.** Sharpening stones from Indian Pond, N. H. Mersereau, 4th, p. 285.

**Indian pipestone.** See catlinite. Fay.

**Indian cut.** A style of diamond cutting usually of Indian or other Oriental origin in which the table is usually double the size of the culet; such stones are generally recut for European or American requirements. Hess.

**Indian jade.** Aventurine quartz. Shipley.

**Indian garnet.** Almandite. Shipley.

**Indian garnet.** A variety of anorthite occurring as narrow pyritiferous seams, the intersections of which with auriferous quartz veins of the district are usually characterized by rich accumulations of gold. Fay. d. An instrument used to show the pressure and action of the steam in an engine cylinder. This gives a value of 100 percent for clay. Hess.

**Indian Pond stone.** Sharpening stones from Indian Pond, N. H. Mersereau, 4th, p. 285.

**Indian red.** A red (maroon) pigment, formerly consisting of a variety of hematite imported from the East, but now made artificially by calcining cop peras to obtain the red ferric oxide pigment. There is no pigment, with possibly the exception of lithopane and artificial barium sulfate, which will approach Indian red in fineness of grain. Also used for polishing gold, silver, and other metals. C.C.D. 6d, 195.

**Indian file.** An Indian's right to occupancy of land, and that right recognized by the United States, constitutes Indian title. Ricketts, T.

**Indian topaz.** See citrine. C.M.D.

**Indian oilstone.** See India.

**Indian steel.** A fine natural steel from southern India made direct from the ore; wrought. Fay.

**Indian stone.** See India.

**Indianized horsepower.** a. That horsepower developed in the cylinder or cylinders of steam, gas, or petrol engine, which is calculated from indicator diagrams, as distinguished both from that which is measured by a dynamometer connected with the engine to measure the work done, or from the theoretical horse power. It is calculated from (1) the average pressure of the working fluid, as shown by the indicator diagram; (2) the area of the piston; (3) the stroke; (4) the number of working strokes per minute. Standard, 1964. b. The theoretical power output of an engine. It is determined by the mean effective pressure of the medium acting on the net area of the piston through the distance the piston travels as the engine rotates. Bruntly, 2. c. The horsepower developed in the cylinders, that is determined by use of an indicator gage. It does not include engine friction losses. Nichols.

**indicator face.** Ore for which tonnage and grade are computed partly from specific measurements, samples, or production data and partly from other measurements made in a manner inappropriate to space to outline the ore grade completely or to establish its grade throughout. Forrester, p. 52.

**indicator power.** See indicated horsepower, a. Fay.

**indicator.** a. An instrument for showing at any moment the position of the capstan in the shaft. Fay. b. An apparatus for showing the presence of fire; fire alarm. Fay. c. A specially prepared paper on which the diagram is drawn is known as a "graph paper" or "graphing paper". Fay.

**indicator card.** A diagram showing the variation of steam pressure in the cylinder of an engine during an entire stroke or revolution. Zern. b. A specially prepared paper on which the diagram is drawn is known as a "graph paper" or "graphing paper". Fay.

**indicator drum.** A diagram showing the variation of steam pressure in the cylinder of an engine during an entire stroke or revolution. Zern. b. A specially prepared paper on which the diagram is drawn is known as a "graph paper" or "graphing paper". Fay.

**indicator gage.** An instrument used to record or to indicate various quantities. See also indicator, b. Long.

**indicator length.** Length of mathematical penum that would yield pulses equal to its presence the occurrence of an element

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**indicator plant.** A plant that indicates by its presence the occurrence of an element
indicator plant

in the soil upon which it grows. Hawker. See also local plant indicators; universal plant indicators. Hawker. p. 305-310.

b. A plant whose metabolism requires certain elements to sustain life (for example, Astragalus as a selenium indicator. Ballard.

indicator vein. A vein which is not metallic. Mixture of organic dyes chosen to provide a continuous and distinctive change of color over a wide band of pH values. Consists of a solution of methyl orange (0.1 gram, methyl red (0.4 gram), bromothymol blue (4.0 gram), naphtholphthalein (0.32 gram), phenolphthalein (0.5 gram), and cresolphthalein (1.6 gram) in 100 cubic centimeters of 70 percent alcohol. One drop of this in 10 cubic centimeters clear aqueous liquid gives a color range through pH 3 to 12. Red is 3; orange-red, 4; orange, 5; yellow, 6.5; green, 8.0; bluish, 9.5; blue, 10.5; violet, 11.0; and red-violet, 12.0. Pryor, 3.

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indicolite. An indigo-blue variety of tourmaline. Danz 17.

Indirect flushing. Flushing in which the water enters the borehole with the business end pointing toward the collar. Recommended for two reasons: potential for more complete drainage of permeable dyke. Bureau of Mines Staff.

indirect-cycle reactor system. A nuclear reactor system in which the reactor coolant transfers heat from, the reactor coolant to the chimney draught. See also balanced draught. Nelson.

indirect test. See Brazilian test. Lepke, p. 570-571.


indium. A soft, malleable, easily fusible, silvery-white metallic element that is resistant to tarnishing and resembles aluminum and gallium in being chiefly trivalent. Occurs in very small quantities in scheelite and other ores. Used chiefly as a plating for lead-coated silver bearings for airplanes. Symbol, In; valences, 1, 2, and 3; tetragonal; atomic number, 49; atomic weight, 114.82; specific gravity, 7.31 (at 20° C); melting point, 156.61° C; boiling point, 1,450° C; insoluble in water; very slightly soluble in sodium hydroxide; and soluble in acids. Webster 3d; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-115-B-117; CCD 6d, 1961.


industrial coal car. One owned or leased by a coal operator, and not by the transportation company. These cars have painted on the sides the names, initials, or some chosen trademark or emblem of their owners, and are run for their exclusive benefit. They are generally used between the mines and the coastal shipping ports of the various railroads. Fay.

individual illness. Any disease or ailment of the body that is caused by an external magnetic field and that disappears when the external field disappears. Schieber, p. 370.

individual irradiation. Radioactivity that is created by bombarding a substance with neutrons in a reactor or with charged particles produced by particle accelerators. LQL.

induction. The production of magnetization or electrification in a body by the proximity of magnetized or electrified bodies, or of an electric current in a conductor by the variation of the magnetic field in its vicinity. Crispin.


induction coil. a. An apparatus for generating currents by electromagnetic induction. It consists usually of two concentric cylindrical coils of insulated wire encircling an iron core. One of the coils is called the primary and the other the secondary. Ordinarily, the primary is short and of thick wire, and the secondary is long and of thin wire. The alternating current of high tension is induced in the secondary coil by rapid automatic making and breaking of the circuit in the primary. Standard, 1964. b. Commonly used by bit setters as a means of melting and/or cutting metals used in

that which is drawn in; an inward flow; as, the inward flow of water at the bottom of the chimney. Hey, M.M., 1964.

induced bursts. Rock bursts caused by stoping operations to distinguish them from development bursts which are called herein. Spaldin, p. 67.

induced cleavage. Same as induced fractures. Woodruff, v. 1, p. ix.

induced current. See induction. Crispin.

induced draught. Suction applied at the outlet of the appliance produced by a mechanical fan or a steam jet to supplement the chimney draught. See also balanced draught. Nelson.

induced fractures. Fractures formed in the roc, as a result of mining operations. For example, on longwall faces fractures are formed in a slate roof parallel to and along successive lines of face. They are induced after coal cutting and become intensified at the end of the loading shift. The distance between the fractures varies, roughly, with the depth of cut. Nelson.

induced magnetization. Part of the magnetization of a body that is caused by an external magnetic field and that disappears when the external field disappears. Schieber, p. 370.

induced polarization. When an electric current passing into the earth through ground electrodes it suddenly interrupted, a potential can be measured between these or nearby electrodes, for some time after the current stops. This potential decays exponentially with time after the interruption. The effect was first observed by Schlumberger as early as 1912 and it was ascribed by him to polarization of earth material by the current. Known as induced polarization; this effect is associated with electrochemical reactions in the earth. Dobrin, p. 370.

induced radioactivity. Radioactivity that is created by bombarding a substance with neutrons in a reactor or with charged particles produced by particle accelerators. LQL.

induced radiation. The production of magnetization or electrification in a body by the proximity of magnetized or electrified bodies, or of an electric current in a conductor by the variation of the magnetic field in its vicinity. Crispin.

induced radiation. The production of magnetization or electrification in a body by the proximity of magnetized or electrified bodies, or of an electric current in a conductor by the variation of the magnetic field in its vicinity. Crispin.
induction coil

Producing bitcrows by casting or other mechanical methods. Compare induction furnace; induction pot. Long.

Induction furnace. An alternating-current electric furnace wherein the primary coil or induction is called and generates, by electromagnetic induction, a secondary current which develops heat within the metal charge. ASM Gloss.

Induction hardening. Quench hardening in which the heat is generated by electrical induction. A.G.I.

Industrial air conditioning. Air conditioning in industrial plants where (usually) the objective is the furnishing of a manufacturing process rather than the comfort of human beings. Strock, 10.

Industrial calorific value. The calorific value obtained when coal is burned under a boiler. Kentucky, p. 411.

Industrial degree-day. A degree-day unit based on a (usually) 5°F or 5°F mean daily temperature so as to be applicable to industrial buildings maintained at relatively low temperatures. Strock, 10.

Industrial diamonds. a. Crystalline and/or cryptocrystalline bodies having color, shape, size, crystal form, imperfections, or other physical characteristics that make them unfit for use as gems. Industrial diamonds are obtained as fractionated materials that are used in jewelry or as abrasives. Long. b. Impure diamond used in borehole drilling and the grinding industry. Also called black diamond, brown diamond, crystal, and pedro. Pryor, 3.

Industrial floor brick. See floor brick. Dodd.

Industrial grouping. Where the units comprising an organization produce like products, the grouping is a horizontal combination. Where they produce and market products of increasing finish or concentration, the grouping is a vertical combination. A grouping of collieries producing and marketing coal would be a horizontal combination, but where a number of collieries are linked with end products such as coke or gas or steel, the grouping would be a combination of vertical and horizontal. Nelson.

Industrial minerals. Rocks and minerals not produced as sources of the metals but ex- cluding mineral fuels. Bureau of Mines Staff.


Industrial waste. The waste resulting from the processes employed in industrial establishments. Grispin.

Inequigranular. A textural term applied to rocks, the essential minerals of which are of different sizes. Compare, porphyritic. A.G.I.

Inequilibrium. Uranium is soluble in acid waters and tends to be removed in solution, but where more saline waters are formed, and its compounds tend to remain behind in the leached outcrop. Therefore, the outcrop may be radioactive because of the presence of the gamma-emitting elements RaC and RaD, even though much of the uranium has been lost in solution. In this case, radioactivity may indicate a high counter reading, but the uranium content may be less than a million years ago may be in inequilibrium because daughter products have not reached their equilibrium amounts. Hence, counter readings may indicate less uranium than is actually present. Ballard.

Inert anode. An anode which is insoluble in the electrolyte under the conditions obtained in the electrolysis. Lounenheim.

Inert dust. a. Any dust which contains only a small amount of combustible material. Rice, George S. b. Dust which has no harmful effect. Hartman, p. 41.

Inert gas (such as nitrogen or carbon dioxide) that is normally chemically inactive especially in not burning or in not supporting combustion. Webster 3d. b. One of the helium group of gases comprising helium, neon, argon, krypton, xenon, and sometimes radon. Also called a noble gas; a rare gas. Webster 3d.

Inert gas arc welding. An arc-welding process wherein coalescence is produced by heating with an electric arc between a metal electrode and the work. shielding is obtained from an inert gas such as helium or argon. Pressure may or may not be used and filler metal may or may not be used. Coal Age, v. 66, No. 3, Mar. 1961, p. 92.

Inert-gas metal-arc welding. An arc-welding process wherein coalescence is produced by heating with an electric arc between a metal electrode and the work. shielding is obtained from an inert gas such as helium or argon. Pressure may or may not be used and filler metal may or may not be used. Coal Age, v. 66, No. 3, Mar. 1961, p. 92.

Inert-gas shielded arc welding. Metal cutting with the heat of an arc in an inert gas, such as argon or helium. ASM Gloss.

Inert-gas shielded arc welding. Arc welding in an inert gas, such as argon or helium. ASM Gloss.

Infertility. The reluctance of a body to change its state of rest or of uniform velocity in a straight line. Infertility is measured by mass when linear velocities and accelerations are considered and by moment of inertia for angular motions (that is, rotations about an axis). C.T.D.

Infiltration. This term was proposed to simplify the nomenclature of coal petrography by combining, in a single term, the group of the following macerals: micrinite, semifusinite, fusinite, and fusain. Infiltration is based on certain similarities in the technological properties of the four macerals: the term indicates definitely that the constituents are totally inert, but only that they are more inert than the macerals of the other two groups, particularly in carbonization processes in which they behave as diluents. IHCP, 1963, part I.

Inert primer. A cylinder of inert material which embodies a detonator, but which does not interfere with the detonation of the explosive charge. B.S. 3618, 1964, sec. 6.

Inerts. Constituents of a coal which decrease its efficiency in use, for example, mineral matter (ash) and moisture in fuel for combustion or fusion in coal for carbonization. B.S. 3552, 1962.

Inesite. A rose- to flesh-red prismatic mineral with 1 perfect and 1 less perfect cleavage, (2Mn,Ca)0.2 SiO3·H2O; X-ray study gives formula Mn1CaSi3O8(OH)-5H2O, indicating a hydrous thomsonite. Nelson, p. 173.

Infection. Communication of disease, as by contagion, in which direct or Indirect contact with an organism in any manner; distinguished from contamination, in which there is no direct or indirect contact with a disease is implied. Standard, 1964.

Infective jaundice. Men working in mines served by drifts and adits are subject to occasional attacks of this disease which is often fatal. It is caused by a micro-orga-
inferior coal. Usually middlings in a vein. A vein in which the minerals are of lesser value.

Inflatable seal. A seal made from polyvinylchloride reinforced with glass fiber. P. is an advantage in terms of being able to make the seal conform to the shape of the opening.

Inflammable cinnabar. A mixture of cinnabar, sulfur, and quartz.


Inflow. Water, other liquid, or gas seeping or flowing from rocks into a borehole or other underground opening. Long.

Influence line. An influence line usually pertains to a particular section of a beam, and is a curve so drawn that its ordinate at any point represents the vertical displacement at that point due to the reaction at the section.

Influence zone. The formed lower part of the crust. Schieferdecker.

Infra. Trademark for a refractory insulation, available only in brick form. Suitable for use at temperatures up to 2,700° F. Used in primary lining of electric furnaces and kilns. C.C.D. 6d.

Infusible. Not fusible by heating from solid to liquid state under specified conditions of pressure, temperature, and time. Pryor. 5.3.


Infusion shot firing. A technique of shot firing in which an explosive charge is fired in a shot in which a liquid, gel, or other nonexplosive substance is used to transmit the energy of the charge to the rock. B.S. 3618, 1964, sec. 5.


Ingate. The point of entrance from a shaft to a level in a coal mine. Standard, 1964. See also inset.

Inguinae (Inguese) ear. Scot. A drift or mine starting from the surface of the ground; also, the end of the mine at the surface.

Inguinate. A general term for igneous rocks created within or below. The term was extended to include metamorphic rocks as well as igneous rocks. Holmes, 1920.

Ingersoll-Rand turbo columns. Columns consisting of vertical cylinders to which are attached the arms on which the drills are mounted. The carrying arms are in motion of very fine particles. Osborne.


Ingot header. In ore dressing, smelting, and refining, one who pours molten aluminum, copper, or other nonferrous metals into solidifying ingots to compensate for shrinkage that occurs when ingots cool in their molds. Also called bolt header; casting header; header; ingot pipe filler; pipe-out man. D.O.T. 1.

Ingot iron. Iron of comparatively high purity, produced in the same way as steel, in the open-hearth furnace, but under conditions that keep down the carbon, manganese, and silicon content. C.T.D.

Ingot metal. Any metal which, while molten, is prepared into molds, either as a temporary massive shape suitable for further working by rolling or forging. Standard, 1964.

Ingot mold. The mold or container in which molten metal is cast and allowed to solidify in order to form ingots. C.T.D.

Ingot pitch. The chemical condition in which metal is fit to be cast into ingots. Standard, 1964.

Ingot saw. A saw, run at a high rate of speed and having at its cutting edge a fusing
ingot saw


ingot structure. The general arrangement of crystals and inclusions in an ingot, which consists typically of chill, columnar, and equiaxed crystals. According to the relations between the structure of the ingot and the constituent materials of the molten metal and mold respectively, one or two types of crystals may be absent. C.T.D.


ingrain. Eng. A portion of coal given above the quantity purchased for good measure; usually a quarter-chaldron added to five chaldrons. Say.

ingredient. The primary and higher order reactants of the chemicals or constituents of the molding compound, such as plasticizer, lubricant, solvent, catalyst, stabilizer, fire retardant, hardener and coloring material. BuMines R.I. 5971, 1962, p. 3.

ingress a. A place for entering; a way of entering the sea at a given point. Webster 2d. b. In underground bituminous mining there are three methods of ingressby drift, shaft, or slope. Drift mines are opened by driving horizontally from the side of an elevation into the seam; shaft mines by sinking a vertical shaft through the overlying strata into the seam; and slope mines by driving an inclined entry through the overlying strata down the face into the seam. *C.G.I.

ingression. The entering of the sea at a given place. Schieferdecker.

ingression coast. Coast, the lower parts of which have been invaded by the sea (drowned valleys, bays, etc.). Schieferdecker.

ingrown meander. A meander deepened as a result of the rejuvenation of a stream course as from downvalley tilting. A.G.I. Supp.

insalation. Something from or through which ore is carried specifically, an appliance or apparatus of different forms and uses; such as, (1) for taking the chill from the air before it reaches the lungs, or for preventing or other injurious substances from the air breathed through it, (3) for administering medicaments or anesthetics by inhalation, or, 4) for permitting the supply of fresh air to a diver or miner. Standard, 1960, p. 800.

insalation cable; digging line. In a cable excavator bucket is pulled toward the dump point. Nichols.

insalation orifice or aperture by which material is brought into or from the excavation. A.G.I.

insalation line or mechanism by which a cable excavator bucket is pulled toward the dump point. Nichols.

insalation line. In a cable excavator the line that pulls the bucket to dig and bring in soil. Nichols.

insalation. a. The minerals or inorganic substances in coal which were present in the original plants that ultimately formed the coal and which cannot be removed by cleaning and normally to about 1 percent. Also called constitutional ash. Nelson, b. Widely used to designate the part of the ash content of a coal that is structurally part of the coal itself and cannot be separated from it by any mechanical means. Also referred to as fixed ash. Mitchell, 60, p. 60. Called dirt. Opposite of free ash. Pryor.

insalation bursts. Rock bursts that occur in development. They may be divided into two classes—those due to violent arching and those occasioned by the influence of fissures or adjacent excavations on the strata. *C.G.I.

insalation floatability. Property considered by some physicists to be possessed by certain naturally occurring minerals, which readily respond without pretreatment to levitation by the frictionless principle; by other workers considered due to slight surficial contamination during mining and trans- portation. A.G.I.

inherent mineral matter. That portion of the mineral matter of coal organically combined with the coal. It contains elements that have been assimilated by the living plant, such as iron, phosphorus, sulfur, calcium and magnesium. A.G.I.


inherent settlement. The sinking of a foundation caused by the loads it superimposes on the soil below it, rather than by the loads on any adjacent foundation. See also interference settlement. *Ham.

inherited characteristic (of soil). Any characteristic of a soil that is directly attributable to the nature of the parent material as contrasted to those characteristics partly or wholly attributable to the processes of soil formation. Example, the red color of a soil is inherited if it is caused entirely by the fact that the parent material was red. Stokes and Varnes, 1955.


inherited stream. Proposed by Shaler for the type now known as a superposed stream. Obsoleto. A.G.I.

inherited structure. An original structural feature of the country rock that has been faithfully preserved after its replacement by ore. Schieferdecker.

inhibiting pigment. Certain pigments, such as zinc chromate which are added to paints, varnishes, and cements to set; also, a substance added to drilling mud to check or inhibit the corrosion of metals. Taylor.

inhibitor. a. A substance which, when added to cement, has the capacity to slow down or lengthen the normal time required for the setting or hardening. Since, or for permitting the supply of fresh air to a diver or miner. Standard, 1960, p. 800.

injection gneiss. A gneiss, the banding of which is inherited if it is caused entirely by the processes of soil formation, there were older rocks adjacent to it. Stokes and Varnes, 1955.

injection pressure. The total amount of pressure required to force a liquid or grout into the mass and the temperature of the molten metal and mold respectively, one or two types of crystals may be absent. C.T.D.

injection pressure. The total amount of pressure required to force a liquid or grout through the strata preceding primary consolidation. Also called initial compression. ASCE PI826.

injection pressure. The total amount of pressure required to force a liquid or grout into the mass and the temperature of the molten metal and mold respectively, one or two types of crystals may be absent. C.T.D.

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injection pressure

into cracks, cavities, and pores in rocks or other substances. Long.

injection theory. The theory that a vein was filled first with molten mineral. Fay.

injection moulding. See injection mould.

injector. a. Any apparatus used to force, under pressure, material into an opening in a metal container. Compare cement injector. Long. b. A device used to force food water into a boiler by the direct action of steam. Long. c. Mechanism used for spraying fuel oil into the combustion-type engine or to spray a fine oil mist into a stream of air or steam. See also line oiler. Long.

injunction. A judicial order or process, operative upon the person requiring the party to whom it is directed or to (usually) refrain from doing some designated thing. Style Guide, p. 60.

injury. In mining, personal damage resulting from accidents. Fay.

ink. Ceramic. An inorganic coloring material suspended in a suitable oil vehicle. Also known as tourists. Fay. 

inkstone. a. Native copperas (melanterite), or a stone containing it. Used in inking. Webster 2d. b. A stone slab used in use. Webster 2d.


inner barrel. Synonym for inner tube. Long.

inner core. The center of the earth which geologists believe is solid, dense material. MacCracken.

inner depression; central depression. Low in a structure; desert. Long. c. Mechanism used for spraying fuel oil into the combustion-type engine or to spray a fine oil mist into a stream of air or steam. See also line oiler. Long.

inner-face stone. See inside-face stone. Long.

inner mantle. The lower part of the mantle. Schieberdecker.

inner-segmental. The inner-segmental line surrounding the area hit by the strongest gas. Schieberdecker.

inner-stone. A diamond inset on the inside wall of a half or a round. Long.

inner tube. The inside tube which acts as the core container of a double-tube core barrel. Long.

inner-tube adapter. A tubular part that can be attached to the inner-tube of EXT- and AXT-letter-name core barrels to adapt them for use with EXK- and AXK-letter-name blocks and shafts, sometimes incorrectly used as a synonym for lifter case. Long.

inner-tube core lifter. A core lifter designed to fit and work inside a tubular container fitted to the lower end of the inner tube of a double-tube core barrel. Long.

inner-tube extension. A tubular part attachable to the lower end of the inner tube of a double-tube core barrel to lengthen the inner tube; also, sometimes incorrectly used as a synonym for lifter case. Long.

inner-tube shoe. The replaceable lower end of an inner tube of a double-tube core barrel. Long.

insensible perspiration. The normal condition of the skin in which only slight perspiration or sweating takes place. No moisture is perceptible because it evaporates as it is formed. Spalding, p. 227.

insensate. During the present surface but not consequent on nor controlled by the structure; descriptive of a certain type of streams, drainage, and dissection. A type of drainage in which young streams flowing on a nearly level plain wander irregularly. Fay.

insensitive stream. a. Sometimes no guiding weak structures are revealed on the consequent valley sides. Such is the case when the rocks are either homogeneous or horizontally stratified. Then a later, more effective stream growing headwards is acciden tally located. Insequent may be applied to such a stream. A.G.I. b. A stream, the course of which is not set by the direction of the surrounding rock, that it had when it was formed. See also in situ. Fay.

in-place. Rock occupying the position, relative to surrounding rock, that it had when it was formed. If an ore body is continuous in the extent that it maintains the character it had when it was formed, then it is in-place. See also in situ. Fay.

in-person. Ore fed into the mill as opposed to output. Sinclair, W. E., p. 484.

input shaft. The shaft that delivers engine power to a transmission or clutch. Nichols.

input well; injection well. A well used for injecting fluids into an underground stratum. Institute of Petroleum, 1961.

in quartzation; saussurization. In bullsey argument, dissolution of silver from associated gold by use of nitric acid. For this to succeed, the silver/gold ratio must be at least 3 to 1. Pryor, 3.

intrashore. See after frontal. Cooper, p. 195.

intrashore bar. A sudden and often overwhelming flow of water from mole wash-in. Intrashore wash of water may be caused by striking unconsolidated old workings which possibly were shown accurately on the mine plans. Faults have also been reported for serious inflows of water. A fault may retain large volumes of water above or at the same level as workings approaching it. It is usual to drive exploring headings in the direction of the suspected water danger. See also intrashore.


insetberg. a. A prominent steep-sided residual hill or mountain rising abruptly from a plain, a type of landscape common in Africa. The residuals are generally bare and rock large and small, isolated, and in hill and mountain groups. They are surrounded by lowland surfaces of erosion which (distinguished from peneplains), A.G.I. b. An isolated mountain partly buried by the debris retreat and overlapping its slope. Webster 3d.

insensitive. During the present surface but not consequent on nor controlled by the structure; descriptive of a certain type of streams, drainage, and dissection. A type of drainage in which young streams flowing on a nearly level plain wander irregularly. Fay.

Insensitive perspiration. The normal condition of the skin in which only slight perspiration or sweating takes place. No moisture is perceptible because it evaporates as it is formed. Spalding, p. 227.

insequent. Developed on the present surface but not consequent on nor controlled by the structure; descriptive of a certain type of streams, drainage, and dissection. A type of drainage in which young streams flowing on a nearly level plain wander irregularly. Fay.

insequent stream. a. Sometimes no guiding weak structures are revealed on the consequent valley sides. Such is the case when the rocks are either homogeneous or horizontally stratified. Then a later, more effective stream growing headwards is accidentally located. Insequent may be applied to such a stream. A.G.I. b. A stream, the course of which is not set by the direction of the surrounding rock, that it had when it was formed. See also in situ. Fay.
insert
cobalt-tungsten carbide mixture (in which diamonds may be inset), brazed into slots or holes or grooves cut or drilled into the outside surface of a reaming shell to act as cutting points, reaming surfaces, or wear-resistant tips or surfaces of reaming shells or outside surfaces of other pieces of drilling equipment or fittings. Also called insets. Compare slug. Long. d. Anything placed in a hole, groove, or slot prepared for it. Long.

insert bit. A bit into which inset cutting points of various shaped pieces of hard metal (usually a sintered, tungsten carbide-cobalt powder alloy) are brazed or hand-peened into slots or holes or cut into a blank bit. Hard-metal inserts may or may not contain diamonds. Also called slug bit. See also insert. Long.
insired-blade cutters. Cutters having replaceable blades that are either set or tipped and usually adjustable. ASM Gloss.
insired-joint casing. Casing, the box-thread ends of which are belled or split outward to receive the pin-thread portion of another piece of casing when coupled together; also, sometimes incorrectly used as a synonym for flush-coupled casing. Long.
insired nut. A term designating a disk, segment, or cylinder wheels with nuts imbedded in the back to facilitate mounting on the grinding machine. ACGS, 1963.
insired rod-type pick. See sintered carbide-tipped pick. Long.

insert reaming shell. A reaming shell the reaming diameters of which are inset in shaped, hard, metal plates brazed into grooves cut into the outside surface of the shell. Long.
insert set. Bits or reaming shells set with inset blades. Long.


insert. a. Eng. The entrance to a mine or tunnel. Also called the long entry, but not to facilitate movement in the face or back of the mine. Long.

insert reaming shell. A reaming shell the reaming diameters of which are inset in shaped, hard, metal plates brazed into grooves cut into the outside surface of the shell. Long.
insert set. Bits or reaming shells set with inset blades. Long.

insert. a. Eng. The entrance to a mine at the bottom or parallel to the sides of a shaft where the cages are loaded. A landing. Fay. b. The entrance to underground roads from the shaft. Mason. c. Also called the opening from the mine shaft to a seam of coal. C.T.D. d. A surface into which diamonds or other cutting points are embedded or set; also, the act or process of embing such materials in a surface. Long. e. See phenocryst. A.G.I.

insert box. A box having a channel designed to be mounted in an inset to enable a connection to be taken from a shaft cable. B.S. 3618, 1965, Sec. 7.

ins洞察. The region shoreward of a certain depth of water, the 3- or the 5-fathom isobath. Hy.

ins洞察 currents. The movement of water inside the surf zone, including longshore and rip currents. Hy.

ins洞察 water. Water, contiguous to land in which the physical properties are considerably influenced by continental conditions. Hy.

inside. A term often used to designate the interior of a mine. Fay.
inside angling. See angle of inclination. SINCLAIR, V. p. 33. INSIGHT. The difference between the outside diameter of a core and the inside diameter of the core barrel passes through the core, inserts cutters; also, the annular space between the inner and outer tubes in a double-tube core barrel. See also ins洞察. Long.
inside coupled. Coupled in the same manner as flush-coupled casing. See also flush-coupled casing. Long.
inside face. That part of the bit crown nearest to and parallel with the inside wall of an annular or coring bit. Long.
inside foreman; inside superintendent. An underground foreman or superintendent. Fay. See also pit boss; shift boss.
inside gage. The inside diameter of a bit as measured between the cutting points, such as between inset inserts on the inside-wall surface of a core bit. Long.
inside-gage stem. A diamond set in the inside-wall surface of the crown of a diamond core bit so that it cuts sufficient inside clearance to permit the core to pass through the bit shank and into the core barrel without binding. Also called inner stone; inside gage stone. Long.
inside-haulage engineer. In bituminous coal mining, one who operates a mine locomotive to haul trains of cars along underground haulages ways in a mine. D.O.T. 1.
inside kicker. Same as inside-gage stone. Long.
inside parting. A side track or parting some distance from the beginning of a long entry, at which cars are left and picked up by a gathering driver. Also called a swing parting. Fay.
inside reamer. Same as inside-gage stone. Long.
inside slope. a. A slope on which coal is raised from a lower to a higher entry, but not to the surface. Fay. b. An inside slope is a passage in the mine through which coal is brought up from a lower level. Korson.
inside stope. Same as inside-gage stone. Long.
inside tap. A tapped, externally threaded fishing tool, which is inserted inside the open ends of all drill holes which are left in the borehole and, when turned, grips and holds them so that they may be lifted and recovered. Long.
inside thread. Same as box thread. Long.
inside upset. A tubular piece having ends that are thickened for a short distance on the inside. Long.
inside work. a. The drilling of boreholes in underground workplaces; also applied to work done on the surface with the drill machine and tripod completely housed. Long. b. Any work in the mines. Most commonly used in bituminous coal mining. Bureau of Mines Staff.
inside work. In situ. The natural or original position. Webster 3d. Applied to a rock, soil, or formation when in the situation in which it was originally formed or deposited. See also in place. Fay.
inside combustion. An experimental means of recovery of bituminous coal having high and very high viscosity which is unrecuperable by other methods. The essence of the method is to heat the oil in the horizon to increase its viscosity, and then cool it to increase its viscosity. Heat is applied by igniting the oil sand and keeping the fire alive by the injection of air. The heat breaks the oil down into coke and lighter oils and the coke catches fire. As the combustion front advances, the lighter oils move ahead of the fire into the bore of a producing well. Williams.
inside concrete. Concrete which is deposited in the place where it is desired to harden as a part of the structure, as opposed to precast concrete. Taylor.
inside concrete piles. Concrete piles formed by pouring concrete into holes bored or driven into the ground, as distinct from precast concrete piles driven or jacked into the ground. See also bored pile. Ham.
inside origin theory. The theory of the origin of coal that holds that a coal was formed where the plants from which it was derived grew. See also autochthonous coal; swamp theory. A.G.I.
inside soil tests. Tests carried out on the ground, in a borehole, trial pit, or tunnel, as opposed to a laboratory test. An inside soil test may be a vane test, dynamic penetration test, etc. Nelson.
solubility. The absorption of solar energy by the surface of the earth. Law.
solubility anode. a. incapable of being dissolved in a particular liquid. Shell Oil Co. b. Term used of solid which gives off soluble material. Pryor, 3. c. As used in smelter contracts, the term insoluble or silica are often used interchangeably, but they are not synonymous. Pryor, 3. d. As used in smelter contracts, the term insoluble or silica are often used interchangeably, but they are not synonymous. Pryor, 3. e. As used in smelter contracts, the term insoluble or silica are often used interchangeably, but they are not synonymous. Pryor, 3.
solubility index. A measure of the relative fluidity of an inspissated material as compared to water. Insoluble is the term used to designate fluidity of the original state. As the combustion front advances, the lighter oils move ahead of the fire into the bore of a producing well. Williams.
solubility index. A measure of the relative fluidity of an inspissated material as compared to water. Insoluble is the term used to designate fluidity of the original state. As the combustion front advances, the lighter oils move ahead of the fire into the bore of a producing well. Williams.
solubility index. A measure of the relative fluidity of an inspissated material as compared to water. Insoluble is the term used to designate fluidity of the origin of coal that holds that a coal was formed where the plants from which it was derived grew. See also autochthonous coal; swamp theory. A.G.I.
instantaneous cuts

instantaneous cuts. Cuts characterized by the drilling and ignition being done so that all the holes can cooperate and break small coal pieces. They are called instantaneous cuts as they are preferably ignited by instantaneous detonators to ensure a simultaneous detonation of all holes, particularly in the cut. Some examples are: blajo-cut; WP-cut; presplit cut. Langeoer, pp. 193-194.

Instantaneous detonator. A detonator in which there is no designed delay period between the passage of an electric current through the detonator and its explosion. B.S. 3618, 1966, sec. 6.

Instantaneous fuse. Term used to distinguish rapid-burning from slow fuse. Ignition rate is several thousand feet per minute, but slower than that of detonating fuse. Pryor, 2, Example: PETN.

Instantaneous relays. These relays, as their name implies, operate within a few cycles after faults are detected. Coal Age, v. 71, No. 8, August 1966, p. 270.


Institution of Mining and Metallurgy screen scale; I.M.M. screen scale. Laboratory screens of usual 8 inch round size, in which the diameter of each new wire is equal to the distance between successive parallel wires. Therefore, in a 60 mesh screen (having 60 wires per linear inch measured along either the warp or the woof) the aperture is a square measuring 1/120th inch on the side. The meshes used are 5, 8, 10, 12, 16, 20, 30, 40, 50, 60, 70, 80, 90, 100, 120, 150 and 200. Pryor, 2.


Instroke. The right to raise or take ore from an adjoining mine. Ricketts, p. 34.


Instrumentation. Control by servo-mechanisms. Use of signaling devices originating with the process to indicate, vary or regulate its value. Pryor, 3.

Instrument transformers. Their purpose is to insulate the relays from line voltage and to reduce line current and voltage to values that can be applied to the sensitive mechanisms common to relays. These devices are classified with respect to the rate of speed at which they operate. Basically, these classifications are: (1) instantaneous; (2) time delay; and (4) high-speed; (3) time delay; and (4) high-speed. B.S. 3618, 1966, sec. 6.

Insulating water bottle. In oceanography, an instrument used for the accurate determination of the temperature of the sea at moderate depths. Also called Nansen-Peterson water bottle. C.T.D.

Insulation. a. If electric separation of a conductor or between conductors, or on the periphery from conductors by means of a nonconducting barrier. Pryor, 3. b. If thermal, prevention of passage to or from a body of external heat, by use of nonconducting envelope. Pryor, 3. c. See capacity insulation. ACCG, 1963.

Insulation resistance. a. The alternating-current resistance between two electrical conductors or between a conductor and an insulating material.

Integral action. Regulating movement proportional to the magnitude and duration of the error under scrutiny. Pryor, 3, 31.

Integral control. In automation, progressive restoration of a correct running condition after deviation has occurred so that no overshoot occurs. Pryor, 3.

Integral pilot. A pilot-type noncoring bit having a pilot section that is an integral, nonreplaceable part of the bit. Long.

Integral train. A long string of cars, permanently coupled together, that shuttles endlessly back and forth between one mine and one generating plant, not even stopping to load and unload, so that rotary couplers permit each car to be flipped over and passed by the tender. B.S. 3618, 1966, sec. 6.

Insulator-tube header. One who forms heads over porcelain tube insulators by means of a mandrel or mandrel inserted in a tube in machine and pulling lever to form the head. Long.

Inteep. Term applied to the lower part of a glass container if the sides curve inward or taper downward. See also bottle head.

Intact clay. A clay without visible fissures. See also fissured clay. Ham.

Integrate. To insulate the resistance of a body of electric current through the insulation of the way between two systems of conductors or between two systems of conductors and earth or from earth to or from other conductors by means of a nonconducting barrier. Pryor, 3.

Integrated train. Value of the insulation resistance of a cable or of an electric motor is very high, but it is inversely proportional to the square of the radius or diameter of the cable, since each section of the cable forms an additional parallel path for any leakage current. Mason, V. 2, p. 358.

Insulators. a. A supporting device made of porcelain, glass, or the equivalent. Insulated J hooks are acceptable for use with insulated cables in temporary installations. BuMines Coal-Mine Inspectors' Manual, June 1966, Pt. 3-16e, p. 51. b. That which conducts electricity especially: (1) a substance that is a nonconductor of electricity, heat, or sound; (2) a device made of an insulating substance for preventing the passage of electricity, heat, or sound. Standard, 1964.

Integrated train. In the mining industry, an integrated train is one that is incised or sunken, in contrast to ornament in relief.
integrated train

interferometer. A device for determining relative X-ray intensities during radiography in order to control exposure time. NRC-ASA N1.1-1957.

intercept. The length of a crystallographic axis between the origin of the crystallographic axes and the intersection of the crystallographic axis with the crystal face. The ratio p, the intercepts a crystal face makes with all the crystallographic axes constitutes a parameter that defines the crystal face. Bureau of Mines Staff.

intercepting channel. A channel excavated at the foot of a hill or in the foot of a slope, or at other critical places to intercept surface flow; a catch drain. Stedle, 1.

interception. A circuit whose output is substantially proportional to the time integral of the input. NCIC.

intensive. Term used to describe an anomaly whose metal values rise sharply to well-defined peaks. Haukse, 2, p. 154.

intensitometer. A device for determining definite X-ray intensities during radiography in order to control exposure time. NRC-ASA N1.1-1957.

intensity. a. As applied to color, the comparative brightness (vividness) or dullness; the lack of brilliance; therefore, the variation of a hue on a vivid-to-dull scale. See also hue; tone. Schieferdecker.
b. As applied to color, the comparative brightness (vividness) or dullness; the lack of brilliance; therefore, the variation of a hue on a vivid-to-dull scale. See also hue; tone. Schieferdecker.

c. As applied to color, the comparative brightness (vividness) or dullness; the lack of brilliance; therefore, the variation of a hue on a vivid-to-dull scale. See also hue; tone. Schieferdecker.

intensity scale. A scale for objectively measuring the relative intensities of earthquakes. Schieferdecker.

intensity level (sound energy flux density level). The intensity level, in decibels, of a sound 10 times the logarithm to the base 10 of the ratio of the intensity of this sound to the reference intensity. The reference intensity must be stated explicitly. Hy.

intensity of magnetization. The magnetic moment per unit volume. A.G.I.

intensity of pressure. The pressure per unit area. Schieferdecker.

intensity of radiation. At a given place, the energy per unit time entering a sphere of unit area at the earth's surface. National Bureau of Standards.

intercalation. The development of large crystals from small ones by recrystallization. G.S.A. 4th Series, p. 129.

intercalate. A circuit whose output is substantially proportional to the time integral of the input. NCIC.

intercalary. Inserted or coming between others; introduced or existing interstitially; as, intercalary beds. Fay.

intercalary beds. Fay.

interception. A circuit whose output is substantially proportional to the time integral of the input. NCIC.


intercoolers. a. A common form of intercooler is a horizontal cylindrical chamber containing a number of thin, wrought-iron or brass tubes, like a condenser for a steam engine, through which the cooling water circulates. Air passes between the tubes, and baffle plates direct the air to all parts of the intercooling chamber. Well-designed intercoolers through which a proper amount of water is circulated will cool the air to within 15° to 20° F of atmospheric temperature. Lewis, p. 670. b. A radiator in which air is cooled while moving from low pressure to high pressure cylinders of a two stage compressor. Nichols. c. In multistage compression of air, cooling arrangement between stages. Pryor, 3.

intercooling. Extraction of heat from a compressed gas between two stages of compression in order to improve the efficiency of compression. Strock, 10.

intercrystalline. Between the crystals, or grains, of a mineral. A.G.I.

interdural. Occurring between beds, or lying in a bed parallel to other beds of a different material; same as interstratified. Fay.

interduriary. Inserted or coming between others; introduced or existing interstitially; as, interduriary beds. Fay.

interfere. To interfere generally with a body of one kind of material interlaminated with another and particularly to lamellar inclusions of one mineral in another, the former being oriented more or less exactly in planes related to the crystal structure of the latter, for example, in a peridotite, the intercalates of plagioclase in orthoclase, and in certain minerals characterized by schiller structure. Ham.

intercalated. Descriptive of a body of rock interbedded or interlaminated with another body of rock. Also, descriptive of a mineral interbedded or interlaminated with another mineral. A.G.I.

intercept. The length of a crystallographic axis between the origin of the crystallographic axes and the intersection of the crystallographic axis with the crystal face. The ratio p, the intercepts a crystal face makes with all the crystallographic axes constitutes a parameter that defines the crystal face. Bureau of Mines Staff.

intercept method. A method of determining grain size by counting the number of grains per unit length intersected by straight lines. ASM Gloss.

intercepts. a. That portion included between two points in a borehole as between the point where the hole first encounters a specific rock or mineral body and where the hole enters a different air or underlying rock formation. Long. b. Crystallography, the distances cut off on axes of reference by planes. Fay.

intercept time. See delay time. A.G.I.

interchange. The mixing of a tracer and an interfering X-ray intensities during radiography in order to control exposure time. NRC-ASA N1.1-1957.

intercolline. Placed between hills; specifically, a ridge between hills that is higher than the surrounding area. Schieferdecker.

intercommunication. The mixing of a tracer and an interfering X-ray intensities during radiography in order to control exposure time. NRC-ASA N1.1-1957.

interference. a. An instrument used to determine the crystal face. Bureau of Mines Staff.

interferometer. A. An instrument used to determine the crystal face. Bureau of Mines Staff.

interferometric. As applied to color, the comparative brightness (vividness) or dullness; the lack of brilliance; therefore, the variation of a hue on a vivid-to-dull scale. See also hue; tone. Schieferdecker.

interferometer. b. As applied to color, the comparative brightness (vividness) or dullness; the lack of brilliance; therefore, the variation of a hue on a vivid-to-dull scale. See also hue; tone. Schieferdecker.

interferometric. As applied to color, the comparative brightness (vividness) or dullness; the lack of brilliance; therefore, the variation of a hue on a vivid-to-dull scale. See also hue; tone. Schieferdecker.

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interferometer

known lengths. The interferometer has been used to determine coefficient of expansion of enamels and glasses. Enam. Dist. B. An instrument that measures the change in the index of air containing various amounts of methane. Roberts, I. P. 88.

interfused. Applied to magmas which are discharged from a volcano by way of sub-surface cavities within the cone. See also superfused. Fay.


intergranular. Stony. An igneous body, similar to a sill, but intruded along a plane of unconformity and parallel to the bedding of one of the invaded formations. Stokes and Varnes, 1955.

intergranular. An. A. An age or time of comparatively warm climate between phases of glaciation. Webster 3d. B. Occurring or formed between two glacial epochs. Webster 3d.

intergranular. A textural term proposed by Evans (1916) and applied to volcanic rocks in which there is an aggregation of augite grains, not in parallel optical continuity (as in subphitic texture), between a network of feldspar laths, which may be dihedral, subhedral, or subparallel. Distincted from an intertextal texture by the absence of interstitial glass, or other substances which may fill the interstices between the feldspar laths. Characteristic of some basic and doleritic rocks. Compare intercrystal.


intergranular pressure. a. The effective pressure, as Ham. See effective stress. ASCE P1826.

intergranular pressure. A texture characteristic of intermediate (epithermal) neutron. A neutron which may extend from a raise or stope and may be either an intermediate drift or crosscut. Nelson.


intermediate oxides

Bo2, boron trioxide. Hansen.

intermediate packs. Packs built between gates with wastes on each side and usually supported by TIME.

intermediate principal stress. In an alloy or a chemical system, a distinguishable homogeneous stable phase which extends to any of the pure components of the system. ASM Gloss.

intermediate piece. See matching piece. Dodd.

intermediate principal plane. The plane normal to the direction of the intermediate principal stress. ASCE P1826.

intermediate principal stress. The principal stress whose value is neither the largest nor the smallest (with regard to sign) of the principal stresses.

intermediate (epithelial) reactor. A reactor in which the chain reaction is sustained mainly by intermediate stages.

intermediates. Oxides whose structural behavior in glass falls between the network forming and network modifiers. VV.

intermediate section. That part of a mining belt conveyor which consists of the framing and gear box, driven by the framing, both of which guide and support the belts between the head end and the tail end. There are two full-size belts: a (1) rigid side framed and (2) wire-rope side framed. NEMA MBI-1961.

intermediate shaft. A shaft which is driven by one shaft, and drives another. Nichols.

intermediate sight. In survey-leveling, reading on the staff at a point which is not to be occupied by the level, and is not to be used either as a back or foresight. Pryor, 3. See also random sample. Nelson.

intermediate transfer point. The point along a conveyor which may already be carrying a load, at which coal is delivered from another panel conveyor. Nelson.

intermediate vein zone deposits. These deposits are thought to have been formed at depths ranging from 4,000 to 12,000 feet below the surface and at a temperature between 300 and 700 degrees f. Such a deposit may take the form of a fissure vein, a series of parallel fissures called a sheeted zone, a single line of wall rock fissures or a large disseminated deposit. Much of the gold, silver, copper, lead, and zinc of the Western United States comes from such deposits. L. Lewis, p. 274.

intermediate water. The upper layers of water in the oceanic hydrosphere. That water originates in the arctic or in the antarctic convergence. Schieferdecker.

intermetallic compound. An intermediate phase in an alloy system, having a narrow range of homogeneity and relatively simple stoichiometric proportions, in which the nature of the atomic bonding can vary from metallic to ionic. ASM Gloss. See also intermediate constituent.

intermine. To intersect or penetrate with mines. Webster 2d.


intermittent filters. A reactor containing vibrating mechanism inserted into wet concrete to ensure that it is properly compacted. See also external vibrator. Ham.

intermittent waste. Barren rock between two or more veins (veins) or red which are mined simultaneously. Beerman.

international amperes. The current which, when passed through a solution of silver nitrate in water, will deposit silver at the rate of 0.001118000 gram per second. The unit of current in common use.


international low water. A plane of reference below mean sea level (msl) by the following amount: half the range between mean low water (mlw) and mean high water (mhw). Abbreviation, lw. Hy.

interpolation. A. A unit of weight equal to 200 milligrams. Long. b. See carat. a. Fay.

interparticle water. See interlayer water. VV.

interpenetration twin. Two or more individual crystals twinned into such a position that they penetrate each other. ASM Gloss.

interphase. In physical chemistry, the transition of one phase to another at constant temperature and pressure.

international combustion engine. An engine in which power is generated by burning within the cylinder a mixture of air and fuel. NSF Standard, 1964.

internal combustion engine. An engine whose pressure energy is produced by burning or exploding in its cylinder a mixture of air and fuel. NSF Standard, 1964.


internal grinding. Grinding an internal surface, such as that inside a cylinder or hole. ASM Gloss.

internal ribbon conveyor. A trunnion-supported revolving cylinder the inner surface of which is fitted with continuous or intermittent ribbed ribbon flighting. ASM Gloss.

internal stress. Residual stress existing between different parts of metal products, as a result of the differential effects of heating, cooling, or working operations, or of constitutional changes in the solid metal.

intermediate (intermediate) twin. Two or more individual crystals twinned into such a position that they penetrate each other. ASM Gloss.

internal stress. Residual stress existing between different parts of metal products, as a result of the differential effects of heating, cooling, or working operations, or of constitutional changes in the solid metal.

internal vibrator. A cylinder containing vibrating mechanism inserted into wet concrete to ensure that it is properly compacted. See also external vibrator. Ham.

internal waste. Barren rock between two or more veins (veins) or red which are mined simultaneously. Beerman.

interpolation. Assumption of a statistical value from its mathematical or graphical position intermediate in a series of determined points. Pryor, 3.

interpolation of contours. The process of drawing contour lines by inferring their plan position and trend from spot levels or from other contours, assuming the intervening ground to have uniform slope. Where the spot levels are sparse, the process requires knowledge of the land or lie of the seams. See also contour plan. Nelson.

interpole. An auxiliary pole placed between the main poles of a commuting machine. Lounshenreim.

interrupted-current plating. Plating in which the flow of current is discontinued for periodic short intervals to decrease anode polarization and elevate the critical current density. It is most commonly used in cadmium plate plating. ASM Gloss.

interrupter. A device, usually automatic, for rapidly and frequently breaking and making an electric circuit, as in an induction coil. Standard, 1964.

intersections. See also contour plan. Nelson.


intersection. a. To cut across or meet, as a bore hole cuts through a stratum of rock or
encounters a vein. Long. b. In mining, to cut across or meet a vein or lode with a passageway; also, the point at which a vein or lode cuts across an earlier formation.

**Intersecting lines.** Two lines that cross or cut each other. Jones, 2, p. 780.

**Intersect.** A vein which cuts across an earlier vein, Foy.

**Intersection.** a. The point at which a definite deflection of the trend of a borehole is made. Long. b. The point at which a drill hole enters a specific ore body, fault, or rock material. Long. c. Meeting of two ore bodies or veins, or the point at which a vein or ore body meets a fault, dike, or rock strata. Long. d. The point at which two underground workings connect. Long.

**Intersection angle.** The angle of deflection, as measured at the intersection point between the straight of a railway or highway curve. C.T.D.

**Intersection point.** That point at which two straight lines or tangents to a railway or road curve would meet if produced. See also tangent distance. Ham.

**Interstratification.** A mineral deposit localized along vein intersections or cross fissures; they are among the oldest known and the commonest types. Stakes and Varnes, 1955.

**Interstitial.** A texture characterized by the insertion, between or within divergent feldspar laths, of micas, biotite, hornblende, chlorite, or other primary or secondary minerals that take the form of the interstitial spaces. In interstitial basalt, the grains of augite rarely occupy the wedge-shaped spaces completely, but are brought into being by the groundmass of glass or its alteration products. Holmes, 1920.

**Interpersed carbide.** Small-size (one-eighth of an inch and larger), irregular-shaped fragments of tungsten carbide slugs mixed with a suitable matrix metal and applied to parts of tools, as a weldment. Also called clustered carbide. Long.

**Interstice.** a. An opening in anything or between things, especially a narrow space between the parts of a body or things close together; a crack, a hole, or grain; a chink, or a crevice. Stair, 1964, b. A space between mineral granules. Bateman.

**Interstitial.** Descriptive of void spaces; interstitial or contain water occupying part of the void spaces in the reservoir rock. Wheeler.

**Interstitial compounds.** Those formed when tungsten carbide admixture small single (such as those of hydrogen, boron, carbon, or nitrogen) into the interstices of their lattice. Also, interstitial deposits formed subordinately in other placing, as a weldment. Also called clustered carbide. Long.

**Interstratification.** a. A construction of a conveyor belt with intrinsically safe circuit: A circuit in which the coal can be broken by the

**Interstratified solid solution.** A solid solution in which the interstratification of the crystals occurs between the small mineral grains or other units of rock. A.G.I.

**Interstratification.** The state of lying between other strata; the condition of being divided by a bed, a turn, or more of a sedimentary deposit with reference to the overlying and underlying beds. Fay.

**Interstratified.** a. Interbedded; strata deposited between two points or depths in a borehole. Strata. b. Of coal and mineral material, associated in random horizontal layers, usually with a natural cleavage. B.S. 5552, 1962.

**Interstratified.** Between strata, Fay.

**Interstratification.** Generally considered to be the zone between mean high-water and mean low-water levels. Hy. See also littoral zone.

**Interstratification.** A zone between mean high-water and mean low-water levels. Hy. See also interstratification.

**Interstratinization.** A zone between mean high-water and mean low-water levels. Hy. See also interstratification.

**Interstratification.** a. The vertical distance between strata or units of reference, A.G.I. b. The contour interval is the vertical distance between two successive, commonly line on a topographic, structural, or other contour map. A.G.I. c. The flood plain is about 10 feet above low water, but is commonly over- flown by the floods of spring. This would be called bottomland in the Western United States. In New England, it is commonly termed island but along the Connecticut River, it is frequently known as meadow. A.G.I. d. The space between the river and the Will or mountains by which the level portion of the river valley is bounded. Obsolete. A.G.I. e. The distance between the river and the hills or mountains by which the point of intersection is made. Long. b. The point at which a vein or other mines or veins, or the point at which a vein or ore body meets a fault, dike, or rock strata. Long.

**Intersection.** a. The vertical distance between strata or units of reference, A.G.I. b. The contour interval is the vertical distance between two successive, commonly line on a topographic, structural, or other contour map. A.G.I. c. The flood plain is about 10 feet above low water, but is commonly over- flown by the floods of spring. This would be called bottomland in the Western United States. In New England, it is commonly termed island but along the Connecticut River, it is frequently known as meadow. A.G.I. d. The space between the river and the Will or mountains by which the level portion of the river valley is bounded. Obsolete. A.G.I. e. The distance between the river and the hills or mountains by which the point of intersection is made. Long. b. The point at which a vein or other mines or veins, or the point at which a vein or ore body meets a fault, dike, or rock strata. Long.

**Intersection.** a. The vertical distance between strata or units of reference, A.G.I. b. The contour interval is the vertical distance between two successive, commonly line on a topographic, structural, or other contour map. A.G.I. c. The flood plain is about 10 feet above low water, but is commonly over- flown by the floods of spring. This would be called bottomland in the Western United States. In New England, it is commonly termed island but along the Connecticut River, it is frequently known as meadow. A.G.I. d. The space between the river and the Will or mountains by which the level portion of the river valley is bounded. Obsolete. A.G.I. e. The distance between the river and the hills or mountains by which the point of intersection is made. Long. b. The point at which a vein or other mines or veins, or the point at which a vein or ore body meets a fault, dike, or rock strata. Long.
intrinsically safe machine


intrinsic safety. In a circuit; safety such that any sparking that may occur in that circuit in normal working, or in reasonable fault conditions, is incapable of causing an explosion of the prescribed inflammable gas. NCB.

introduction column. In casing a borehole, the highest and first column that is inserted. Stokes, v. 1, p. 85.

intrusion. a. In geology, a mass of igneous rock which, while molten, was forced into or between other rocks. Fay. b. A mass of sedimentary rock occurring in a coal seam. B.S. 3618, 1964, sec. 5.

intrusion breccia. Breccia created during the process of workings in an igneous material. Stokes and Barnes, 1955.

intrusion displacement. Faulting coincident with the process of workings in an igneous material. Fay.

intrusion grouting. A method of placing concrete by intruding the mortar component in position and then converted to concrete by intruding the mortar component into its voids. One of the chief advantages of the method is that it permits the placing of concrete underwater. Carst, 2, p. 112.

intrusive. In petrology, having, while molten, penetrated into or between other rocks, but solidifying before reaching the surface; said of certain igneous rocks; nearly the same as plutonic and contorted with effusive or extrusive. Fay.

intrusive contact. A contact between an igneous rock and some other rock indicating that the igneous rock is the younger. The younger rock may send dikes into the older rock, have inclusions of the older rock, or be chilled against the older rock. AGI.

intrusive rock. A rock that consolidated from magma beneath the surface of the earth. See also plutonic igneous rock. AGI.

intrusive vein. A true vein that is supported on a spring. Schieff.

in turbulence. The property of some silicates, notably of perlite, of expanding perrnicious feldspar (mostly orthoclase, but in part plagioclase), sparsely distributed hornblende or micas, and interstitial quartz. Holmes, 1928.

inverse. a. A folding back of rock strata or beds. Fay. b. The floor, bottom, or lowest part of an invert. Ham.

inverse Poisson. A name to replace iodobromite and iodargyrite. See iodyrite. Fay.

inverse pendulum. An instrument in which the displacement of the pendulum bob from its voids. One of the chief advantages of the method is that it permits the placing of concrete underwater. Carst, 2, p. 112.

inverse square law. Law which governs such matters as intensity-effects of light, magnetic flux, radioactivity, and the effect at a point R due to an emitting source E varies as the square of the distance, ER'.

inversion. a. A folding back of rock strata upon themselves by which their sequence seems reversed. Webster 3d. b. An increase upon themselves by which their sequence varies as the square of the distance, ER'.

inversion point. A change in the internal structure of a mineral at a given temperature. Bateman.

inversion point. A change in the internal structure of a mineral at a given temperature. Bateman.

inverted. a. The floor, bottom, or lowest part of the internal cross section of a conduit. Sezey, 1. b. The curved floor of a tunnel. Sandstrom. c. A flat, inverted arch of masonry used for the floor of the tunnel lining. Stauffer. d. The inside bottom of a pipe or tunnel. Nichols.

inverted fold. See overturn.

inverted head and bench. See heading-overhand bench. Fraenkel.

inverted pendulum. An instrument in which the displacement of the pendulum bob from its voids. One of the chief advantages of the method is that it permits the placing of concrete underwater. Carst, 2, p. 112.

inverted plung. A plunge of a fold such that the younger rocks plunge beneath the older rocks. AGI.

inverted relief. A topographic configuration of valleys and ridges in which the former occupy the sites of anticlinal folds and the latter, the sites of synclinal folds. The topography is thus the inverse of the geologic structure. Stokes and Nourse, 1955.

inverted siphon. A. A pipeline crossing over a depression or under a highway, railroad, canal, etc. The term is common but inappropriate, as no siphonic action is involved. The term sag pipe is suggested as a substitute. Sezey, 1. b. A pipe or tube in the shape of a siphon, but inverted, as for carrying water across the depression of a ravine to a lower level. Standard, 1964. c. See drowned level. B.S. 3618, 1963, sec. 4.

inverted strata. Strata that have been bent over due to increase and long-continued lateral pressure. A shaft or borehole put down in such ground may intersect the strata several times. Sezey, 1. b. A pipe or tube in the shape of a siphon, but inverted, as for carrying water across the depression of a ravine to a lower level. Standard, 1964. c. See drowned level. B.S. 3618, 1963, sec. 4.

inversion stratification. A process for the casting of small metal components to a close tolerance. In the usual process a wax replica of the part to be cast is coated (invested) with refractory powder, suitably bonded, and the whole is then warmed (150° C) to melt out the wax, thus, the alternative name lost-wax process; the refractory mold is then fired at 1,000° to 1,100° C. The refractory use may be powdered sillimanite or alumina, or specially prepared cristobalite; the latter is particularly used in the application of the process in dentistry. Dodd.

investment compound. A mixture of a graded refractory filler, a binder, and a liquid vehicle, used to make molds for investment casting. ASM Gloss.

investment mold. The refractory mold used in precision molding. Osborne.

invisible light. A term used to refer to certain radiations of light traveling in wavelengths too short or too long to be distinguished by the human eye, such as ultraviolet light and infrared light. See also visible light. Shipley.

inwall. a. The refractory lining of the stack of a blast furnace. See also stack, c. Dodg. b. The interior wall or lining of a shaft furnace. Fay.

inwall brick. Fire clay brick for use in lining the internal section of a blast furnace. A.R.I.


inyoite. A colorless hydrous borate of calcium, 2Ca0.3B101.13H*0. Monoclinic. Large tabular crystals commonly altered to meyerhoffiter. From Inyo County, Calif.; Hillsborough, New Brunswick. English.

iodate. See iodide, Fay.

iodatecamite. The artificial compound CuIOH; subsequently shown to be an analogue of holocellulite. Renamed accordingly. Hey, M.M., 1964.

iodate. A salt or ester of iodic acid; a compound containing the iodic acid radical. Fay.

iodobromite. A name to replace iodyrite whose composition is not definite. Used to
iodine process for producing titanium. This
iodine process. The process developed by
van Arkel and de Boer; is used
hafnium produced by the van
iodide. A compound of iodine with one other
iodine pentoxide method. Accurate determi-
iodimetry; lodometry. Volumetric analysis in-
iodine on a hot wire. Also
van Arkel and de Boer; is used
iodide to release free iodine, or conversely
iodine. The basis of reaction is
iodine. The amount of free alkali in a freshly fractured surface
iodine; the surface is then exposed to moist air at 18°
iodine is again determined. Any increase in free alkali is taken
iodine is the cause of goiter.

iodobromite. A chloride, iodine, and bromide of silver related to cerargyrite, Ag(Cl,I),
iodometric. See also iodimetric.

iodide process for producing titanium. This
iodine metal. Hafnium produced by the van
iodide to form volatile tetra-
iodobromate. A chloride, iodide, and bromide
iodine. The artificial compound Phi-
iodine. The basis of reaction is
iodide to release free iodine, or conversely
iodine. The amount of free alkali in a freshly fractured surface
iodine; the surface is then exposed to moist air at 18°
iodine is again determined. Any increase in free alkali is taken
iodine is the cause of goiter.

iodobromite. A chloride, iodine, and bromide of silver related to cerargyrite, Ag(Cl,I),
iodometric. See also iodimetric.
Ionization. The process of adding electrons to, or knocking electrons from, atoms or molecules, thereby creating ions. High temperature, alpha, beta, discharges, and nuclear radiation can cause ionization.

Ionization anemometer. Consists of a central electrode around which is positioned the collecting electrode, made up of three wire rings set concentric to the central electrode and mutually at right angles to one another. The central electrode is a steel ball forming the core of a radium source which is enclosed between layers of goldleaf backed by silver foil. The central electrode ionizes the space which separates it from the surrounding collecting electrode. Both the central and collecting electrodes are placed within a spherical wire cage of 6 inch diameter which is electrically earthed. The whole assembly is mounted on a short handle. Roberts, J., p. 56.

Ionization chamber. An instrument that detects and measures ionizing radiation by observing the electrical current created which flows through the chamber, making it a conductor of electricity. L&L.

Ionization constant. The ratio of the product of the number of ions produced from a given substance to the activity of the undisassociated molecules of that substance. See also activity, C.T.D.

Ionization potential. Energy in volts needed to remove an electron from a normal atom and to leave it positively charged. To ionize is to dissociate a molecule or a compound into ions of opposite charge. Pryor, J., p. 312.

Ions, replacement series. Cations vary in their affinity for the resins used in ion exchange (IX) treatment. The order of ease of replacement is generally greater than Na" greater than K" greater than Mg" greater than Ca" greater than Al" greater than Fe" on strongly acidic cationic resins, with H" moving to the end of the line for weakly acid ones. For anionic resins the order is SO4" greater than Br" greater than Cl" greater than F" greater than CN-. CC- COO-. Pryor, J., p. 33.

Irons. Early Wisconsin glaciation. A.G.I.


Iridium-potassium chloride; potassium-iridium chloride; potassium chloroiridate; potassium iodoiridate. Black; isometric; IrCl3,2KCl or K:IrCl6; and soluble in hot water. Used as a black pigment in porcelain and enamels, 483.22; specific gravity, 3.546; decomposes on heating; soluble in water; and insoluble in alcohol, in potassium chloride, and in ammonium hydroxide. CCD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-206.

Iridium sesquisulfide. Black; IrO3; slightly soluble in concentrated hydrochloric acid; and insoluble in water. Used in ceramics in porcelain decoration. CCD 6d, 1961. Molecular weight, 342.40; dissociates, losing one oxygen at 400° C; and soluble in sulfuric acid and in hot hydrochloric acid. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-191.

Iris. A transparent rock crystal, especially when it exhibits the colors of the rainbow. Fred, B. Iridescent quartz; also applied to other iridescent minerals; California iris is lilac or purple transparent spodumene. Hess.

Iris agate. Banded agate which in thinly fashioned sections displays iridescence. Of almond color importance. Shipley.

Iris bogggy. A wheelbarrow. Fay.

Iris coal. Slate, shale, or rock loaded out from Underground. Fay.

Iris diamond. Quartz that is transparent or nearly so and that is either colorless or has a lilac tint. Also, a piece of this material. Also called rock crystal. Webster 3d. See also Bristol diamond. Fay.


Iris touchstones. Balsal, the stone which compares the Giant's Causeway in Ireland. Webster 2d.

Iris. A surface fault, in the form of stained patches, sometimes found on flat glass that has been stacked with surfaces in contact. The term originates from the interference colors that often accompany the fault. It is caused by moisture. If the glass is annealed in an acid atmosphere and adequately washed, iris is unlikely to occur; separation of the stacked sheets by paper also prevents this trouble. Dodd.

Iris quartz. Rock crystal containing thin air-filled cracks which produces iridescence. Same as rainbow quartz. Shipley.


Irrite. A metallic element having atomic number 26 and in group VIII of the periodic system, the average atomic weight of this element is 1.06. ASM Gloss. B. The cheapest, most abundant, most useful, and most important of all metals. The fourth most abundant ele-


Ironmaster. One that conducts or manages the founding or manufacture of iron especially on a large scale. Webster 3d.


Iron meteorite. A meteorite consisting of iron and nickel. A.G.I. Supp. 859.25; dark blue; crystals; hard; 770° C between alpha iron and beta iron; 928° C between beta iron and gamma iron; and 1,530° C between gamma iron and iron. Alpha iron is body-centered cubic and magnetic; beta iron is body-centered cubic and nonmagnetic; gamma iron is face-centered cubic; and delta iron is body-centered cubic. Hematite is the most common ore and iron is obtained from it by reduction with carbon. Handbook of Chemistry and Physics, 45th ed., 1964, pp. B-116, B-181. c. Tenacious; lustrous; malleable; ductile in nature; and rarely found native except in meteorites. The only metallic iron that can be tempered, that is, hardened by heating and sudden cooling. Very brittle at very low temperatures; softens at red heat; and can be welded at white heat. One of the iron minerals is an important ore of iron. CCD 6d, 1961. d. Iron-base materials not falling into the steel classifications. See also gray cast iron; iron; nodular cast iron; nodular iron; nodular cast iron; white cast iron; wrought iron. ASM Gloss. e. Colloquially, all derrick and drilling equipment; or the drilling rig. Standard, 1964.


iron ore pellets, prereduced

see: prereduced iron ore pellets.

iron ore, hematite. See siderite.

iron ore, specular. See hematite.

iron, ore, titanite. See ilmenite.

iron oxide. a. A common ore of iron, sometimes ferrous solutions drawn up by drills or a drill-drill mud-heavy loader. Long. b. A common compound of iron and oxygen, for example, rust. Long.

iron oxides. The basic constituent of the ferromagnetic spinels or ferrites. FeO, Fe2O3, and Fe3O4 have melting points from that of FeO at 1,420°C to Fe3O4 at 1,555°C. Used extensively for producing colors in glasses, glazes, and enamels. Hess. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-183. Iron and iron oxides produce brown or reddish colors in ceramic mixtures if they are fired in an oxidizing atmosphere, and greenish or bluish colors if fired in a reducing atmosphere. Iron oxides are fluxing and coloring materials. Larger particles produce brown or black spots, which, particularly in whiteware, are undesirable. Much care is taken to remove iron and iron oxides from the raw materials and the bodies used for whiteware manufacture. Ratzel.

iron pan. In marly and peaty soils, as well as in the alluvium of semiarid regions, it is common to find a thin layer of iron oxides a foot or so beneath the surface. This iron pan is formed by the oxidation of finely divided oxide. Stokes and Varnes, 1955. Also called hard pan.

iron paving. A road surface of cast-iron slabs. Studied to prevent skidding. Ham.

iron phosphate. See vivianite.

iron piles. A laboror who removes iron from cars, sometimes breasting and piles and classifies it according to grade. Fay.

iron pitch. At Lake Trinidad, asphalt that has over 50% asphaltite. Abraham, v. 1, Ed., 1960, p. 177.

iron plant. See ferroplatinum.


iron pan. One in which neither the sides nor the angles are equal. Jones, 2, p. 109.


irreversible process. Thermodynamically, one that cannot completely be reversed. An irreversible reaction takes place (in one direction only) and proceeds to completion. Pryor, 3.

irreducible minimum saturation. The proportion of the pore space occupied by immobile interstitial water at levels well above the oil/water or gas/water transition zones. Institute of Petroleum, 1961.

irrational. A term descriptive of particles of mineral that lack a characteristic symmetry. Pryor, 3.

irrational polygon. One in which neither the sides nor the angles are equal. Jones, 2, p. 109.

irrespirable atmospheres. In coal mines, those atmospheres containing poisonous gases or a lack of sufficient oxygen as a result of fire and dust explosions, or in mine fires, and which can only be entered by men wearing breathing apparatus. A.C.I., p. 1.

irreducible minimum saturation. The proportion of the pore space occupied by immobile interstitial water at levels well above the oil/water or gas/water transition zones. Institute of Petroleum, 1961.

irrigate a particular area. Ham.


irradiation. In geology, the movement of molten magma. An intrusive rock. The distinction between irruptive and eruptive is often disregarded. Compare effusive. Fay.

irrigation. In geology, the movement of molten rock from a magmatic reservoir to the place where it solidifies; if the molten rock reaches the surface, the process becomes eruption, but that term commonly includes other phenomena as well. Fay.

irrigation. A shallow rock which was formed into or invaded other rocks as molten magma. An intrusive rock. The distinction between intrusive and effusive is often disregarded. Compare effusive. Fay.

irrigation. An irrigation system that was formed into or invaded other rocks as molten magma. An intrusive rock. The distinction between intrusive and effusive is often disregarded. Compare effusive. Fay.

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Irwin consistometer.

Irwin slump test. A work's test for assessing the setting-up of vitreous enamel slips for spraying. It was first described by J. T. Irwin in the following words: a ground-coated plate is placed on a table and a steel cylinder, 1 1/4 inches in internal diameter and 2 1/2 inches high, is placed on the plate. The cylinder is filled with enamel to be tested. The cylinder is then lifted vertically, with a rapid motion, by means of a hook and cord attached to the top of the cylinder and passing over a pulley to a weight. When the weight is released, the cylinder is raised vertically. The action results in a pancake of enamel on the test plate. The diameter of this pancake is the function of the set or stiffness of the enamel.

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Isobnormal. A line connecting points having the same difference from normal, usually temperature, of the increase or decrease of atmospheric pressure in a specified period. HOGC.

Isobolar. A line connecting points having the same change of temperature, or indicating the same different of temperature, in the ocean where the pressure is everywhere the same. This is not a horizontal surface. If several parallel equally spaced isobars, lines of equal pressure, are drawn on the map or on the diagram, the pressure gradient is strong, less close spacing indicating a weaker gradient. HOG.

Isobase. A line connecting points having the same average frequency of auroras. Schieler.

Isobar. An imaginary line or a line on a map or chart connecting places on the surface of the earth where the height of the barometer reduced to sea level is the same at any given time or for a certain period. Webster 3d.

Isobaric surface. A three-dimensional surface in the ocean where the pressure is everywhere the same. It is not a horizontal surface. If several parallel equally spaced isobars or isobases, lines of equal pressure, are drawn on the map or on the diagram, the pressure gradient is strong, less close spacing indicating a weaker gradient. HOG.

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isocline

on the earth's surface having the same magnetnic inclination. The particular isocline line drawn through points of zero inclination given the special name of acnicline.

isocline map. One showing lines of equal inclination on a map for the earth's surface. Bureau of Mines Staff.

isodimeter. A line connecting points having the same amount of sunshine during a specified period. Bureau of Mines Staff.

isodiametric. In crystallography, having the same crystal axes equal, said of crystals of the hexagonal and tetragonal systems. Fay.

isomorphous. In mineralogy, both isomorphous and dimorphous; said of certain groups of minerals. Fay.

isodyne line. Any line joining points of equal magnetic intensity. Applicable to the total intensity or the vertical, horizontal, north-south, or east-west components. So used in terrestrial magnetism literature, especially in British and Canadian writings. A.G.I.

isodynamic line. One showing lines of equal magnetic intensity of the area mapped. Bureau of Mines Staff.

isogonic line. An imaginary line or a line on a map joining places on the earth's surface at which magnetic declination is the same. Bureau of Mines Staff.

isogal line. Of equal magnetic strength or potential or point of electrical neutrality; the hydrogen-ion exponent at which particles in aqueous suspension are neutral, and best to dissolve. Pyrolysis, 4.

isofacial; isogratic. Said of all rocks belonging to the same facies.

isogonal. In gravity prospecting, a contour line of equal gravity values. A.G.I.

isogam map. A chart showing contour lines of equal gravity, and employed in the mathematical method of geophysical prospecting. Also called isogal map. Nelson.

isogal. An imaginary line or curved surface beneath the earth's surface through points having the same magnetic galvanomagentic properties. Webster 3d.

isogaloequatorial line. The same as isogaloequatorial. A.G.I.

isogaloequatorial line. An imaginary line or a line on a map joining places on the earth's surface at which magnetic declination is the same. Compare agonic line. Webster 3d.

isogeotherm; isothermal. An imaginary line or curved surface beneath the earth's surface through points having the same mean temperature. Webster 3d.

isothermal line. The same as isotherm. A.G.I.

isogon line. An imaginary line or a line on a map joining points having the same amount of precipitation for any particular plane, and (2) of the lines as drawn. Analogous to contour lines, but

isochron. A line connecting points having the same molecular composition and the same molecular weight, but differing in at least one of their physical or chemical properties, are said to be isochronous and each is an isomer of the others. Miall.

isochemical. Of the same composition as another substance having the given molecular composition and molecular weight. This phenomenon frequently occurs with organic compounds and complex inorganic salts. C.T.D.

isoelectric. A line connecting points having the same mean temperature. Webster 3d.

isoelectric point. A line connecting points having the same amount of precipitation for any particular plane, and (2) of the lines as drawn. Analogous to contour lines, but

isomerization. Converting a straight chain saturated hydrocarbon to a corresponding branched chain; for example, n-butane may be catalytically converted to isobutane. Shell Oil Co.

isoneormorphism. Isomorphism between substances having the same atomic proportions. Fay.

isomers. Substances composed of equal amounts of the same elements but differing in properties due to variation in structure. API Glossary.

isometric. Relates to deposits, not necessarily synchronous, laid down in identical media as, for example, two or more river deposits. Schieferdick.

isometric. a. A system of crystallization with three axes at right angles and of equal length; nine planes of symmetry; singly reflecting. Characterized by equality of measure. Fay.

isometric projection. In technical drawing, a three-dimensional view of an object can be drawn to scale with three perpendicular edges at 120° to each other, and with the vertical edges vertical. See also axometric projection. Ham.

isomorphic. a. The name given to the phenomenon whereby two or more isotopes, which are closely similar in their chemical constitution, crystallize in the same class of the same system of symmetry and develop very similar forms. C.T.D. b. The property, possessed by various groups of compounds, of being identical in crystalline form, and having the same numbers of atoms, similarly arranged. Hess.

isomorphous. Originally defined (Mitscherlich, 1819) as having similar crystalline form, but now generally restricted to compounds that form solid solutions by isomorphism, that is, by the replacement of one ion for another in a crystal structure without alteration in the crystal composition. A.G.I.

isomorphous mixture. A. A solid solution of two or more isomorphous substances. Fay. a. A type of solid solution, in which mineral compounds of analogous chemical composition and closely related crystal habit crystallize together in various proportions. Fay. b. Characterized by equal density and electronic properties due to variation in structure. Fay.

isomorphous replacement. Replacement of one element by another of the same valency in the chemical composition of a mineral, as in tourmaline, where iron, lithium, and magnesium, etc., replace each other with resulting wide ranges of colors but little variation in other properties, iron producing no gem qualities. In other cases of isomorphic replacements, wide variations in crystal habit result. Shipley.

isomostone map. A map showing, by contours, the areas having an equal quantity of precipitate within an assumed interval of stratigraphic section. Ballard.

isopachous line. A line, on a map, drawn through points of equal thickness of strata within a stratigraphic unit. Synonym for isopachous line; isopachy. A.G.I.

isopachous map. A map indicating, usually by means of contour lines, the varying thickness of a designated stratigraphic unit.

isopachous. Of cartographic lines, the varying thickness of a designated stratigraphic unit.

isopachous line. A line constructed on a map, somewhat similar to a contour line, but connecting points of equal moisture content of coal in the bed. A.G.I.

isohyet. A line connecting points having the same amount of precipitation for any specified period. Fay.


isolation. A particular case of a single consignment where the sampling is to be done without prior knowledge of a coal's sampling characteristics other than its presumed ash content and size. Nelson.

isoclinal. A line in an imaginary line connecting points at which the thickness of a particular class of material within a formation or other stratigraphic unit is equal. Thus, a limestone isoclinal of the A formation connects, like a contour, all points at which the total thickness of all limestones within the A formation is a certain numerical value. Stakes and Barnes, 1955.

isoclinal line. A line connecting rocks of different grain size classification. They are somewhat indefinite and differ in position.

isochron. A line which portrays (by isochron lines) variations in aggregate thickness of a map to distinguish metamorphic zones defined by index minerals. A.G.I.

isochron line; isochronal contour; isogram. A line on a map or a chart of the earth's surface, connecting points of equal magnetic intensity or points of equal value of a component of such intensity. Webster 3d.

isochronal line; isochronal contour; isogram. A line on a map or a chart of the earth's surface, connecting points of equal magnetic intensity or points of equal value of a component of such intensity. Webster 3d. Commonly represented in gammas (1 gamma equals 10^-4 oersted); hence the name isogram. Bureau of Mines Staff.

isomer. a. One or two or more substances composed of molecules having the same kind of atoms and in the same proportions, but which, by reason of some difference in the number or arrangement of those atoms, have entirely different physical and chemical properties. Hess. b. In nuclear science, one of two or more nuclides with the same numbers of neutrons and protons in the nucleus, but having different energy. L.W.

isomeric. Of, relating to, or marked by points of equal magnetic intensity or points of equal value of a component of such intensity. Webster 3d.

isomeric. Of similar crystalline structure without alteration in the crystal form, but now generally restricted to compounds that form solid solutions by isomorphism, that is, by the replacement of one ion for another in a crystal structure without alteration in the crystal composition. A.G.I.

isomorphous. Of the same composition as another substance having the given molecular composition and molecular weight. This phenomenon frequently occurs with organic compounds and complex inorganic salts. C.T.D.

isopachous. A line, on a map, drawn through points of equal thickness of strata within a stratigraphic unit. Synonym for isopachous line; isopachy. A.G.I.
isopachous thickness. See also isopach. Webster 2d.


isopachous map. Synonym for isopach map. A.G.I.

isopachy. Term used by British writers for an isopach line. A.G.I.

isopag. A line connecting points where ice is present for the same number of days per year. H&G.

isopactic. A line connecting points at which ice begins to form at the same time of the year. A line connecting usually the last day of ice cover at the same time of the spring is called an isost. H&G.


isophasic series. A series comprising rocks of different chemical composition which were metamorphosed under identical physical conditions. Schieferdecker.

isopelitic. Said of two formations deposited contemporaneously and of the same facies. Compare hetroptic. C.T.D.

isopelitic. Relates to synchronous deposits which exhibit the same facies. Schieferdecker.

isopilastic. When the pressure on a surface of the sea is constant. Hy.

isopilastic line. A contour of the piezometric surface. It is an imaginary line, all points along which have the same static level. A.G.I.

isopilactic a. on a map or chart, drawn through points of equal size or abundance. A.G.I. b. A line of constant composition, as in isopilastic temperature or composition plot. A.G.I. c. An isopilactic is an isopilactic which indicates the variation of an element with respect to two variables, one of which remains constant. Hy.

isopilastic, isopilactic, isopilastic. A line drawn through points whose annual change in magnetic declination is equal. A.G.I.

isopilastic. An alcohol with formula CaH18OH, and a boiling point of 207° F, manufactured from the unsaturated hydrocarbon propane. The acetone is widely used as a solvent in the lacquer industry. Shell Oil Co.

isoplastic. Isoplastic line. A line connecting points of equal density, particularly of ocean water. A line connecting points of equal atmospheric density may be called an isostere. H&G.


isopilal map. A map with contours connecting points of equal radiation and showing anomalous radioactive highs. Ballard.

isopilal. Lines joining points of equal radioactivity, drawn from geiger- or scintillation-counter data to form an isopilal map. A.G.I.

isopilal radiativity peak. A plan showing lines of equal radiativity at a certain selected depth. It is prepared from data obtained by the rectilinear method of geophysical prospecting. Nelson.

isopilalum. Synonym for homoilum. A.G.I.

isopilalum. A line on the surface of the earth joining points of equal seismic disturbance due to any single earthquake. A.G.I.

isopilalum line. A line on the earth's surface connecting points of equal earthquake intensity. The macroseismic area lies inside the isopilalum II (according to Mercalli-Canclini), the microseismic area outside the same. Synonym for isopilalum. Schieferdecker.

isopilalum surface. An imaginary line connecting all points on the surface of the earth when the weight of any column from the surface of the earth to a constant depth is approximately the same as that of a column of equal area of the earth, the equilibrium being maintained by plastic flow of material from one part of the earth to another. H&G.

isopilalum. Subjected to equal pressure from every side; being in hydrostatic equillibrium; relating to or characterized by isostasy. Webster 3d.

isopilalum adjustment. The condition in which forces tending to elevate earth's crust balance those tending to depress earth's crust. MassCracken.

isopilalum anomaly. a. The difference between the observed value of gravity at a point after applying to it the isostastic correction and the theoretical gravity at the same point. A.G.I. b. Anomalies on a map of observed gravity anomalies after applying the isostatic correction. Negative isostatic anomalies indicate undercompensation, implying a tendency to rise; positive isostatic anomalies connote overcompensation and a tendency to fall. Lewis, p. 365.

isostatic compensation. a. An equilibrium condition in which elevated masses such as continents and mountains are compensated by a mass deficiency in the crust beneath them. The compensation for depressed areas is by a mass that is greater than the area. A.G.I. b. The process in which lateral transport at the earth's surface by processes such as erosion and deposition is compensated by lateral movements in a subcrustal layer. A.G.I.

isostatic correction. The adjustment made to values of gravity in order to deflections of the vertical observed at a point to take account of the assumed mass deficiency under topographic features. This topographic correction is also made. A.G.I.

isostatic equilibrium. The shifting of the rock beneath the earth's crust in response to the shifting in the weight above the earth's crust. MassCracken.

isostatic precession. A process sometimes used for the shaping of ceramic components, for example, vacuum tube enclosures and envelopes, sparking plugs, and similar items from Al-0s, BeO, or other special ceramics. The powder is pressed in a rubber or plastic bag (often called the tooling) which is then placed in a container and subjected to hydrostatic pressure, generally 10,000 to 20,000 pounds per square inch. The merit of this process is the uniform manner in which pressure is applied over the whole surface, resulting in uniform density in the shaped component. Dodd.

isostatic readjustment. The process whereby isostasy is restored after having been disturbed by storms or other causes. Stokes and Barnes, 1955.

isotetrastrophic. The process whereby isostasy is restored after having been disturbed by storms or other causes. Stokes and Barnes, 1955.

isotrophic. Refers to minerals that are closely similar in crystallographic, physical, and chemical properties but have little isotropic tendency for isomorphous substitution; same as isotropic. A.G.I. Supp.

isotropic. A line connecting points of equal current velocity. Hy.

isotherm. A line on a map or chart of the earth's surface connecting the same temperature at a given time or the same mean temperature for a given area. H&G.

isothermal. A change taking place at a constant temperature. Stroke, 10.

isotherm layer. A water column through which a constant temperature exists. Hy.


isothermal follower. An instrument developed by the Elect. Electronic Laboratory to study the movement of subsurface layers of oceanic water. It consists of an impermeable transducer, an electronic unit, an underwater cable, and two recorders. Hy.

isothermatic. Said of orpherical igneous rocks in which the composition of the c招呼 of the orb is identical with that of the groundmass in which they are embedded. Compare isothermatical. C.T.D.

isotone curve. See isotonelm. Hy.

isotope. An atom having the same atomic number as another atom (same chemical element) but having a different atomic weight (or a different nuclear weight). The nuclei of the atoms have the same number of protons but different numbers of neutrons. Thus, carbon isotope 13 (C13), and carbon 14 (C14) are isotopes of the element carbon, the subscript denotes their common atomic number, and the superscripts denote their different atomic weights. LNL.

isotopic. Relates to synchronous deposits of the same geological province. Schieferdecker.

isotopic enrichment. A process by which the relative abundance of the isotopes of a given element are altered in a batch, thus producing a form of the element enriched in a particular isotope; for example, enriching uranium in the uranium 235 isotope. See also enriched uranium. LNL.

isotron. A device for isotope separation based on the electrical sorting of ions. Ions of different mass accelerated to a given energy have different velocities. By synchronizing the field on a deflector grid to pulses in the ion source, ions of different velocities (and hence different atomic weights) can be collected. NRC-ASA N-1-1957.

isotopic. A. Having the same properties in all directions; said of a medium with respect to conductivity of heat or electricity, or radiation of heat or light. Compare anisotropic. Fay, p. In crystallography,
transparent or reflecting crystals which show no color change when rotated between crossed nicols and which therefore have no optical properties in all directions. Pryor, 5.

**isotropic mass.** A mass having the same properties (optical properties) in all directions. ASCE P1826.

**isotropic stress.** The condition of equal horizontal and vertical stresses in material which is in the "elastic state" of stress. Woodruff, 1, p. 94.

**isotropy.** The behavior of a medium having the same properties in all directions. Taylor.

**isotypic.** Having analogous composition and closely similar crystal structure, but not capable of intercrystallizing to form solid solutions. Examples are calcite and soda niter; galena and NaBr. Compare isomorphous, A.G.I.

**isovolocity.** The phenomenon of sound being the same in all parts of a given water body. Pryor, 6.

**isovol.** Lines constructed on a map of a coalbed connecting points of equal volatile matter. It shows the distribution of volatile matter of the coal. A.G.I.

**isotach.** A melanocratic dike rock containing hornblendes, with a smaller quantity of green pyroxene and a variable but always subsidiary amount of labradorite. Holmes, 1928.

**isthmus.** A narrow strip of land, bordered on both sides by water, connecting two large bodies of land. Schieferdecker.

**Istra.** Trade name for a high-alumina cement made in Yugoslavia. Dodd.

**Istran stone.** A marble near Tricite, Italy, of which Venice is largely built. Fay.

**ISWG Abbreviation for Imperial Standard Wire Gage (gauge).** Zimmerman, p. 56.

**Ito.** A Japanese gold-washing board. Fay.


**Itraitside.** An igneous dike rock composed of microcline and nepheline graphically intergrown, biotite, aegirine, and zoned mela- nite ranging from coarse- to fine-grain. Johansen, v. 4, 1938, p. 145.

**Ivory.** A hard, white, close-grained substance which constitutes the greater part of the tusks of the elephant, mammoth, hippo- potamus, narwhal whale, etc. The best grades are obtained from the elephant. CCD 6d, 1961.

**Ivory, artificial.** A substance, resembling natural ivory, made by mixing gypsum and steatite powder. CCD 6d, 1961.

**Ivory black.** An animal black produced from ivory. Sometimes the term is erroneously applied to other animal blacks. Used chiefly as a pigment. CCD 6d, 1961.

**Ivory porcelain.** A ware having a surface resembling ivory, produced by polishing the vitreous glaze. Fay.

**Iwao auger.** A replaceable cutting head on a drill sampler. It is barrel-shaped, like the cutting members on a common post-hole digger. Long.

**Iwao earth auger.** Synonym for Iwao-pattern earth auger. Long.

**Iwao-pattern earth auger.** A dry sampler equipped with an Iwao auger head or cutter. Also called posthole digger. See also Iwao auger. Long.

**I. x. ion exchange.** Pryor, 8.

**Izotile; Iztale.** An amorphous, hyacinth-red, greasy hydrocarbon mineral which softens at 70° C and resembles haematite; it is found in Oberhart, near Gloggnitz, Austria. Fay.

**Izod test.** A pendulum type, single-blow impact test in which the specimen, usually notched, is broken at one end and broken by a falling pendulum. The energy ab- sorbed, as measured by the subsequent rise of the pendulum, is the measure of impact strength or notch toughness. ASM Gloss.

**Izat chalchihuitl.** White or green Mexican onyx. Shipley.

**latif.** Mex. A variety of obsidian used by Mexican Indians for arrowsheads, implements, etc. Standard, 1964.

**latite.** Mex. An Aztec name for obsidian. Fay.

**Ithaca group.** A subdivision of the Senecan series as exposed in the gorge of Fall Creek, N.Y. Fay.


**limestone.** A sedimentary rock composed of microcline and nepheline graphically intergrown, biotite, aegirine, and zoned mela- nite ranging from coarse- to fine-grain. Johansen, v. 4, 1938, p. 145.

**icosahedron.** A polygonal, icosahedron, the longest edge of a cube, and the square root of -1, which is variously designated the imaginary unit; the right-angle turning operator; the vector turning operator. Zimmerman, pp. 158, 164, 165.

**Ia.** Symbol for Jurassic. USGS Sup., p. 86.


**jack.** York. Tool used for carbonaceous shale or mudstone. Tomkeieff, 1954.

**jacksonile.** Mex. Decomposed talcose rock, or hardened clay, generally found in a vein, and sometimes indicating the proxim- ity of rich ore. Fay.

**jaca.** Brazilian term for carbon or other dark-colored spots or inclusions in a diamond. Sometimes used as a synonym for carbon spot or carbon fleck by the older hand- seme. Often experienced by large diamonds, and by drillers who have worked in Portuguese-speaking countries. Long.

**jaguar garnet.** A trade term for yellowish garnet. Shipley.

**jacinth.** Hyacinth. The aurora-red variety of transparent zircon, used as a gem stone. A cinnamon-colored variety of grossularite from Ceylon, is also called hyacinth. C.G.D.

**jack.** a. A name given to zinc ores. Berger.

b. Cannel coal interstratified with shale. Tomkeieff, 1924. c. A heavy shale, often can- nelbed. Tomkeieff, 1924. d. A tin bucket with pouring spout in which powder in quantities of 5 to 12½ pounds is carried into the mine. Fay. e. A tin bucket, with a lantern-shaped case made of tin in which safety lamps are carried in strong currents of ventilation. Fay. f. Scot. One who works underground at odd work. Fay. g. Scot. A narrow dike usually of igneous rock. Fay.

h. A wooden wedge or separating rocks rent by blasting. Fay. i. A rod or post set up in the working room of a mine to which a body is fastened for the purpose of mov- ing the cutting machine from place to place. Fay. j. N. of Eng. A large flume or channel in the mine, used for conveying water back. SMRB, Paper No. 61.1. A portable device used for erecting gret pressure or for lifting objects a long distance. The true jack is used for lifting. In conveyor work there are a num-
ber of varieties of the jackcrew used for holding down various pieces of equipment, and each is given a different name. Ratchet jacks for this type of service were called jackbrace, the name from the ratchet device used with the nut which forces the screw up or down. Drilling jacks are used for holding down the drives for shaker conveyors; anchor jacks are used for the same purpose. The term road jacks is applied to jacks used to hold down objects. Fulcrum jacks are used as pivot points for angle troughs, tongs, and swivels. Timber jacks are used in place of props as temporary supports for cap pieces and bars intended to hold up mine roof. Pipe jacks may either be jack-screw fashioned from pipes or they may be pipes pointed at both ends so as to be wedged against the roof and bottom surfaces to secure the ends of mining machine ropes, sheaves used in scraper loader work, etc.

jackasses. Eng. The small gudgeon pulleys used in timber jacks. The jack head is placed outside the regular timbers, from which it is separated by short blocks, and is blocked and wedged against the rock. Pryor, 3.

jackhammer. A percussive type of automatically operated rock drill that is worked by compressed air. It is light enough to be used without a tripod and to be hand held. Pryor, 3.

jackhammers. In metal mining, non-metal mining, and quarrying, one who operates an unmounted, compressed-air, percussion-type rock-drilling machine, known as a jackhammer, to drill holes in ore or rock in mines or quarries in which explosives are employed. The jackhammer is placed outside the regular timbers, from which it is separated by short blocks, and is blocked and wedged against the rock. Pryor, 3.


jackhead pumps. Subordinate pumps in the bottom of a shaft, worked by an attachment to the main pump rod. Fay.


jack lamp. Eng. A Davy lamp, with the addition of a glass cylinder outside the gauze. Fay.


jackline. In petroleum production, one who pumps several oil wells from a central power plant (jack plant), engaging or disconnecting cables by which power is transmitted to separate wells. D.O.T. 1.

jack piles. A pile which is forced into the ground by jacking against the building above it. Ham.

jackpipe. A hollow iron pipe large enough to slip over the end of a section of a cutting machine so as to make it hold more firmly against the coal. Fay.

jack post. This timber is used where the coal seam is separated by a rock band and one
Jade. Som. A small tub or box in which loggers. Derb. Both men and horses employed
jageudojadeite. Shipley.
jadeollte. A deep-green chromiferous syenite
Jadeitite. A metamorphic rock
jadeite. A monoclinic mineral, NaAlSi,00,
Jade; Jadeite; nephrite. A hard and extremely
'adding pick. The tool employed to cut a jad.
Jadding. The operation of forming a jad. See also holing; jad. a. Fay.
Jadding pick. The tool employed to cut a jad.
Jade; jadeite. nephrite. A hard and extremely tough material of varying composition, greenish-white to deep green in color, used in making carved ornaments. Part of the so-called jade is jadeite, a variety of pyroxy-
one, essentially a metastable of sodium and aluminum. Part is nephrite, a variety of amphibole, and essentially a metastable of iron, calcium, and magnesium. Part is a variety of saussurite, which is commonly a complex alteration product of plagioclase Feldspar. Williamsite, a variety of serpentine, is sometimes mistaken for jade. Sanford.
Jade glass. A green translucent to opaque glass, usually a light green glaze (frit) glass; specific gravity about 3.73. Shipley.
Jadite. A monoclinic mineral, NaAlSiO₄, found chiefly in Burma that consists of a sodium aluminum silicate and when cut constitutes a valuable variety of jade. Webb.
Jadellite. A metamorphic rock consisting essentially of jadeite. A.G.T.
Jaeger. a. A chemical term for a chromiferous syenite cut as a gemstone and resembling jade in appearance, from the jadeite mine at Buxor, Burma. Possibly the same as pseudojadeite. Shipley.
Jade tenax. Saussurite. Shipley.
Jaeger converter. A catalytic system for conversion of SO₂ to SO₃ in the contact process. Pryor. 3.
Jag bolt. An anchor bolt with a barbed flar-
ing shank which resists preration when leaded into stone or set in concrete; also called backed bolt; rag bolt. Webster 3d. Jag bolt. a. A high-white diamond of modern cut. Schaller.
Jaggers. Derb. Both men and horses employed to cut a core from the mine to the smelter. Also called jagger lad; jagger horses. Fay.
Jagging. a. A mode of carrying or to the reduction works in bags on horses, mules, etc. Fay. b. Up-and-down motion of a mass of particles in waves by means of pulsion. Pryor. 3.
Jagging board. An inclined board on which ore slimes are washed, as in a buddle. Standard. 1964.
Jagolite. A mineral, (Pt₄Ca)₁₄Fe²⁺SiO₂(C1-
OH); analysis, SiO₂, 22.35 percent; Pt, 64.65 percent; and fractional percentages of Al₂K,Mg,Na,Na,Trigonal. yellow-green micaceous plates with mela-
terite inclusions of iron ore. This is the tenth lead silicate from Langelang Sweden. Spencer 21. M.M., 1958.
Jailer. Som. A small tub or box in which water is carried. Fay.  
Jalapite. A lead-gray, cupferriferous argentite, (AgCu)S, that crystallizes in the isometric system. Sme.
Jamb. a. The blocking of a core barrel or core bit with core, sometimes deliberately. Long.
b. Jam. 3d. See also jad.
Jamaica auger. Synonym of Jamaica open-
spiral auger. Long.
Jamaican auger. A corkscrewelike spiral tool used in sampling loosely com-
pacted soil deposits. Long.
Jamb. a. A vein or bed of earth or stone, which prevents the miners from following a vein or bed. Fay. b. A pro-
jecting columnar part (as of a masonry wall) or mass (as of ore). Webster 3d.
c. A vertical structure. member forming the sides and back of a furnace wall. HW. d. A type of brick shapes, intended for use in the sides of wall openings. HW.
e. The coal of the side of a furnace superstructure carrying port crown load. ASTM C612-66.
Jamb brick. A brick so modified that the cor-
ner of one end and side is rounded with a radius approximately equal to the width of the brick. A.R.I.
Jamb cutter. In the coke products industry, a laborer who chips carbon and mud from the edges of coke-oven doors with a steam bar prior to the discharge of the coke. D.O.T. 1.
Jamb door. See breast wall. Dodd.
Jamb concentrator. A concentration table, the deck of which is divided into two sections, flexibly jointed together on a line oblique to the line of motion of the table. One section contains riffles for the coarse material while the other deck is smooth to allow settling, of the fine particles which will not settle on a riffled surface. By means of the joint, the slope of the sections can be varied independently. Fay.
Jamb fig. Movable sieve box supported on a rubber diaphragm and jigged mechanically up and down. Fay.
Jamboulite; feather ore. A natural sulfanti-
monyde of lead and iron, PbFeS₂SiO₄; sometimes used derivatively as a source of copper and zinc. Color and streak, lead gray to gray black; luster, metallic; Mohs' hardness, 2; specific gravity, 3.5 to 6.0. A minor ore of lead. CCD 6d, 1961.
Jamb table. Shaking tab. a. Used in concentra-
tion of ground ores by gravity. Pryor. 3.
Jamb vise. A riveting hammer provided with an air-operated telescopic casing to hold the hammer against the work. Ham.
Jamsocket. A machine for shaping the sockets in clay or plaster molds. Fay. The pipes are extruded plain, cut to length and fed to the jam socket machine in which a ram, having the external profile of the socket, is forced into the end of the pipe. The machine was introduced by Pacific Clay Products Co., Los Angeles, Calif. Dodd.
Jam weed. A weld in which the heated ends or edges of the parts are square-butted against each other and welded. Fay.
Jamsymplesotation cell. A pioneer type of flota-
tion cell. Pryor. 3.
Jam. See rock drill, b. Fay.
Janai pigments. See pigments, b. Fay.
Japanese acid. An uncommon type of quartz twinning in which the two portions are symmetrical with respect to a trigonal bi-
pyramidal of second order. Heat.
Japanese method. A method of finishing wood or metal with baking varnish or baking varnish, usually by baking, in the mixture in which it is baked at varying temperatures, on wood at low heat, but on metal at from 300° to 400° F. Crispin.
Jap. a. An appliance to permit relative move-
ment between the rope and rods in a cable drill. It reduces shocks and the risk of rod or chisel breakages. See also free-felling device. Nelson. b. To drill by impact, as a rock; to use a drill jar upon. Standard. 1964. c. See Jars. Fay. d. To loosen or free stuck drill string, equal to the impacts delivered by quick, sharp, upward-traveling blows delivered by a drive hammer or jars. Long.
Jar collar. A well coupling attached to the upper exposed end of a drill rod or casing string to act as an anvil against which the impact blows of a drive hammer are deliv-
ered and transmitted to the rod or casing string; also, sometimes used as a synonym for drive hammer. Also called bell jar; drive collar; jar head. Long.
Jar coupling. A set of sliding links in a drill stem by means of which sudden impacts can be delivered to a string of stuck drill tools. Long.
Jardiniera glass. A former type of unfitted lead glass containing PbO, K₂O, CaO, ZnO, Al₂O₃, and SiO₂. There were soft (cone 02) and hard (cone 4) types. Dodd.
Jargon. a. A smoky variety of jacinth; when of gemstone quality, jargon. The phrase technical jargon, sometimes mistakenly used by some to indicate an insufficient degree of understanding, should be used sparingly. Pryor. 3. a. An inferior diamond having a yellowish color. Wa.
Jarrow. See casing jar hammer. B.S. 3618, 1963, sec. 3.
Jar head. A synonym for jar collar; drive-
head. Long. b. That part of a wire-line core barrel that slides up and down on the core barrel without turning. Pryor. 3.
Jar length. Synonym for jar rod. Long.
Jarlite. A colorless, brownish fluoride of sodi-
um, Al₂F₃, and sodium, Na₃AlF₅ monocrystals. Crystals and spherulites. From Ivigtut, Greenland. English.
Jar model. See also model mill. Fay.

jasper. a. A finely crystalline form of quartz containing up to 20 percent impurities (iron oxide, iron hydroxide, clay, etc.). Usually red, yellow, dark green, grayish-blue. Similar to flint and chert. Used in ornamental stone. CCD 6d, 1961. b. A fine, unglazed stoneware invented by Josiah Wedgwood and made by adding barium carbonate to theadmixture for semiporcelain ware. Hess. 

jasperite. A rock consisting essentially of mixed with jasper; made to re- jaspered. Mixed with jasper; made to re- jasper ware. A vitreous, opaque, colored un- jasperize. To convert into a form of silica jernery iron ore. Impure hematite with a jernite. A resin found in the Jauling, near jernk. a. The thickening jelly. See fundamental jelly; jellylike; jellylike substance to formed. Long. jelt. 1. a. The thickening of a cement- jell; jells. a. The thickening jelly strength. A measure of the jellylike. Long. C. jelly. A cement-slurry mixture in which jelled. a. A cement-slurry mixture in which jegging ax. A stonecutter's ax with a flat jedding ax. In a crusher, one of a pair of nearly j-eas, one of which slides along its shaft j-eas, one of which slides along its shaft j-eas, one of which slides along its shaft j-eas, one of which slides along its shaft j-eas, one of which slides along its shaft j-eas, one of which slides along its shaft j-eas, one of which slides along its shaft j-eas, one of which slides along its shaft j-eas, one of which slides along its shaft j-eas, one of which slides along its shaft j-eas, one of which slides along its shaft j-eas, one of which slides along its shaft j-eas, one of which slides along its shaft j-eas, one of which slides along its shaft j-eas, one of which slides along its shaft j-eas, one of which slides along its shaft j-eas, one of which slides along its shaft j-eas, one of which slides along its shaft j-eas, one of which slides along its shaft j-eas, one of which slides along its shaft j-eas, one of which slides along its shaft j-eas, one of which slides along its shaft j-eas, one of 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Jet-enameled ware. A type of 18th century jet coral. Consists of a length of pipe which
transfers. Compare jet ware. Dodd.

Jet; a. a black marble. Webster 2d. b. A hard coallike shale containing

Jet; a. A black marble. Webster 2. b. A hard

carbonaceous shale found in Jersey fire clay brick. A highly siliceous clay

Jet man. An employee in a mine whose
duty it is to clear up falls or refuse, or to make a miner’s working place safe. Fay. See also wasteman. D.O.T. 1.

Jet man. In a mine whose
duty it is to clear up falls or refuse, or to make a miner’s working place safe. Fay. See also wasteman. D.O.T. 1.

Jet man. In the minerals and earths industry, one who processes molten rock into mineral

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Jet man. In a mine whose
duty it is to clear up falls or refuse, or to make a miner’s working place safe. Fay. See also wasteman. D.O.T. 1.

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jig runner

mineral. Also called jigger; chute conveyor; pan conveyor. Pryor, 3.

jiggering machine. A machine which acts as follows: In order to move jigger ore. Fay. See also jig.

jigging screen. a. A screen or pair of screens that, when a combined horizontal and vertical motion is imparted, normally by a crankshaft and connecting rod, the screen decks being horizontal or inclined at a small angle. B.S. 3552, 1962. b. See shaking screen, a. Nelson.


jigging in. Staggering of container, Bureau of Mines Staff.

jig grading. Analogous to jig boring where the holes are around rather than machined.

jig haulage. See gravity haulage. Nelson.

jig indicator. An apparatus resembling a steam engine indicator; used for drawing curved lines illustrating the action of jigs in ore dressing. Webster 2d.

jigging. Used in a vertically pulsed column of water is so manipulated as to stratify crushed ore with lighter particles above and heavier particles below. Jigged jib is a box, the bottom of which is a screen through which water is pulsed. If the ore fed to the box is smaller than the screen openings, the stratified products are removed. Also called jiggering. Fay. d. Eng. A coupling hook used between hitches to a haulage rope, which holds the screen by successive pulsing and suction of the vertically oscillating column of water (English jigging). If the ore is larger than the screen, the bottom product is removed via a submerging gate above the screen (German jiggling). In the moving-bed screen the jib box is pulsed up and down in a tank of water, a throwing motion working it toward the discharge end and the lowest stratum being dropped through slots in the screen. The jib box, or running, is a layer of suitably dense oversize material lying on the screen and obstructing the downward passage of the heavy mineral. The jiggling cycle consists of pulsion stroke during which water is forced up through the jib box and regulated via the suction (return) stroke. Either can be modified by mechanical means or by varying the amount of hydraulic water available in the hutch (the part of the jig in which the box sits). Among the most used fixed beds are the Babcock, Galloway, Goral, and Willoughby. The moving-bed jig includes the Halkyn and Hancock, and homemade hand jigs. Pryor, 3.

jig pin. A pin used to prevent the turning of the turn beams. Standard, 1964.

jig runner, a. York. The man who works a jig (a self-acting incline). Fay. b. In ore dressing, smelting, and refining, one who tends a battery of jigs used to concentrate ore by separating the valuable minerals from the gangue (waste materials); regulates pulsating flow of water through screens in bottom of jigs or regulates speed of reciprocation motion of screens, so that the heavier (valuable) minerals will separate and collect in a layer on the screen and the gangue collect in a layer above; and regulates flow of pulp, and washwater, and so that they do not become overloaded. Also called jigger; jig tender. D.O.T. 1c. In anthracite coal mining, one who tends a battery of jigs used to separate slate from small-size coal, and regulates pulsating flow of water through screens in
bottom of jigs or regulates speed of reciprocation (up-and-down motion) of screens, so that the mineralized material is collected in a layer on the screen and the coal collect in a layer above. Also called jig attendant; jigger; jigger tender. Be. J.T.D. 1.

jig tender. See jigger runner, b and c. D.O.T. 1.

jig washer. A coal or mineral washer for relatively coarse material. The broken ore, supported on a screen, is pulsed vertically in water, the heavy (valuable) portion passing through the screen into a conical receptacle (hutch) and the gangue goes over the side. In coal washing, the heavy (worthless) shale passes downwards, and the lighter coal on top. See also Baum washer; plunger jig washer; jig. Nelson.

jib. A masts foreguy. The first modern mining law that originated in a document dated 1249 at Jihlava, Bohemia, Czechoslovakia. The most important concepts originating from this document are those of reserved minerals and the freedom to mine. The freedom mining law by which anybody has the right to mine certain minerals when he has contracted for them, and filed an application for the right to mine them, in the prescribed way. See, v. 1, p. 31.

Jim. A term used in West Virginia for a man who does miscellaneous work at mine. Fay.


Jim Crow. A portable hand-operated appli
date for laying or curving rails. It incorporates a strong buttess screw thread. Nelson.

Jimmy. a. A short crowbar, Craigin, b. A short railroad car, in which anachrasis was hauled in early days. Korn.

Jiminy. A coupling made from two mine tubs or trains in a set or journey. C.T.D.

Jim carrier. A lad employed to carry the longer distances between mine tubs or trains in one train of mine tubs to another. C.T.D.

Jim runner. See incline man. C.T.D.

Jimy. a. A stationary engine for hauling on a mine road, when not operated by gravity. Webster, 2d. b. A Jimmy road. Webster, 2d.


Jimmy tender. See jigger runner, s; Jimmy, Fay.

Jimmy, Ley. A short heading along which emps

ties, horses, or workmen travel. Fay. Joachimsthal process. The extraction of silver from sulfide ores by converting into chlorite, leaching with sodium hypochlorite, and precipitating the silver as sulfide with sodium sulfide. Fay.

Johannite. A titanil-silicate of iron, sodium, and barium, NaBa(TiFe)SiO4; orthorhombic; honey-yellow; minute crystals. Occurs with barynite and neptunite in San Benito County, California. Eng.


Job shop. An enameling plant doing custom work and enameling of various sheet iron and bar iron parts for other manufacturers. Hauen.

Job's-team. Rounded grins of chrysotile (asbestos) found associated with garnet in the Acadian C):

Jock. Scot. An iron rod, usually pronged, attached to the rear end of a train of hatches or can be drawn up an incline, to stop and locate in the event of the rope breaking. Fay.

Jochckett. A hydrous carbonate of iron occurring as concretions; from Jocketta, Saxony, Germany. Hey, 24, 1955.

Jockey, a. Aust. A Y-shaped grip placed in sockets at the end of a ship. It is on this that the endless rope rests when used above the ship. Fay, b. Mid. A self-acting appara

us on the front of a car for releasing it from the hauling rope at a certain point. Fay.

Jockey pot. A pot of small size that is set on top of another pot, for the purpose of melting special glasses not needed in great quantity. Several such pots may be set in the space of one full-sized pot. Also called monkey pot. C.T.D.


Joorsy. Mid. A man specially appointed to set timber in a stand to check the shift. Fay.

Joggling; inching. In general, joggling and inching duty are synonymous when refer-

ing to inching operations. The National Electrical Manufacturers' Association definition of "joggling" (inhching) is "the quick, repeated closure of the circuit to start a motor from rest for the purpose of accomplishing small movements of the driven machine." Pit and Quarry, 53rd, Sec. D, p. 13.

Joggie. a. A joint of trusses or sets of timber for receiving pressure at right angles or nearly so. Zena, b. Nor
cut in round timbers set above other round pieces in underground timbering. Pryor, 3. c. An often is "the rough rope at a certain point.

Joint box. A cast-iron box surrounding an electric cable joint, often filled with insu-
Joint box

Joint box. A dorr in the stone work industry, one who operates an abrasive saw or wheel to cut marble slabs into two or more pieces. The stones may be square or true edges so that they will form tight and even joints when installed for building purposes. Also called jointer. D.O.T. 1.

Joint sealing material. Bituminous or rubbery material used for filling expansion joints, and which may be applied by a pressure gun. Ham.


Joint stock company. An association of individuals legally incorporated and registered for the purpose of engaging in some manufacturing, trading, or banking business. Traux, p. 260.

Joint system. Consists of two or more joint sets or any group of joints with a characteristic pattern, such as a radiating pattern, a concentric pattern, etc. Billings, 1954, p. 128.

Joint veins. Small veins confined to one bed of rocks that give no signs of displacement, or at least so slight that they cannot be noticed. Standard, 1964.

Jointy. Full of joints; specifically, in mining, full of minute cracks or crevices, as rock. Standard, 1964.

Jointy joint. A group of more or less parallel joints (cleat) as the underlying coal seam. Artikl.


Joist. Iolite. Skipper.

Joist. A machine for molding hollowware. C.T.D.


Joisty balance. A delicate spring balance. Used especially for the determination of specific gravity by the method of weighing in water and in air. Webster 3d.

Joint system. A machine sometimes used for the shaping of refractory blocks. A mold is charged with prepared batch which it is then consolidated by jolting the mold mechanically; top pressure may simultaneously be applied via a mold plate. Compare tapping. Dodd.

Joint. mostly hardened in a test in which a standard test piece, 4 inches long and 1 inch in diameter, is heated to a predetermined temperature and then transferred to a jig fixture and quenched, under standard conditions, by a jet of water impinging at one end. When the specimen is cool, determinations of hardness are made along the specimen from the quenched end. The diagram relating hardness to distance from the quenched end of the specimen is known as a hardnessen curve. Ham.

Joint. In an apparatus used for cutting the tire of a sample. It consists of a hopper above a series of open-bottom pockets, usually one-half or three-fourths of an inch wide, which are so constructed as to discharge alternately, first into a pan to the right, and then into another pan to the left. Each time the sample is passed through the rig, it is divided into two equal parts; the next pass of one of those parts will give a quarter of the original sample, and so on, until the sample is reduced to the desired weight. Pearl, p. 70.

Joint splitter. A device used to reduce the volume of a sample consisted of a hinged, rectangular container, the bottom of which is fitted with a series of narrow slots or alternating chutes designed to cast material in equal quantities to opposite sides of the device. Also called sample splitter. Compare riffler. Long.

Joule's law. Either of two statements: (1) the rate at which heat is produced by a steady current in any part of an electric circuit is jointly proportional to the resistance and to the square of the current. (2) the internal energy of an ideal gas depends only upon its temperature irrespective of volume and pressure. Webster 3d.

Journeymen. A weekly rate of pay. S.M.B.


Journeymen miner. A man working on a daily. C.T.D.

Joy, Trademark for a high explosive of soda, nitrate and nitrates compounds, formerly used in armor-piercing shells. Webster 2d.

Joy. a. A New. A noise made as a signal, by hammering at the faces of two levels expected to meet. Fay. b. A shaft rotating in its bearing. Pryor, 3, b. A cycle of work done in glass manufacturing in converting a quantity of material into glass or glass products. Webster 3d.


Joy double-ended miner

heads are pivoted and controlled hydraulically for vertical movement. Each head comprises two borers and a frame or loop cutter that grinds the bottom, face side, and top. A cross conveyor delivers the coal to the adjacent face conveyor. The machine has a web of 5 feet in seams from 371/2 inches to 5 feet high. With an overall length of 18 feet it weighs 15 tons.

Joy extendible conveyor. A belt conveyor to serve between a loader or continuous miner and the main transport. It consists of two main heads and 3 feet sections—each mounted on crawler tracks and independently driven. In operation, the tail unit, that is, the receiving end, moves forward with the loading machine, and belting is automatically released from the loop takeup. Fifty feet advance is possible before additional belting has to be inserted into the conveyor run. Capacity equals 290 tons per hour with a 30-inch belt.

Joy extendible steel band. An arrangement to provide a continuous miner and the main transport. The equipment is hydraulically driven and the steel band is extendible from 15 feet 6 inches to 60 feet 6 inches.

Joy loader. Loading machine for coal or ore, which uses mechanical arms to gather mineral and deliver it into the conveyor system. It is operated by a single operator seated in the extendible material. A built-in conveyor then lifts it into tubs or on to a conveyor.

Joy longwall loading machine. A modified Joy loader. 10 feet long, 5 feet 3 inches wide and 2 feet 8 inches high, comprising a hydraulically elevated loading head fitted with Joy gathering arms. The elevating conveyor delivers coal into a horizontally travelled cross band and deliver it to the face conveyor. It is extendible up to 1 foot 6 inches on either side by means of ropes attached to hydraulically operated bars. The arms are extendible from the seamed belt to the face of the coal. The coal is propelled by caterpillar tractors 5 feet 6 inches long by 7 inches high and all components are conveniently grouped at the rear. The machine loads at the buttstock of the prepared coal. It has a loading capacity of 60 tons an hour. Mason, v. 3, p. 532-533.

Joy microdyne. A wet-type dust collector for use at the return end of tunnels or hard headings. It may be either 6,000 or 12,000 cubic feet per minute capacity. It wets and trims dust as it passes through the appliance, and releases it in the form of a slurry as it passes through the outlet. The microdyne is bolted to the outbye end of the jib, which is removed by a pump. The microdyne is bolted to the outbye end of the jib and delivers on to the face conveyor; it is hydraulically driven and the steel band is extended up to 1 foot 6 inches by 7 inches wide. The cross conveyor runs in a minimum seam height of 4 feet, whereas the walking type can work in a 2-foot 6-inch seam.

Joy walking miner. A continuous miner with a walking mechanism instead of caterpillar tracks. The walking mechanism was adopted to make the machine suitable for thin seams. The lowest caterpillar-mounted machine can operate in a minimum seam height of 4 feet, whereas the walking type can work in a 2-foot 6-inch seam. Nelson.

Joy loading machine. A successor to the Gismo. At the receiving end, mum for- ward additional belting has to be inserted into the conveyor run. Capacity equals 290 tons per hour with a 30-inch belt.

Joy-Sullivan hydropneumatic. A drill rig in which the drill is mounted on a jib or boom which can be moved to and locked in any required position by hydraulic power control. Vertical movement of the jib is obtained from a manually operated hydraulic pump, and horizontal movement is effected by a small steel lever. A cone-type grip fixes the horizontal swing of the jib. Attached to the forehump of the jib is a saddle holding the drill traverse—feed. This can be fixed in any position, vertical or horizontal, by two locking nuts. By loosening one nut the drilling machine and saddle are free to pivot around the jib to any position, and the feed, which is 8 feet long, enables a 2-foot 6-inch hole to be drilled. Mason, V. 2, p. 602.


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Judd, J. A. Mix of fine white and red granite.

jumbler. A small wagon, running on rails, which side-tips.


jumping. 1. To take possession of a claim, the property of others, on legal rounds. Pryor, 3. Can. Staking or claiming a claim, that is, takes possession of another end. This machine is effective for moderately soft ore where actual crushing or breaking is not required.

jumper bar. A weighted steel bar with a cut-out section in the Carboniferous limestone of the Clee Hills, Arkell.

jumper. a. In mining, a drill carriage on which several drills are mounted. Vertical movement of the jib is obtained from a manually operated hydraulic pump, and horizontal movement is obtained from a small steel lever. A cone-type grip fixes the horizontal swing of the jib. Attached to the forehump of the jib is a saddle holding the drill traverse—feed. This can be fixed in any position, vertical or horizontal, by two locking nuts. By loosening one nut the drilling machine and saddle are free to pivot around the jib to any position, and the feed, which is 8 feet long, enables a 2-foot 6-inch hole to be drilled. Mason, V. 2, p. 602.

b. A mobile scaffold to assist drilling in tunnels. 

c. A number of drills mounted on a mobile carriage, and used in tunnels. 

d. Drilling platform used in boring. 

jumper brick. A generic term indicating a brick larger than the standard; some products use this term to describe an oversize-brick unit of specific dimensions. 


jumper block. A fine-grained poikiloblastic rock containing phenocrysts of orthoclase (with poikilitic inclusions of olivine), phlogopite, hornblende, and small amounts of soda amphibole and leucite, with accessory apatite and titaniferite. 

jumper. a. To take possession of a claim, the property of others, on legal rounds. 


jumper. c. Eng. A sudden rise in the dip of a coal seam, otherwise trying to acquire claims already staked or owned by others. Hoffman, d. 

jumping. a. A sudden rise in the dip of a coal seam. 

jumping a claim. Eng. A sudden rise in the dip of a coal seam. 

jumping. f. A number of drills mounted on a mobile carriage, and used in tunnels. 

jumping. h. A sudden rise in the dip of a coal seam. 

jumper bar. A weighted steel bar with a cut-out section in the Carboniferous limestone of the Clee Hills, Arkell.

jumpers. a. Eng. Big jumbler, a bed of limestone in the Lower Lias at Rugby. Arkell. b. Shrop. Jumbles, the thickest


kalske. A silicate.


K. Common abbreviation for kip (1,000 pounds).

KAL-SHE. A variety of nickeliferous iron found in meteorites. C.M.D.

KAM. A trivalent hydrated, basic copper hydrate and sulfate, Cu(OH)2SO4.6H2O. Standard, 1964.

kame. A deposit on a hill or in the valley floor beyond a stream. Fay. 6. The original landform of a kame.

kame. A form of carbonate which precipitates with ions of metals such as calcium, magnesium, and iron. Fay.


kaolinite. Same as kaolin, English.

kaolin. A hydrous aluminium oxide; a clay mineral, 2:1 sheet silicate with variable amounts of iron, magnesium, and titanium. Hess.

Kaolin, the potash alum. Hydrous sulfate of potassium and aluminum: KAl(SO4)2·12H2O. It is a white, prismatic crystal in the monoclinic system. It is a volatile crystal in the decomposition of potassium and aluminium, K(AlBO3), crystallizing in the hexagonal system. It contains small amounts of iron and manganese. Also called phacelite, facelite. Danielson, 17.

kaolinite. A mixture of limonite, with oxides of manganese and silicates of zinc and lime. Osborne.


KAL-STEEL. A grass-green, hydrated, basaltic sandstone. Fay.

Kalskite. Same as callalime, Shipley.

Kalskite. A variety of nickeliferous iron found in meteorites. C.M.D.

kalske. A silicate.

kalskite. A name applied to rock containing calcium carbonate occurring in alluvium. Holmes, 1928. See also augen schist; cataclasite; flaser gneiss; hartshorncrystalline; mylonite; porphyroblast; serpentinitic.


kalskite. A coarse kind of iron. Fay.


kalskite. To coat in a manner similar to kalantening, but using kalskite. Fay.

kalskite. See calamine.


kame. A large, long, rounded hill or a group of rounded hills. A.G.I. 1964.

kame. The name for a cone-shaped or truncated cone-shaped hill or ridgeline or mound of alluvium. Holmes, 1928; see also augen schist; cataclasite; flaser gneiss; hartshorncrystalline; mylonite; porphyroblast; serpentinitic.

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kame. A form of carbonate which precipitates with ions of metals such as calcium, magnesium, and iron. Fay.
Kaolinite is a common clay mineral. A two-kaolimic. Of, relating to, or resembling kaolin. A clay, mainly hydrous aluminum silicate, from which porcelain may be made. Also called China clay; porcelain clay. See also kaolinite. Sanford. a. A refractory clay consisting essentially of minerals of the kaolin group and which fires to a white or nearly white color. ASTM CD 60. c. A white or nearly white clay resulting from the decomposition of fieldspar. B.S. 3618, 1964, sec. 3.

Kaolin-coal tonstein. Kaolin-coal tonstein is difficult to distinguish with the unaided eye from ordinary dirt bands occurring in hard rocks. Its color ranges from a yellowish-white to black. The lighter colored varieties generally occur as the immediate roof, or floor of seams or in the associated strata, whereas tonstein bands occurring within the coal are generally dark gray to black. Kaolin-coal tonstein has a dense, fine-grained texture, and is not generally stratified. It occurs almost invariably within coal seams, usually close to the roof or floor; more rarely it is associated with different parts of the sequence of seams. The thickness is generally only one to a few centimeters and their lateral persistence is often great. HIC, 1963, part I.

Kaolinite. Of, relating to, or resembling kaolin. Webster 3d.

Kaolinite. a. Formation of kaolin by the weathering of aluminum silicate minerals or the alteration of other clays. A.G.I. Supp. b. Less commonly, the formation of kaolin by hydrothermal action. A.G.I. Supp. c. A process which occurs as a result of either hydrothermal alteration, or by weathering, alteration of rocks, ores, and minerals like silicoferruginous waters. It is typically a result of surface agencies, but may also occur where hydrothermal solutions react. This process is dependent on the composition and solution of hard feldspars and other minerals and the general condition of the soil in which it is and has been widely investigated. Rother, p. 606.

Kapel. See capel, a and b. Fay.

Kaplan turbine. A water turbine, of propeller type, having blades of variable pitch automatically adjustable to accord with the load. Hame.

Kappus caribide. A caribide of iron (FeCux) in which one or more of the iron may be replaced by chromium, molybdenum, and/or, or manganese, (Fe,C,Mo,W)C. Osborne. 1928.

Karet. I. One-twenty-fourth part. Used resulting from the decemiporition of feldspars of the kaolin group and which fires to a white or nearly white color. ASTM CD 60. c. A white or nearly white clay resulting from the decomposition of feldspar. B.S. 3618, 1964, sec. 3.

Karat. a. Formation of kaolin by the weathering of aluminum silicate minerals or the alteration of other clays. A.G.I. Supp. b. Less commonly, the formation of kaolin by hydrothermal action. A.G.I. Supp. c. A process which occurs as a result of either hydrothermal alteration, or by weathering, alteration of rocks, ores, and minerals like silicoferruginous waters. It is typically a result of surface agencies, but may also occur where hydrothermal solutions react. This process is dependent on the composition and solution of hard feldspars and other minerals and the general condition of the soil in which it is and has been widely investigated. Rother, p. 606.

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kataeptrite. Same as cataeptrite. English.


katras: klatro. Local Tartar name in the Baku region for impure asphalt. Tomkeieff, 1912.


katzelnuckelistle. A porphyritic igneous rock similar to tinguante having phenocrysts of nepheline, leucite, orthoclase, biotite, soda pyroxene, and soda-amphibole. Holmes, 1928.

kastlite. A coarse-grained igneous rock consisting of an olivine-augite diorite with zoned feldspars ranging from labradorite in inner zones to alkali feldspar in outer zones. From the Hawaiian islands. Holmes, 1928.


kawri. kawari. A light-colored to white color. From brown copal to grey or black. See also copal. ASD Gloss.

kawve. A Malay magician who claims to be able to make mining and other ventures successful. Eng.

kawvd. A stone used for making varnishes and linoleum. Eng.


kayserite. An aluminium hydroxide, A10(OH)3; monoclinic. A micaceous alteration product of corundum. A dimorphous mineral, the orthorhombic form of which is disapate. Replaced by hematite from Galendoza, Uruguay. English.

kazul. A variation of kiln. Fay.

kellaways. A British unit of weight equal to 11.36 percent MgO, 12.46 percent CaO, 38.31 percent H2O, as bluish-white earthy mass, apparently pseudomorphous after chalcanthe, from Copacabana, Chile. Spencer 19, M.M., 1952.

kellerkep. A shop term. See also tracer mill. ASD Gloss.

kellays. A group of red and purple sandstones and tuffs which constitutes the highest division of the Coal Measures in the North Staffordshire coalfield, England. They are barren red measures, deposited under semidesert conditions. C.T.D. Gloss.

kelved. A shop term. See also tracer mill work. ASD Gloss.

kelker. A kyokids. A plumbogummite cement. Anhydrous calcined gypsum, one or more vertical retorts for the distillation of some other substance, which contains 25 percent water. Fay.

kelke. A name given by von Fedorow to a dike rock from the Kedabek mines, in the province of Elisabethpol, Transcaucasia, U.S.S.R. The rock is finely granular, dark gray in color, and consists of basic plagioclase, lime-iron garnet, and a pleochroic pyroxene called violante. Fay.

kelkite. A plastic constructional material which will withstand the action of both sulfuric acid, of up to 50 percent concentration, and hydrochloric acid. It is used for the construction of pickling tanks. O'Brien.


keel. a. Eng. A flat-bottomed ship; especially, a large vessel. M. of the Kiel Canal. Klags. Glassworks still operates on the same site. ASB.


kened. A shop term. See also tracer mill. ASD Gloss.

kennith. A name given by von Fedorow to a dike rock from the Kedabek mines, in the province of Elisabethpol, Transcaucasia, U.S.S.R. The rock is finely granular, dark gray in color, and consists of basic plagioclase, lime-iron garnet, and a pleochroic pyroxene called violante. Fay.

kellens. A glassy or cryptocrystalline groundmass containing minute crystals of nepheline, leucite, orthoclase, biotite, soda pyroxene, and soda-amphibole. Holmes, 1928.

kellows. A name given by von Fedorow to a dike rock from the Kedabek mines, in the province of Elisabethpol, Transcaucasia, U.S.S.R. The rock is finely granular, dark gray in color, and consists of basic plagioclase, lime-iron garnet, and a pleochroic pyroxene called violante. Fay.

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Kelvin temperature scale. The absolute temperature scale in which the temperature is measured with respect to the freezing point of water, which is assigned the value of 273.16 K. This scale is linear and has a fixed zero point, the absolute zero, which is approximately -273.15°C. The magnitude of the degree in both these scales is defined as one one-hundredth of the difference between the temperature of melting ice and that of boiling water at 760 millimeter of mercury.

Kelly stem. Synonym for kelly. Long.

Kelly temperature scale. An on-site method for assessing the consistency of freshly mixed concrete in terms of the depth of penetration, using a weight of 50 pounds of a metal hemisphere, 6 inches in diameter.

Kerry refusal. The mechanism that encircles a Kelly and by means of which it is rotated. Long.

Kelly’s lam. A rule laid down by Lord Kelvin.

Kelly. A large seaweed such as are used in the manufacture of kelp. a. Large seaweed. b. A switch associated with her in its production. A synonym for kelly. Long.

Kelly. A fine-grained igneous rock, occurring massive or as lens-shaped bodies, with a rich fauna, notably of crinoids occurring in a rich fauna. See also vanoxite. Hess.

Kelt. A trade name used in U.S.S.R. for an expanded clay aggregate. Dodd.

Kelt. A system designed to prevent a shaft conveyance being lowered before all keps are fully withdrawn, and to indicate this to the operator of the keps. B.S. 3618, 1965, sect. 7.

Kelp. a. Steel supports on which the cage rests at the pithead during unloading or loading so that the rail track is always at the proper level. During this period the rope is released from the weight of the cage. The ordinary type of kep gear consists of four steel arms, two for each end of the cage carried on shafts which are connected to and operated by levers. Normally, the cage must be raised from the kep arms before the latter can be withdrawn to allow the cage to descend the shaft. See also Bein kep gear; cage stops. Nelson. b. Retractable rests on which the mine cage is supported during its stop at a shaft landing. Also called catches; chairs; landing chairs; stops. Pryor, 3, c. Bearing-up stops for supporting a cage or load at the beginning or end of hoisting in a shaft. C.T.D. c. Scot. Shuts. Fay. d. Steel supports on which the cage rests at the pithead during unloading or loading so that the rail track is always at the proper level. During this period the rope is released from the weight of the cage. The ordinary type of kep gear consists of four steel arms, two for each end of the cage carried on shafts which are connected to and operated by levers. Normally, the cage must be raised from the kep arms before the latter can be withdrawn to allow the cage to descend the shaft. See also Bein kep gear; cage stops. Nelson. d. Retractable rests on which the mine cage is supported during its stop at a shaft landing. Also called catches; chairs; landing chairs; stops. Pryor, 3. e. Retractable stops for supporting a cage or load at the beginning or end of hoisting in a shaft. C.T.D. f. Scot. Shuts. Fay. g. Steel supports on which the cage rests at the pithead during unloading or loading so that the rail track is always at the proper level. During this period the rope is released from the weight of the cage. The ordinary type of kep gear consists of four steel arms, two for each end of the cage carried on shafts which are connected to and operated by levers. Normally, the cage must be raised from the kep arms before the latter can be withdrawn to allow the cage to descend the shaft. See also Bein kep gear; cage stops. Nelson. h. Retractable stops on which the mine cage is supported during its stop at a shaft landing. Also called catches; chairs; landing chairs; stops. Pryor, 3. i. Bearing-up stops for supporting a cage or load at the beginning or end of hoisting in a shaft. C.T.D. j. Scot. Shuts. Fay.

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removed during cutting. ASM. Gloss.
kerf. The kerf of the diamonds inset in the kerf of the crown of a diamond bit. Also called face. Long.
kerense. A monochlor, cherry-red mineral. See also biotite. Also called kerense.
kerensite. A variety of lignite impregnated with hydrated silica and mined as a nickel ore in the Ural Mountains, U.S.S.R. Tomkeieff, 1934.
kettle. A cylindrical or barrel-shaped iron or wooden vessel used to raise men or materials in shaft sinking. By adding large quantities of kerosine to a pulp plus a small amount of frotter and agitating vigorously, frotters are attracted to both the oil and air bubbles, forming heavy flocs. This type of concentrate is more readily dewatered than ordinary froth and is used as a fuel or a fuel component for jet engines, and as a solvent or a thinner. Webster 3d.
kettle carbonate. Another name for oil shale. Tomkeieff, 1934.
kettle flotation. As sometimes practiced, it is a combination of bulk oil flotation and froth flotation. By adding large quantities of kerosine to a pulp plus a small amount of frotter and agitating vigorously, frotters are attracted to both the oil and air bubbles, forming heavy flocs. This type of concentrate is more readily dewatered than ordinary froth and is used as a fuel or a fuel component for jet engines, and as a solvent or a thinner. Webster 3d.
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Kewatinian


Keweenawan. Younger of two Precambrian systems constituting the Proterozoic re-

Kew-type barometer; fixed-cater barometer. A mercury-column-ye barometer with a fixed

cater as in the Ker type. It has no mercury level

to adjust the cister as in the Ker type. It can be used to
to estimate pressures

other than atmospheric because the cister as is easily
calculated via a key and valve

to a vacuum system. This means that the

Kew type is a more suitable instrument to

to use as the standard against which various

aneroid barometers may be calibrated.


key. a. An iron rectangle of suitable size and

taper to fit the keyways of a shaft and

pulley so as to lock both together. Long. b.
The pieces of core causing a block in a

core barrel. the removal of which allows the

rest of the core in the core barrel to

slide out. Eng. a. A kind of wrench

used for screwing and unscrewing drill

rods. Also used to support the rods by

resting on top of the casing and allowing the

rods to hang by the enlarged joint

coming in contact with key. Fay. d. A hard

steel strip inserted in matching grooves

(keyways) in a shaft and a hub to make

them turn as a unit. Nichols. e. A wedge

between two feathers to break a stone.

Webster, 3d. e. A wedge-shaped strip of iron

or steel used for preventing wheels from

rolling. Nichols. f. See keyseat.

keybrick. A brick with opposite side faces

inclined to each other so that it fits the

apex of an arch. In furnace construction

such bricks are also sometimes re-

ferred to as bullheads, cupola bricks, or

preferred to as bullheads, cupola bricks, or

keyed shales. See Kiowa shales. C.T.D.

kick wheel. A potter's wheel impelled by

the foot. Fay. c. Eng. A lib-

tating catch made in the form of a bell-

crank lever rocking on a horizontal axis.

Fay. d. Synonym for gage stone; also, a
gage stone huck in the outside surface

or wall of the metal shank of a diamond

bit. Long. c. Can. Outboard motor. Hoff-

man.

kicker stone. See gage stone; kicker, d. Long.

kicking pieces. Short struts to prevent a sill

or wall from being pushed out of

place. Stawfer.

kicking point. The place in a borehole where

the first intentional siliconizing starts. Some-
times abbreviated KOP. Long.

Kick's law. The amount of energy required
to crush a given quantity of material to

a specified fraction of its original size is the

same no matter what the original

size. CCD 6d, 1961.

kibbutz. a. Aust. An end tippler. Fay. b. N. of

Eng. See tipper, b and c. Fay.

kick wheel. A potter's wheel impelled by

kicking with the foot. ACGS, 1962.

kid. A laggot of bushwood used on

occasions to form a groin. See also fascines. Har.

Kidney. See Potter's horn. Dodd.

Kidney iron ore. A reform.

Kidney-shaped structural variety of an iron ore mineral

aggregate, generally hematite. The internal structure of the

kiney is usually concentric or radiating. Bureau of

Miners Staff.

kiddle. a. Boulderlike nodules of phosphate

rock, separate or connected. Bureau of

Miners Staff. b. A term applied by miners

in mining operations, the sec-

tion of brick masonry.

Stawfer. i. In furnace construction, the

upper or bottom of the closing brick of a cur-

vuous arch. HW. j. A rectangular depression, in

one or both flat sides of a brick, sometimes
called a keyseat. Fay. b. A bed with sufficiently distinctive

characteristics to make it easily identifiable

in the field. Long. c. A bed, the bottom of which is used as a datum

in making structure contour maps. See also


key blocks. The first block which are re-

moved in opening up a new quarry floor.

Fay.

key brick. A brick with opposite side faces

inclined towards each other so that it fits the

apex of an arch. In furnace construction

such bricks are also sometimes re-

ferred to as bullheads, cupola bricks, or

kibble. a. Steel bucket used during shaft sink-

ing. Pryor, 3. b. To carry in a hoisting


Kidney iron ore. See Potter's horn. 

Kidney-shaped structural variety of an iron ore mineral

aggregate, generally hematite. The internal structure of the

kiney is usually concentric or radiating. Bureau of

Miners Staff.
Kilkenny coal. Anthracite.


Klichaanktr. A mineral, Ca,S407, a poly-

Moving. The concentration of fine ore or

Mewl. Strang tub" with sides flaring upward.

Liestans. A notueal maffICIIUM 111041f

him

Wm, stnon. s.

killing. a. Allowing the molten steel to remain

killas. Corn. a. Miner's term for the slates or

kill. a. As applied to an oil or gas well means

bars for the fin.s1 separation. They are used

bars for the fin.s1 separation. They are used

between carbon and oxygen during solid-

deoxidizing agent, such as silicon or alu-

hydrochloric acid, and used in soldering.

by emanations from the latter.

schists that form the country rock of the

g. To produce deadmelting of; said of

circuit.

Hess. e.

is, become unmanageable.

damp or other gases so as to make them

II. p. 388. S,. also dolly tub.

that are nearly rich enough to ship.

to finish the concrtntration of fine products

mixing. and hammers or heavy striking

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kindred. A group of igneous rocks which kindly ground. Eng. Those rocks in which kindling temperature; kindling point; ignition point. The temperature; igniton point. The tempera-

der. A Russian name given to petroleum so-
to emit definite rays, the wavelengths of
substance exerts a definite absorptive power, to emit. (3) At a given temperature the
which is a maximum for the rays it tends

ear, the undersize passing through the pulp to be screened is delivered on the

orin. a. Loops in wire rope caused by care-

a. In an open circuit. The relation be-

while passing through pipes. a. A term for

its, its,

irse of Mosso. Its,

k-knight. A level or gently sloping

Kirchhoff's laws of radiation. The relation

hinge. b. A large bolt that holds the upper end

the sheave-wheel can vis is suspended. Long.

kink. a. Loops in wire rope caused by care-

appliances. Apparatus for producing a

gas by the action of a liquid on a solid,

Kirchhoff's laws of electric circuits. a. In an

closed circuit the algebraic sum of the

currents in all the branches that meet at any

point is 0. Webster 3d. b. In any

closed circuit the algebraic sum of the current

and the resistance of the circuit is equal to

the electromagnetic force in the circuit.

Handbook of Chemistry and Physics, 45th

Kirchhoff's laws of radiation. The relation

between the powers of emission and the

forces of absorption for rays of the same

wavelength is constant for all bodies at

the same temperature. (1) A substance

when excited by some means or other poss-

cesses a certain power of emission; it tends

to emit definite rays, the wavelengths of

which depend upon the nature of the sub-

stance and upon the temperature. (2) The

substance exhibits a definite absorptive power,

which is a maximum for the rays of which

it is capable of emitting. (3) At a given temperature

the ratio between the emission and the absorp-

tive power of a body of a given wavelength is the

same for all bodies, and is equal to the

emissive power of a perfectly black body.
knife switch. A switch which opens or closes a circuit.

knife. The dirt cutting edge of a digging mattock or stone.

knife edge. The girdle of a brilliant cut to a high polish.

knife and shears. See shear.

knife edge. The chisel of a long knife.

knell stone. A stone bound in a passage, consisting of two sets of interlacing faces, with one parallel to the original glaze plane of a permanence engine.

knife joint. A single point.

knife knapsack. A knapsack with a girdle to a knife.

knife piece. A piece of a knife.

knife timber. A timber with natural knees and angles in it.

knife limb. A limb with natural knees.

knife 1. A tool which is tapered to correspond to the shape of the knee of a horse.

knife 2. The receiving end of a pipe or a bit when it is driven into the earth, which is driven by impact and weight in all three directions and partly filled with cement or sand.

knife brace. A device to brace a single mine in the ground to prevent it from falling in.

knife joint. A single point.

knife pad. A protective pad, usually made of canvas that can be strapped to the miner's knee.

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knife joint. A single point.

knife pad. A protective pad, usually made of canvas that can be strapped to the miner's knee.

knife piece. A piece of a knife.

knife timber. A timber with natural knees and angles in it.

knife limb. A limb with natural knees.

knife 1. A tool which is tapered to correspond to the shape of the knee of a horse.

knife 2. The receiving end of a pipe or a bit when it is driven into the earth, which is driven by impact and weight in all three directions and partly filled with cement or sand.

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knife limb. A limb with natural knees.
bend.

screwed knuckle joint. A mechanism consisting of knuckle boy. See knuckle man. D.O.T.!

knox system. A system of separating masses of knox and osborne furnace. A continuously working shaft furnace for roasting quicksilver. Fay.

masonry at one side. The fuel is known to exist in order to except it from a vein and of some large projects in Great Britain are being equipped with winders of this type. See also multipoise friction winder. Nelson.

koehne winder. A brake which acts directly on the Koepe winder and can be applied by the winding engine's brake lever and the other safety devices. Nelson.

koefler fall. Get in structural geology, a box fold common in the Jura. They are symmetrical, upright, and have vertical limbs and a horizontal crest. Bureau of Mines.

koeflerite. A general term for oligoclase feldspar from the Kohala Mountain, Hawaii. Holmes, 1928.
Kolthoff buffer solutions. Solutions chosen for their low concentration of hydrogen ions and their resistance to change of pH when small quantities of acids or alkalies are added. Those mostly used in conjunction with colorimetric pH indicators are acetic acid with sodium acetate; boric acid with borax; citric acid with sodium citrate; and sodium phosphate with hydrochloric acid. Pryor, 3.


Komir. Turkish name for coal. Tomkeff, 1954.


Konge diabase. A type of granodiorite containing calcic labradorite laths and intergranular augite and orthoamphibole pyroxene, in a matrix of quartz and orthoclase; from Konga, Sweden. Holmes, 1928.

Konimeter. Apparatus used to measure dust in mine atmosphere. A measured volume of air is drawn through a jet so as to impinge on a glass plate coated with a thin layer of smoke. The diameter of smoke particles is determined by the microscope. Pryor 3.

Körteff. A type of coke oven heated by a combination of the retort method and a commercial system for heating the coke. The coke is produced in a retort and is then reheated in a commercial system. Pryor, 3.

Korrubin. A mixture of 30 percent nitric acid and 70 percent methyl alcohol, used as a mordant in dyeing. Nelson. 1961.

Korubin. A measure of weight; used in the Malaya Peninsula that equals 40 piculs or 5,705 pounds. Webster 2d, 1989.

Kozyen equation. An equation relating the rate of flow (q) of a fluid through a packed bed of particles of depth L and area A, under a pressure difference ΔP, to the specific surface of the particles being stirred and the voids per unit weight being V:

\[ \Delta P = q \frac{L}{(1 - V) A} \]

Krabatte. A variety of crystal tuff containing...
Krupp Krupp washing process. The removal of silica and phosphorus from molten pig iron by running it into a Permut furnaces, lined with iron oxides. Iron ore may be added, and the bath is agitated by rotation for 3 to 8 minutes only. See also Bell's diphosphating process. Fay.

kryosol. Synonym for cryocar. A.G.I.

Kryolite furnace. The term used by the Continent and in Russia for a granular-carbonarin furnace; the name derives from the German name, Kryolith, that originally supplied the carbon granules. Dodd.

kryptonite. Synonym for cryptonite. A.G.I.

krypton. An inert, monatomic (Kr), the gaseous element of the argon group, constituting about one millionth by volume of the atmosphere, from which it is obtained by liquefaction; zerovalent; colorless; and odorless. Used in certain gas-filled electric lighting lamps; atomic number, 36; atomic weight, 83.80; melting point, -156.6°C; boiling point, -152.30° C; density of gas, 3.733 grams per liter (at 0°C); specific gravity of liquid, 2.155 (at -152.9°C); and soluble in water. Fay; C.T.D.; Handbook of Chemistry and Physics, 45th ed., 1964, pp. B-117; B-184.

kreide. In geology, pertaining to or treating of the subject of ice as a surface feature of the earth, in any and all of its forms, including glacier ice; as, cryostic geology; and standard, cryostic.


krypton. A term for stone, used by the Continent and in Russia for a granular-carbonarin furnace; the name derives from the German name, Kryolith, that originally supplied the carbon granules. Dodd.


Cyan's proem.

kyanize. To impregnate wood with mercuric chloride to prevent decay. Crispin.

kyanite. Wood preservation method by impregnating timber with biocidal mercuric chloride. Pryor, 3.

kyanite. A medium-grained gabbro rock, intermediate in mineral composition between typical tektite and picrite, containing less feldspar than the latter, but more than the former. Named from the

kyanize. To impregnate wood with mercuric chloride to prevent decay. Crispin.

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Laboratory moisture sample. In coal samples, the moisture content can be determined after drying at a constant temperature. In coal samples, the moisture content can be determined after drying at a constant temperature. In the iron and steel industry, the moisture content is important for the efficiency of the production process. Improvements may not be as significant as expected if the moisture content is not accurately measured.

A labile substance is one that is easily decomposed, such as fats and proteins. A labile region is a temperature region where a substance decomposes. A labile ion is an ion that is easily decomposed.

Als assumed to be hydrothermal. The temperature region for hydrothermal conditions is important for the formation of mineral deposits.

A laboratory balance is used to measure the mass of substances. A laboratory balance can be used to measure the mass of substances to a high degree of accuracy.

A laboratory benchmark is a reference point used to calibrate measuring instruments. A laboratory benchmark can be used to ensure that measurements are accurate.

Laboratory checks are performed to ensure that the results obtained in the laboratory are reliable. Laboratory checks can be used to detect errors in the experimental setup or in the analysis of the results.

A laboratory pond is a small body of water used for experimental purposes. A laboratory pond can be used to study the effects of different conditions on aquatic systems.

A laboratory sample is a small portion of a substance used for analysis. A laboratory sample can be used to determine the properties of a substance.

A laboratory test is a test performed in a laboratory to determine the properties of a substance. A laboratory test can be used to determine the composition or the reactivity of a substance.
ladle. a. The arm which carries the timbers and bucket line of a dredge. Fay, p. 234. A wooden slide with crossbars on which hitches (boxes) run in steep seeps. Fay, p. 7. A framework consisting, left to right, of two parallel, or roughly parallel, posts connected by bars at regular intervals along their length, thus providing a series of steps which enable the ladder to be used as an aid to climbing to different levels. CT D, d. The continuous line of mud buckets, carried on an endless chain, in a bucket ladder excavator or dredger. CT D, c. The digging boom assembly of a hydraulic dredge or chain-and-buckets ditcher. Nichols, f. A horizontal support for glass tubing that is to be transferred from one point to another. Also used for filling open ports. ASTM C162-66 c. In glassmaking, a curved pipe used to convey molten glass from one place to another. 

ladle, b. A man who distributes hot metal in ladles used to contain molten metal. ACGC, 1963. 

ladle chase. A man who distributes hot metal in ladles to different operations to keep the hot-metal crew busy to prevent skulking of ladies and delay at the mill. Fay, p. 133.

ladle crane man. One who places ladies under the tapholes of furnaces and holds them in position while the metal is poured into them. Also called charging floor crane operator; ladle crane operator; steel charger. D.O.T. 1. 

ladle filler. In metallurgy, one who transfers molten metal from the furnace into a ladle, and skims and fluxes metal preparatory to casting. D.O.T. Supp. 


ladle houseman. See ladle liner. Fay, p. 133. 

ladle liner. In blast furnaces, smelting, and refining, one who repairs and cleans pouring ladles used to transport molten metals, such as iron, steel, and copper. Also called
lagoon stone

a small basin that they rock with the ap-

lagging. a. To secure the roof and sides

lag. b. A flat-headed machine screw by

lag screw. a. A square-headed, heavy

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Lake Superior greenstone


Lamella roof. A vault of large span built up with short structural members of timber or pressed steel, joined together in a diamond pattern by bolting or other suitable connections. This system, which is a type of stressed-skin construction, was patented in 1925 by a German engineer. Ham.

Lamellar pyrites. Another name for marcasite. Bureau of Mines Staff.

Lamellar stellate. In mineralogy, having or consisting of lamellae arranged in groups. Onslow, 1964.

Lamellar twins. Two or more pieces of glass held together by an interlocking layer or layers of plastic materials. It will crack and break under sufficient impact, but the pieces of glass tend to adhere to the plastic and not to fly. If a hole is produced, the edges are likely to be less jagged than would be the case with ordinary glass. See also safety glass. AGS, 1963.

Laminar flow. a. The flow of a fluid in which the fluid elements follow paths that are straight and are parallel to the channel walls. See also laminar flow. A.G.I. b. Laminar or streamline flow is the smooth non turbulent flow of a body of air when each particle travels parallel to the side of the confining airway. Spalding.

Lamellar. Having or consisting of thin layers which vary in grain or texture. Pryor. b. Metal defects with separation or weakness generally aligned parallel to the worked surface of the metal. They may be the result of pipe, blisters, seams, inclusions, or segregation elongated and made directional by working. Lamination defects may also occur in metal powder compacts. AGS Gloss. c. The form of thin layers. Such rocks are said to be laminated or to possess a laminated structure. Nelson.

Laminated. a. Of rocks, bedding in layers less than one-fourth inch thick; formation with thin layers which vary in grain or composition. Pryor. b. Metal defects with separation or weakness generally aligned parallel to the worked surface of the metal. They may be the result of pipe, blisters, seams, inclusions, or segregation elongated and made directional by working. Lamination defects may also occur in metal powder compacts. AGS Gloss. c. The form of thin layers. Such rocks are said to be laminated or to possess a laminated structure. Nelson.

Lamp. a. Any device employing a flame, incandescent wire, or the like, for furnishing an artificial light, or a similar device for heating, as in laboratory use. Standard, 1964. See also safety lamp. Fay. b. Among the specially developed sources of artificial light, there are the incandescent lamp, the filament in which current passes through a medium protected or vacuum or inert gas, and heats it to incandescence; the fluorescent, in which the interior of a tube or globe is coated with a material which fluoresces under the influence of ultraviolet radiation; the mercury, in which mercury vaporized in a high-vacuum tube conducts a current between electrodes and gives strong ultraviolet emission, the container being of quartz; the Neutron, a small metal oxide filament; and the spectrum lamp which has a nonluminous flame (used in spectrography). Pryor, 3. c. A small handheld electrical device that produces intense ultraviolet radiations to examine visually drill cores or rock specimens for the presence and/or abundance of fluorescent minerals. AGS Gloss. d. In construction of electromagnets for alternating current, reduction of eddy flow by means of laminar poles or cores. Pryor, 3.


Lambert's law. See translucency. Dodd.


Lamp. a. Any device employing a flame, incandescent wire, or the like, for furnishing an artificial light, or a similar device for heating, as in laboratory use. Standard, 1964. See also safety lamp. Fay. b. Among the specially developed sources of artificial light, there are the incandescent lamp, the filament in which current passes through a medium protected or vacuum or inert gas, and heats it to incandescence; the fluorescent, in which the interior of a tube or globe is coated with a material which fluoresces under the influence of ultraviolet radiation; the mercury, in which mercury vaporized in a high-vacuum tube conducts a current between electrodes and gives strong ultraviolet emission, the container being of quartz; the Neutron, a small metal oxide filament; and the spectrum lamp which has a nonluminous flame (used in spectrography). Pryor, 3. c. A small handheld electrical device that produces intense ultraviolet radiations to examine visually drill cores or rock specimens for the presence and/or abundance of fluorescent minerals. AGS Gloss. d. In construction of electromagnets for alternating current, reduction of eddy flow by means of laminar poles or cores. Pryor, 3.


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Lambert's law. See translucency. Dodd.

Lamp

used to remove the ore. Fay. b. A Malayan term for ground sluicing. Hess.


lamps. A worker stationed at one of the

lander

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lander

chute doors. D.O.T. 1. d. In anthracite coal mining, bituminous coal mining, metal mining, one who works with shaft sinking crew at top of shaft or at a level immediately above shaft bottom, dumping rock into mine cars from a bucket in which it is carried. D.O.T. c. long. In anthracite coal mining, a layman; long. D.O.T. b. Long. In anthracite coal mining, the man who receives the loaded bucket, but the mouth includes all forms due to sedimentation and to movements within the crust of the earth. USGS Bull. 723, 1923, p. 80. From Xalotote, Morelos, Mex. Also called rosoite; xalotocite. English.

lander's crook. A hook or tongs for upsetting the bucket of hoisted rock. Fay.

landerite. A rose-pink variety of grossularite. Fay.

land fast. A short, steep or broken ter-


land surveying. See survey; survey, cadastral; surveying.

land surveyor. a. A trained specialist who measures and its natural features together with any buildings, roads, etc., thereon, for drawing to scale as plans or maps. His professional qualification is membership of the Royal Institute of Chartered Surveyors and he may also hold a university degree. Ham. b. In the United States, the qualifications of land surveyors who engage in public practice, especially in connection with surveys related to owning, legal disputes, etc., is normally controlled by registration with the State Government. c. Any person who engages in public practice, especially in connection with surveys related to owning, legal disputes, etc., is normally controlled by registration with the State Government. d. A person who engages in public practice, especially in connection with surveys related to owning, legal disputes, etc., is normally controlled by registration with the State Government.

lander. See lender.

landings. S. Wales. Eng. A man who receives the loaded (load) tubs at the bottom of the shaft where the cages are unloaded; any incline at the top of a set of pumps in which the water is delivered. See launder. Fay.

land sale. a. Coals sold at the pithead or at a depot and conveyed in lorries to local consumers. See also haunt. Nelson. b. Scot. The box into which a loaded chair or vice versa. Liddell 2d, p. 357. Also called landing box; Scot. The box into which a loaded chair or vice versa. Liddell 2d, p. 357.

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land square. White or gray chalcedony with inclusions of irregular arrangements of manganese oxide which bear fanciful resemblance to a landscape. Shipley.

landscape marble. A marble or argillaceous limestone containing dark coloring matter so distributed as to be imitative of forests or landscape. Same as forest marble. Holmes, 1928.

landslide. a. The perceptible downward sliding or falling of a relatively dry mass of earth, rock, etc., on a hillside. b. Also called land slip. AGI. c. Earth and rock which become loosened from a hillside by moisture, frost, snow, and slides or falls down the slope. AGI. c. Downward and often sudden movement of superficial deposits on hillside slopes. The movement is in response to gravity and may start due to an increase in weight such as water content, or the removal of support at the base by cuttings. At new mine sites, deep excavations, heavy blasting, and the movement of heavy machines will increase the danger of landslides. See also rainwash; rock slip. Nelson.

landslide scar. A bare or relatively bare surface left by the removal of a mass of earth material in a landslide. Stokes and Varnes, 1955.

landslide topography. The topography developed by landsliding. It is characterized by short irregular hills, undrained depressions, and chaotic areas, commonly in the form of boulders and finer fragments, and by its lack of harmony with the adjacent landscape. In some respects, it is similar to irregular, morainic deposits of glaciers. Stokes and Varnes, 1955.

landslip. A portion of a hillside or sloping mass which becomes loosened or detached, and slips down. A landslide. Fay.


Langmuir trough. A blue to green, rare ore of copper, CuSO₄·H₂O, occurring in Cornwall, Eng. It is an essentially hydrated copper sulfate, crystallizing in the orthorhombic system. C.S.D.

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Lang's lay rope


lanzuodol marble. A brilliant red or scarlet marble blotched with white; from the Montagne Noire, in the E. Pyrenees. Fay.

lanzolith. An unstable colorless mineral associated with other minerals, [MgO]2[C02]; alters on exposure to air into asbolite. Larsen, p. 95.


lanthaniodes. The rare earth elements from atomic numbers 58 to 71 inclusive. They have chemical properties similar to lanthanum and include the same lanthanides. N.R.C.-A.S.A. N1.1-1957.

lanthanite. A very rare, weakly radioactive, scaly; also fine granular, earthy, or scaly; colorless, white, pink, or yellow. Cro pity, p. 165-104.

lanthanum. The most common and most basic of the metals of the rare earth group. It is a silvery-white metal and can take a high polish. It occurs with other members of the rare earth group in cerite; in bastnäsite; in allanite found in Brazil, Scandinavia, and the United States; and in monazite sands of India and Celmen. Symbol: La; valence: 3; atomic number: 57; atomic weight: 138.91; and specific heat, 0.935 (at 20° C). Handbook of Chemistry and Physics, 45th ed., 1964, p. B-117.

lanthanide. A word that is unknown to mining usage or laws and is not equivalent to the term forfeited nor does it mean a technical forfeiture. Lapsed. A word that is unknown to mining usage or laws and is not equivalent to the term forfeited nor does it mean a technical forfeiture. Lapidford. To weld by overlapping the joints, as to lap a weld pipe. Standard, 1964; 6d, 1961.

Laramide revolution. A period of earth movement in early Tertiary times during which the line picker was a miniature belt conveyor, on which small ore particles move singly past a Geiger Muller tube which is set to operate a sorting device. These are uplifted as the passing stream each particle of radioactive ore which reaches the required intensity, therefore sorting out the valuable material. Pryor, 3.

lap. a. One coil of rope on the winding drum of the mine hoist. Pryor, 3. b. Polishing cloth used in preparing polished mineral specimens by abrasive grinding. Pryor, 3. c. A surface defect, appearing as a seam, caused by folding over hot metal, fins, or sharp corners and then rolling or forging them into the surface, but not welding them. ASM Gloss. d. Specimen, dimension, smooth, or polish (as a metal surface or body) to a high degree of refinement or accuracy. Webster 3d. e. An imperfect edge. f. A fold in the surface of a glass article caused by incorrect flow during forming. ASTM C162-66. g. A reverse-dish, a dish-like, or plate, etc. used to hold an abrasive powder on its surface for cutting glass, stone, or metal. To cut or polish with a lap as glass, gems, cutler. Webster 2d.

laper; leaper; leger. Eng. Laper. Impure santon lime (containing green matter) with shaly partings and a few sheets of bitumen in the lower part. Middle Purbeck beds, Swanage, Arkell.

lapidari. A connoisseur of gems and precious stones and the art of cutting them. Webster 2d.

lapidary. A cutter, polishor, or engraver of gemstones other than diamonds. Webster 3d.

lapidify. To convert, or the process of conversion, into stone. The process by which soft animal feathers are converted into hard stone. A.G.I.

lapilli. Essential, accessory, and accidental volcanic ejecta ranging mostly from 4 to 63 millimeters in diameter. A.G.I.


lapiz. A stone. Chiefly used in Latin phrases. Webster 2d.

lapis. A stone. Chiefly used in Latin phrases. Webster 2d.

lapis Azul. A limestone used among the Greeks for coffins which distingirated within a few weeks, the flesh of bodies and bones. In said to have been found at Asua, a city of Lycia. Also called Asaian stone; sarcochaspis. Webster 2d.

lapiz lazuli: lazurite. A natural sodium alumino-silicate, NaAlSi3O8; usually somewhat impure; color deep blue to greenish blue; luster vitreous; Mohs' hardness, 3 to 5.5; specific gravity, 2.4. Found in California; Afghanistan, U.S.S.R., Chile. Used in ornamental stone. Formerly a paint pigment (ultramarine) but now superseded by the artificial product. C.C.D., 1961.

lapiz lazuli ware. A variety of Wedgewood ware. See also pebble ware. Fay.

lapis matrix. Lapis lazuli containing promi-
**large coal**

groups by which coal is sold by the National Coal Board of Great Britain. Large coal has no upper size limit and has a maximum length of 4 feet. Embraces large screens, cobbles, and treble sizes. See also graded coal; smalls. Nelson. a. A large piece of iron cut from a bar and ready to be heated and rolled into a sheet; but such a piece may be about 14 pounds. Standard, 1964. b. A thin, flat diamond with a simple facet at the side. Also called porphyritic. Standard, 1964. c. A mucker. Bureau of Mines Staff. **lash**. A binding, generally of light line, around the end of a rope. Bureau of Mines Staff.

- **lasher-on**. A man employed to keep them in place. Also called listing. Webster 2d. b. In the Republic of South Africa, a man employed to keep them in place. Nelson. c. Shoveling rock down the ore pass, work performed by a laborer. Idem. b. In the Republic of South Africa, a man employed to keep them in place. Nelson. d. A binding, generally of light line, around the end of a rope. Bureau of Mines Staff.

- **lash-up**. Extemporized engineering rig for temporary jobs. Pryor's Gloss.

- **lat Abbreviation for latitude. BuMin Stylt Guide, p. 60.**

- **latch jack**. A fishing tool designed to engage and grasp the bail on a bailer. Long.


- **latching chain**. A short chain to attach tubs to an overloop in endless rope haulage by wrapping it around the rope. The chain may be about 12 feet long, or less manganese steel, with 3/4-inch-diameter standard links. At one end of the chain, a ring 4 inches in diameter is attached to the drawbar of the tub, and the other 3/8 inch in diameter to secure it to the rope at the lashing end. On an undulating road, two lashing chains may be used, front and rear of the tub. Nelson.


- **laser beam**. A narrow, intense, and coherent beam of visible light. A. G. I. for the last rib or judgment to come off a pillar. Fay.

- **last of the air**. Ark. A tapered section of a hoist rope which receives the last of the air, or which receives the last of the air current. Fay.


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lateral magmatic ore deposit:

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lateral magmatic ore deposit: Straight magmatic deposits resulting from crystallization near the close of the magmatic period or from later crystallization of the rock silicates. 

lateral heat. Thermal energy absorbed or evolved on a large scale (as fusion or sublimation) other than change of temperature. Compare sensible heat. Webster 3d.

lateral planation. Reduction of the land in lateral pattern. A secondary dispersion pattern which may evolve to give the lath an upward trend when being driven into the roof grates. A number of laths driven into the roof form a protective shield for the miners working in the face. Also called lagging. Engineer and Mining Journal, v. 139, No. 4, April 1938, p. 55.

lative. The extrusive equivalent of monzo-nite and a variety of trachyandesite in which potash feldspar and plagioclase are present either as normative or modal minerals in nearly equal amounts. Potash feldspar is often concealed in a fine-grained crystalline or glasy groundmass and thus, a chemical analysis is often necessary for correct classification. Monzo-nite is usually present and sometimes biotite, plus accessory apatite and opaque oxides.

lateral deviation. The horizontal distance by which a borehole misses its intended target in coal seams or thick ore bodies in horizontal mining along the strike face or in protecting the sides of a shaft or in a tunnel. See lath door-set. A weal' lath frame surround-

lateral cone. A small subsidiary volcanic cone, usually a cinder cone, on the flank of a larger volcano. Synonymous with adventive cone; parasitic cone. A.G.I.

lateral crater. See adventive crater. Fay.

lateral crystalline. A.G.I.

lateral cratonic. See adventive crater. Fay.

lateral correction. a. The amount of the adjustment of observed gravity values over an arbitrarily chosen base latitude, E=0.1822 sin 2(φ)(mg/km) and K=3.070 sin 2(φ)(mg/ml) which is often necessary for correct classification. K is responsible for the prevalent red-brown and yellow colors of these soils. Ihuthes, 1935. b. Altered basaltic rocks in India; aluminum, manganese, or nickel. A.G.I. Supp. b. Alteration of basaltic rocks in India; obsolete. A.G.I. Supp.

lateral constituent. a. Red residual soil developed in humid, tropical, and subtropical regions of good drainage. It is leached of silica and contains concentrations particularly of iron oxides and hydroxides and aluminum oxides. It may be an ore of iron, aluminum, manganese, or nickel. A.G.I. Supp. b. Altered basaltic rocks in India; obsolete. A.G.I. Supp.

lateral constituent of the laterites. Holmes, 1928.

lateralization. A deterrent and reconstructed form of laths. Reference 220.

lateralized. A lateritic rock formed by the leaching of some or other rock at its outcrop. Holmes, 1928.

lateralized. The extrusive equivalent of monzo-nite and a variety of trachyandesite in which potash feldspar and plagioclase are present either as normative or modal minerals in nearly equal amounts. Potash feldspar is often concealed in a fine-grained crystalline or glasy groundmass and thus, a chemical analysis is often necessary for correct classification. Monzo-nite is usually present and sometimes biotite, plus accessory apatite and opaque oxides.

lateral log. A record of the thickness and inclination of the deposit. See also horizontal mining. Nelson.

lateral pattern. a. A dispersion pattern of horizontal distance by which a borehole misses its intended target. Long. b. A number of laths driven into the roof gravels. when being driven into the roof gravels. Fay.

lateral support. Means whereby walls are braced either by columns, pilasters, or crosswalls or by floor or roof constructions, respectively. ACSG. 

lateral velocity change. Change in a horizontal direction of the velocity distribution. Schieferdecker.

lateral drifts. Corn. a. The boards or lagging put behind a frame of timber. Fay. b. Pieces of timber about 4 feet 6 inches by 6 inches by 2 inches with ends beveled or ovaled to give the lath an upward trend when being driven into the roof grates. A number of laths driven into the roof form a protective shield for the miners working in the face. Also called lagging. Engineer and Mining Journal, v. 139, No. 4, April 1938, p. 55.

lateral equalization. The extrusive equivalent of monzo-nite and a variety of trachyandesite in which potash feldspar and plagioclase are present either as normative or modal minerals in nearly equal amounts. Potash feldspar is often concealed in a fine-grained crystalline or glasy groundmass and thus, a chemical analysis is often necessary for correct classification. Monzo-nite is usually present and sometimes biotite, plus accessory apatite and opaque oxides.

lateral deviation. The horizontal distance by which a borehole misses its intended target in coal seams or thick ore bodies in horizontal mining along the strike face or in protecting the sides of a shaft or in a tunnel. See lath door-set. A weal' lath frame surround-

lateral convection. A.G.I.
lattice. In mineralogy, orderly geometric structure in which a crystal's atoms are arranged. Repetition of unit crystal. The lengths of the sides of such a unit cell are its lattice constants, classified in Angstrom units. The symmetry of the lattice determines the shape of a crystal and classification. A lattice differs in structure, interface, surface or sheared layer at which the formation ends. Pryor, 3.

lattice energy. That required to separate the ions of a crystal into infinite distance from each other. Pryor, 9.

lattice girder. An open girder, beam, or column in timber, steel, or aluminum alloy, built up from structural members joined and braced together by intersecting diagonal bars. See also space lattice. Ham.

lattice constant. See parameter (lattice). ASM Gloss.

lattice structure. The ionic lattice is built by syncretic lattices of magnesium ions and is a good conductor; the molecular lattice is composed of covalent molecules, usually volatile and nonconducting; the layer lattices have large ions each associated with two small ions, which form nearly neutral layers held to each other only by weak nonpolar forces and is, therefore, easily split into sheets. Pryor, 3.

laticia. An exsolution texture in which platy and/or needlelike segregates are arranged in the parent crystal according to the structural planes of the parent crystal. Schieberlecke; lattice water, a. Water which is an integral part of the clay structure. This structural water (OH lattice water) is not to be confused with interlayer water. The lattice water can be removed by heating in the range of about 450° to 600° C. ACSG, 1963. b. Molecular water at specific lattice sites. VV.

laticcio; latticino. Decoration of glass with white threads of glass embedded in its surface. This technique was much used by Venetian workers, but was known and used earlier. Haggé.


lauradite. A hydrozincium silicate, CaZnSiO3.Fe2O3.6H2O; a brick-red mineral. FAY, b. A discredited term equal to a natrolite while being carried in aqueous suspension by stratification due to hindered settling of sedimentary layers. C.M.D.; Larsen, p. 209.

launder. a. A trough, channel, or gutter usually of wood, by which water is conveyed; specifically in mining, a chute or trough for conveying powdered ore, or for carrying water to or from the crushing apparatus. Standard, 1964. b. A flume. Nelson, c. An inclined trough for conveying water and mill pulp between the various units of ore-treating equipment in a mill. Dow, 1955. d. A subaqueous bed or layer at which the formation ends. Pryor, 3.

launder screen. A screen used for the sizing of ore. See launder separator process. In this process, a stream of fluid carries the material to be separated down a channel provided with draw off for material of specified product and means for overflowing a lighter one. If properly constructed and operated, a launder separator is very satisfactory. Above this bed there will be found a layer of pipes or c,nsisting of pipes or cylinders, used to convey water and mill pulp between the various units of ore-treating equipment in a mill.

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launder mill. Has three rolls, the middle roll being much smaller than the other two. The two larger rolls only are driven, work being performed between the large and middle and middle and top rolls alternately; the roll setting is adjusted between passes. Odem, 3.

lautite. An imperfectly determined copper sulfoarseniate, CuAs, of the enargite family; from Marienberg, Saxony, Germany. Webster, 1918.

lava. The molten outpourings of volcanoes and fissures. Fluid rock that cools from a volcano or a fissure in the earth's surface; also, the same material when solidified by cooling.


lava dome. a. A volcanic vent exuding lava at every eruption, a mountain of solid rock results which is a lava dome. A.G.I. b. The greater masses of lava that surround the vent or central portion of the flow. Individual flows, have issued from a central vent in the proper directions to build a dome-shaped pile of lava. A.G.I. c. A dome-shaped pile of lava. A.G.I.

lava flow. A stream or sheet of molten or solidified lava. Webster, 3d.

lava millstone. A hard and coarse millstone...
lava millstone


lava mill. A crater that is visibly flooded with massive lava, either liquid or solid. Fay.

lava plain. A broad, elevated tableland or flat-topped highland, usually many hundreds or thousands of square miles in extent, underlain by a thick succession of lava flows, most of which are basaltic and the result of fissure eruptions. The Columbia Plateau of the northwestern United States is an example. A.G.I.

lava sink. The founding or sinking in part of the lava surface produces vertical-walled pits, or lava sinks, in which molten lava may be visible. Stokes and Varney, 1955.


lava. A fine-mesh gauze used as a sieve for varieties of asbestos in certain geological formations. A.G.I.

law millstone

law of cosines. In trigonometry, a law stating that in any triangle the square of one side equals the sum of the squares of the two other sides minus twice the product of these two other sides multiplied by the cosine of the included angle Jones, 2, p. 152.

law of definite proportions. This states that in every simple compound substance, the proportions by weight of the constituent elements are constant. Osborne. Law of equal volumes. In ore genesis, the generally observed metamorphic replacement of rock or ore minerals by gangue and/or metal compounds under retention of the same volume. Schindler decker.

law of equivalent proportion. When elements combine (or replace one another) to form compounds they do so in weights which are proportional to their equivalents. Cooper.

law of extralateral rights. See apex law. Lewis, p. 32.

law of gravitation. The law, discovered by Sir Isaac Newton, that every particle of matter attracts every other portion of matter, and the stress between them is proportional to the product of their mass, divided by the square of their distance apart. Standard, 1964.

law of indestructibility of matter. Matter is neither created nor destroyed in the course of chemical action. See also conservation of mass. Cooper.

law of mass action. The rate of a chemical reaction is directly proportional to the molecular concentrations of the reacting substances. Webster 3d.

law of motion. A statement in dynamics, a body at rest remains at rest and a body in motion continues in a straight line unless acted upon by an external force. The acceleration of a body is directly proportional to the applied force and is in the direction of the straight line in which the force acts. For every force there is an equal opposite force or reaction. Webster 3d.

law of multiple proportions. When two elements combine to form more than one compound, the quantity of one of them which combines with a fixed quantity of the other exhibits a simple multiple relation, C.T.D.

law of reciprocal partial proportions. When an element combines with other elements, the weights of these latter elements which combine with the same weight of the former element give the proportions in which the latter elements combine, or give simple multiples of these proportions. Cooper.

law of refraction. Snell's law. When a wave crosses a boundary, the wave normal changes direction in such a manner that the sine of the angle of incidence between wave normal and boundary normal divided by the velocity in the first medium equals the angle of refraction divided by the velocity in the second medium. A.G.I.

law of tides. In trigonometry, a law stating that in any triangle (either right or oblique) the sides are proportional to the sines of their opposite angles. Jones, 2, p. 151.

law of superposition. The law that underly ing strata must be older than overlying strata where there has been neither inversion nor overthrust. All geologic chronology is based on this law. Standard, 1964.

law of centimeters. A colorless, grayish-blue, basic silicate of aluminum and calcium, H(Ca,Al)2SiO5; orthohombic. Prismatic or tabular crystals. From Tiburon Peninsula; California; Italy; France; Corsica; New Caledonia; Cuba. English.


layer-loading. Term applied to a procedure whereby the coal is placed in the railroad cars in horizontal layers. It owes its inception to the fact that coal as it comes from the mine usually takes the form of large, irregular blocks and is lifted from the conveyor belts, or trippers, by the face-loading shovel and placed on the railroad cars in such a manner as to form a uniform load. See also layer charging.

layer: A bed or stratum of rock. Fay. b. A bed or stratum of cross-bedded sandstone. Hilgard.


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lazyback. S. Staff. The place at the surface where coal is stacked for sale. Fay.
lazy ball. a. Eng. A timber placed at the top of a hopper, from which the top of the car rolls down, to prevent the car from falling into the hopper. Fay. b. Eng. The ball or girder held in position by a hanger. Also called lazy stinger. SMRB, Paper No. 61.
lazy bough. bkgd. A term referring to easy-to-work coal, especially soft lignite. SMRB, Paper No. 61...
lazy bough, lazy branch. See bough.
lazy bower. mineral. See also bower.
lazy cant conveyor. See accordion roller conveyor.
lazy cant conveyor. A system of crossed jointed bars used for picking up articles not within easy reach. Fay.
lazy coal. a. A term used to refer to coal with less than 6% ash. b. A term used to refer to coal with less than 8% ash. c. A term used to refer to coal with less than 10% ash.
lazy conveyor. A system of crossed jointed bars used for picking up articles not within easy reach. Fay.
lazy cover. A term used to refer to the area covered by a layer of coal. Fay.
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leaeh ion-exchange flotation

The flotation process. Abbreviation, L.I.F.

leach material. Material sufficiently mineralized to be economically recoverable by selective and selectively dissolved by application of a suitable solvent. See also leaching. Bureau of Mines Staff.

leach slake. Mineralized materials stacked so as to permit wanted minerals to be effectively and selectively dissolved by application of a suitable solvent. Bureau of Mines Staff.

leach precipitation float. A mixed method of chemical reaction plus flotation developed for such copper ores as chalcopyrite and associated oxidized materials. The value is dissolved by leaching with acid, and the copper is precipitated on finely divided particles of iron, which are then recovered by flotation, yielding an impure concentrate in which metallic copper predominates. Abbreviation, L.I.P.F. Fryar, 3.

lead, n. A metallic element, the heaviest and softest of the common metals. Delicate; resists corrosion; silvery-white to bluish-gray; and rarely occurs in native form. Symbol, Pb; valence, 2 and 4; isotonic; atomic number, 82; and atomic weight, 207.19. Bright metallic luster; highly malleable; ductile; poor conductor of electricity; specific gravity, 11.3437 (at 16°C); of lead derived from the disintegration of radium (radium-lead); 11.2805 (at 20°C); of lead derived from the disintegration of uranium (uranium-lead); 11.2980 (at 16°C); 12.3575°C; boiling point, 1,515°C or 1,744°C; insoluble in water; and soluble in nitric acid and in hot concentrated sulfuric acid. C.T.D.; Handbook of Chemistry and Physics, 45th ed., 1964, pp. B-118, B-184. A mixture of powders of lead oxide and linseed oil used as pipe-thread, lubricant and sealant. Also called red lead. Long. c. In ceramics, to glaze with powdered metallic lead ore. Faraday, 1909 (pronounced lead). A. Commonly used as a synonym for lode or lode. Many mining location notices describe the locator's claim as extending to a certain number of feet along and so many feet on each side of the lode, lead, vein, or lode. Thus Lead, S. Dak., was developed as the last of the Homestake lead. Blind lead: A lead or vein that does not outcrop or show at the surface. Used commercially, Leadville, Colo., and Cambria, Calif. So called because of the bluish-gray color of the gravels. Deep lead: Goldbearing gravels deeply covered with debris or lave; applied particularly to those of Victoria, Australia. Fry, c. Pennsylvania. A portion of a haulage system covered by a mule or by a locomotive of a maximum distance of say, three-quarters of a mile. Fay, d. England. To haul or draw coal, etc., either by animal or engine power. Faraday, 1909. A defined degree of sulfurous fume. Gordon, 1903. A track haulage term for the distance from the point of a frog to the point of the switch. King, 285. A term sometimes used for the distance between the sheave and the winding drum centers. The greater the angle of the sheave being considered the smaller the fleeting angle. Too great a lead results in vibration and whipping of the rope between sheave and drum. Idler or sag rollers are frequently installed where long leads are necessary. Nelson, h. The longitudinal distance traveled in one revolution of the rope between a spiral thread or screw. Long, j. The distance below the depth of ground after the bottom in a borehole before rotation and downward movement of the drill string is started. Long, x. A small, uniform, unidirectional passage in a cave. A.G.I. 6. Iner, as indicating from data suggesting a direction for further investigation. A.G.I. 6. Navigable passage through pack ice. Schieferdecker, m. The axial advance of a helix in one complete turn. A.S.M. Gloss. n. The slight bevel at the outer end of a face cutting edge of a face mill. A.S.M. Gloss.

lead agate. The distance coal has to be hauled from the mine to its place of shipment. Standard, 1964.

lead age. The age of a rock calculated by the method of lead and lead-208. The age of a uranium-lead system is calculated by comparing the amounts of lead derived from the disintegration of radium (radium-lead) with the amounts of lead derived from the disintegration of uranium (uranium-lead). Lead-208 is in equilibrium with radium-226, which is in equilibrium with uranium-238. Standard, 1964.

lead acid. A term specifically applied to lead pastes. A.S.M. Gloss.

lead acid batteries. A type of electric driven a motor, either by driving the motor directly or by driving a generator which in turn drives the motor. Lead batteries are used extensively for the temporary storage of electrical energy. Used in electric mining lamps, in 6.14. Used in ceramic glazes. C.C.D. 6d, 1964, p. B-185. Used in raw lead glazes and also in enamels and glasses. The fine particle size of this material assists in suspending the glaze ingredients. Lead colic. Intestinal colic associated with obstinate constipation due to chronic lead poisoning. Also called painter's colic. Webster, 3d.


lead oxide

from which the positive plates of electric storage batteries are made. 

lead dust. Lead in very finely powdered form. 

CCD 6d, 1961.

lead bronze. Copper-base alloy containing 5 to 10 percent tin and 8 to 20 percent, and sometimes 30 percent, of lead; used for heavy-duty bearings. C.T.D.

lead edge; leading edge. The surfaces or inset cutting points on a bit that face in the same direction as the rotation of the bit.

Long.

lead glass. Pieces of glass fixed together with strip lead of H or U section to form a window. ASTM C162-66.

lead encaustophalys. The medical term for lead poisoning. 

Fay.

lead equivalent. a. The thickness of lead that has the same radiation absorption or the same attenuation as a unit thickness of the material in question. ASM Gloss. b. That thickness of lead which will produce the same attenuation or protection as the material in question in both when exposed under the same conditions. ASM Gloss.

leader. a. A narrow vein branching upwards at an angle from a much larger vein. See also dipole. Nelson. b. A thin layer of coal or coaly shale which serves as a guide towards a displaced seam. See also guiding. 

Hoy, C. A thin mineralized vein parallel to, or in continuation of, the main vein formation. C.T.D. d. A cast- or wrought-iron ring or shoe, bolted to the bottom (often around the outside) of a brick cylinder, a wooden drum, or a wrought-iron cylinder when used for sinking through quicksand or gravel. 

Fay. e. Som. The slip of a fault. Fay. f. Any particular or constant head or band of coal, ironstone, etc., in connection with certain workable beds, serving as a ditime in a mine. 

Fay. g. N. of Eng. A back or finiture in a coal seam. Fay. h. Scot. One who conducts the putting down of a borehole. 

Fay. i. Corn. A small vein leading to a larger one. Fay. j. In warm air heating, the supply duct running horizontally from the furnace to the riser, or stack. 


leader of the lode. Eng. See leader, i. Fay.

leaders. Guides in a pipe frame to take the drop hammer of a pile driver. See also hanging leaders. 

Ham.

leadfeldspar. Synthetic PbAl2Si2O8 with the feldspar structure; probably anorthic. 


lead flake. See lead carbonate, basic. 

CCD 6d, 1961.

lead fluosilicate; lead silicofluoritie. Colorless; monoclinic; PbSiF6.2H2O; soluble in water; and it decomposes when heated. Used as a solution for electrorefining lead. 

CCD 6d, 1961.

lead fume. The fume escaping from lead furnaces. It consists of two volatile and mechanically suspended metalliferous compounds. 

Fay.

lead glance. Same as galena, which is lead sulphide. 

Fay.

lead glass. Glass containing lead oxide. The amount of lead can range from 3-4 percent to 30 percent or more in special cases. English lead crystal used for tableware contains 33-34 percent lead. 

lead pipe. See lead, c.

leadillinite. A monolithic mineral of a yellowish or greenish color, consisting of a sulfide of lead, perhaps 4PbO.

CCD 6d, 1961.

lead oxide; lead peroxide

by miners blende, mock lead, or mock ore. 

Fay.

lead amylxanate; lead metanoliate. Pb

(CC2O3). Pb(NbO3). is a ferroelectric material with a Curie temperature of 570° C. It is used in electric devices, and in sensing devices, and kerosene lamps. 

lead metal. Lead compounds are used in ceramic glazes and in glass, particularly that for which brilliance is desired, as in cut glass and glass may contain as much as 29.5 percent PbO. 

Fay.

lead metavanadate; lead vanadinite. Pb

(VO3); molecular weight, 405.07; yellow; insoluble or slightly soluble in water; and soluble in dilute nitric acid. Used as a pigment. 


lead mill. A leaden disk charged with emery for grinding gems. 


lead minerals. The most important industrial one is galena (PbS), which is usually argentiferous. In the upper parts of deposits the mineral may be altered by oxidation to cerussite (PbCO3) or anglesite (PbSO4). Usually galena occurs in intimate association with sphalerite (ZnS). 

Fay.

lead molybdate. See wulfenite, C.M.D.

lead mormon. In ore dressing, smelting and refining, one who operates a small electric locomotive (motor) to haul pots of molten lead bullion from a blast furnace to refining kettles for the separation of copper, antimony, silver, and other metals contained in the lead bullion. 

D.0.1.

lead nitrate. Pb(NO3)2; a ferroelectric compound having properties that make it useful in high-temperature transducers and in sensing devices. The Curie temperature is 57° C. Dodd.

lead nitrite. Colorless or white; isometric or monoclinic; Pb(NH4)2; promotes combustion in contact with organic matter; poisonous; soluble in water, in alcohol, in alkalies, and in ammonia; specific gravity, 4.53 (at 20° C); and it decomposes at 470° C. Used in explosives. 


lead ocher. A massicot or lead monoxide, Pb3O4; massive, scaley or earthy; color, yellow or reddish. Fay.

Fay.

lead of a switch; frog distance. The distance measured on the main line from the point of switch to the point of frog. 

Kiser, 2d, 1959, p. 34.

lead operator. In ore dressing, smelting, and refining, one who directs activities concerned with initial crushing of ore and transporting of crushed ore to secondary crushers. D.O.T. Supp.

lead ores. See anglesite; cerussite; crocoite; ltena; lillite; pyromorphite; vanadinite; wulfenite, C.M.D.

lead oxalate. Both lithium (PBO) and red lead (PbO2), used in glass, glasses, and enamel batches. Red lead is generally preferred to litharge because the extra oxygen it contains helps to improve oxidizing conditions during the melting process, and is less liable to reduce lead. Lead oxide is used in optical glass and tableware. It increases the density and refractive index of the glass, and makes it less soft than other glasses, and has superior brilliance. Lee.
lead oxide, red; red lead

lead oxide, red; red lead; lead tetroxide; triplobmic tetroxide; minium. Bright red; PbO. Specific gravity, 7.15; decomposes at 100° C and 500° C; insoluble in water and in alcohol; and soluble in hydrochloric acid and in acetic acid. Used in glass making and enameling. C.D. 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-186. PbO is formed by heating lead monoxide in air at approximately 550° C. It occurs as red and yellow crystalline scales. Chemical reactions contain up to approximately 33 percent PbO. C.T.D. See also lead oxide.

development, yellow. See litharge.

lead paint. Ordinary paint, so-called because white lead is used as a base. Crispin.


lead rail. The lead rail of an ordinary mine switch is the turnout rail lying between the rails leading to the incoming track and the turnout track. Lead rails are used extensively in the mining industry.

lead screen. In radiography, a shield used to protect personnel. It may consist of X-ray film or other high density material.

lead spar. The term "spar" is common among miners and applies to any of the metallic minerals which are cleavable and lustrous. Fay. b. Corn. Anglesite. Fay. c. Anglesite. Fay.

lead stannate. Light-colored; PbSnO3; insoluble in water; and loses 21120% at about 170° C. It is used as an additive to ceramic capacitors. C.D. 6d, 1961. Added in quantities of 1 to 5 percent to barium titanate ceramic bodies intended for piezoelectric applications, lead stannate reduces the tendency of these units to depolarize under load when used as oscillators. Lee.


lead subcarbonate. See lead carbonate, basic. C.D. 6d, 1961.

lead sulfate, basic; white lead; sublimed; lanarkite. White; monoclinic; PbSO4·PbO; molecular weight, 326.4. Used as a component of structural-metal ceramic capacitors. Standard, 1964.

lead sulfate, blue basic; sublimed blue lead. Blue-gray; corrosion-inhibiting pigment; and insoluble in water and in alcohol. Used as a component of structural-metal priming-coat paints, as a rust inhibitor in paints, and rarely used for color. C.C.D. 6d, 1961.

lead sulfide; plumbo sulfide; galena; galena; glance. Silvery; gray; or black; metallic; isometric; PbS; Moh's hardness, 2.5; soluble in acids; insoluble in water; and decomposes at 1,065° C; insoluble in water; and soluble in acids. Bennett 2d, 1962; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-186.

lead sulfide, blue basic; sublimed blue lead. Blue-gray; corrosion-inhibiting pigment; and insoluble in water and in alcohol. Used as a component of structural-metal priming-coat paints, as a rust inhibitor in paints, and rarely used for color. C.C.D. 6d, 1961.


lead telluride; altaite. PbTe; molecular weight, 334.79; white; isometric; specific gravity, 7.69; melting point, 977° C; and only slightly soluble in hot water and in sulfuric acid. Used in ceramics. C.D. 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-186.

lead tetraethyl. See tetraethyl lead.

leaf peat

lead solubility test. The (British) Pottery (Health and Welfare) Special Regulations, 1947 and 1956. This test, as applied to the specification of a low solubility glaze as follows: A weighed quantity of the material which has been dried at 100° C and then gently mixed with water for 1 hour, at the common temperature, with 1,000 times its weight of an aqueous solution of HCl containing 0.25 percent by weight of HCl. This solution is thereafter allowed to stand for 1 hour and then filtered. The lead salt contained in the clear filtrate is then precipitated as PbS and weighed as PbSO4.

lead spar. The term "spar" is common among miners and applies to any of the metallic minerals which are cleavable and lustrous. Fay. b. Corn. Anglesite. Fay. c. Anglesite. Fay.

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leaf peat. A very thin sheet or plate of metal, as lead. A material used for covering a power cable or for a telecommunication cable. Hem.

leaf sheet. Used for the cutting of stencils for sign work, for lining wooden packing cases for sulfuric acid pickling. Hamun.


leaf silicates. Various compositions; the anhydrous forms are made by baking lead silicate under reduced pressure at a temperature between 500° C and 550° C. Another method of preparation is by drying the reaction product of silica gel, litharge (PbO), and acetic acid. Used as fillers. C.D. 6d, 1961. See lead flussilicate. C.D. 6d, 1961.

*league.* a. A unit of linear measure. A land league = 3 statute miles or 15,840 feet. A nautical league = 3 geographical miles or 18,240,787 ft. A. G. B. I. An area embraced in a square 5,000 varas on each side. It contains 4,428.40 acres or 6.92 square miles. The term is used in Texas land descriptions. *A.G.I.*

*Lea.* A tiny phylloid crustacean, supposed to be of freshwater habitat. The genus *Lea* has proved of considerable value as it may characterize a single horizon over widespread areas. For example, the horizon over the Swanson Four Feet coal seam (South Wales) with its relative abundance of *Lea* has proved a reliable datum plane for correlation and identification purposes. *Nelson.*

*leak.* Low-grade mineralized rock into which an ore body degenerates. *Hes."


*leakage coefficient.* A numerical expression of a duct's liability to leak. The National Coal Board of Great Britain defines this as the volume of air in cubic feet per minute which would leak from 100 feet of the duct under a uniform pressure of 1 inch of water gage. *Roberts, I.*

*leakage field.* The magnetic field which leaves or enters a magnetized part at a magnetic pole. *ASM Gloss.*

*leakage halo.* A. Dispersion pattern formed in the rock overlying a mineral deposit by the movement of ore-forming fluids through a well-defined system of channels. *Hauke.* b. Dispersion patterns in rocks and fracture zones over blind ore deposits where it is possible. The dispersion patterns represent the leakage of nearly spent ore solutions. *Lewi.*

*leakage intake.* An additional intake which is a component part of a system of controlled leakage. *B.S. 3618, 1963, sec. 2.*

*leakage intake system.* A ventilation circuit with two adjacent intake roadways leading to the coalface. The method has been criticized as the air flow may become so sluggish as to cause fireproof layers. See also two intakes. *Nelson.*

*leak vibroscope.* An instrument which detects leaks in water, oil, gas, steam, and air lines by amplifying the sound produced by the escaping fluid. *Osborne.*

*leak.* a. Of ore, low-grade; submarginal; unpayable; of doubtful exploitable value. *Pryor, 3.* b. A cement-sand mixture containing a very low cement/aggregate ratio (1:12 to 1:15) used mainly as a subbase under concrete roads. *Nelson.*

*leak mortar.* Mortar that is deficient in cementitious components. It is usually harsh and difficult to spread. See also salt mortar; mortar. *ACSG, 1963.*


*leaper; leper.* See later; Arkell.

*leapfrog system.* A system employed with self-advancing supports on a longwall face in which alternate supports are advanced on each web of coal removed. To do this, alternate units have to be moved by a distance equal to twice the web thickness—half before snaking and half after snaking. *Nelson.*


*leather.* a. A mill stream which is used by small mines to carry water to the shaft and to the surface. From this mill stream the water flows through the mine to the surface by gravity. *Fay.*

*leather lap.* A disk covered with leather for use as a pressure packing on hydraulic and pump pistons and around piston rods. *Long.*

*leather used.* The soft part of a vein. *Fay.*

*leather slag.* A disk covered with leather for use as a pressure packing on hydraulic and pump pistons and around piston rods. *Long.*

*leather bed.* A tough leatherlike clayey substance in a fault, composed of the crushed and fractured ends of the coal measures. *Fay.* See also fault breccia; fault gouge. *Nelson.*

*leather cloth.* The thin veneer of plastics deformed rock on a fault plane. *Schnieder.*

*leather-hard.* Clay which is dried sufficiently to be stiff but is still damp enough to be joined to other pieces with slip. *ACSG, 1963.*


*leather-jacket lode.* A gold-bearing lode associated with west dipping reversed faults. Where the lode intersects mafic sandstone it tends to be barren while where it intersects slate beds it becomes more productive. *Mid.* A leather-jacket refers to the black shiny carbonaceous pug with a leatherly appearance of the associated faulted strata. See also indicator. *Fay.*


*leatherstone.* Synonym for mountain leather. *Williams.*

*leathery texture.* Similar to eggshell but generally a larger pattern. *Bryant.*


*leaving.* Corn. The mineral left after the ore has been divided into two or three classes. *Forbes.*

*leppus general.* A general term for sundry components. It is usually harsh and difficult to spread. See also ichnofossil. *Petitjohn.*

*LECA.* Abbreviation for lightweight expanded clay aggregate. See also lightweight expanded clay aggregate. *Dodd.*

*Le Chatelier-Braun principle.* When a system which is in equilibrium suffers a change, it tends to oppose or minimize that change. *Pryor, 3.*

*Le Chatelier couple.* A thermocouple employing a negative wire of pure platinum and a positive wire of 90 percent platinum and 10 percent rhodium. *Osborne.*

*lechatelierite.* Naturally occurring silica glass, SiO₂; amorphous. The chief constituent of fulgurites and of the fused sandstone of Meteor Crater near Winslow, Ariz. *English.*

*Dana 17.*

*le Chatelier soundness test.* A procedure for assessing any expansion of hydraulic cement caused by the presence of excess lime, magnesia, or sulfates. The gaged cement is put into a split brass cylinder 30 millimeter in diameter, to which are attached two needles 156 millimeter long from the center of the mold, one of which is on each side of the split in the mold. The cement is allowed to set for 24 hours immersed in water at 58° to 64°F; the distance between the ends of the needles is then measured. The mold is immersed in water and boiled for 1 hour. When it is cool, the distance between the ends of the needles is again measured. The difference between the first and second readings shows the degree of expansion. The test is included in British Standards 12. *Dodd.*

*lechoos opal.* A variety of precious opal exhibiting a deep-play of color. *C.M.D.*

*leck.* A thick, stony clay. Also called leck clay. *Standard, 1964.*

*leck clay.* A variety of trap found in Scotland; used for oven bottoms. *Standard, 1964.*

*leck clay.* A zinc-iron primary cell clay whose liquid is a solution of sal ammoniac. *Webster 3d.*


*lecq decking system.* A fully automatic system for a two-deck cage, decked simultaneously, which may be powered pneumatically, electrically, or hydraulically. In this system, at each decking level the road leading from the split faces, the full cars are fed by gravity to a automatic tippler situated close to the shaft. On the completion of the tipping the empty cars are ramed out of the tipplers by rams to the creepers, from which they run to the siding and are diverted as required. They are then in position to be ramed into the next cage coming to bank. *Sinclair, 1964.*

*led.* N. Eng. A spare tub, or one that is being loaded while another is being unloaded. *Webster 3d.*

*ledeburite.* The eutectic of the iron-carbon system, the constituents being austenite and cementite. The austenite decomposes into ferrite and cementite on cooling below the Ac₃ ASM Gloss.*
ledge. a. A bed or several beds in a quarry or natural outcrop, particularly those projecting in a step-like manner. A.G.I. Supp. b. The projection or face of such a projecting bed. A.G.I. Supp. c. In mining, a projecting outcrop or vein, commonly of quartz, that is not mineralized; also, an oval or narrow zone of mineralized rock. A.G.I. Supp. d. In northern Michigan, the same as bedrock. A.G.I. Supp. e. A mass of rock that constitutes a valuable mineral deposit. Webster 3d. f. Colloquial synonym of bedrock. Long. g. The only true ledges are those that constitute a valuable mineral deposit. Webster 3d. h. A rocky formation continuous with and fringing the shore. H&G.


leech. a. The true bedrock; distinguished from boulders or rock that has been transported. Standard, 1964. Compare false bottom, b. Can also be occurring in solid rock formations. A.R.I.

ledger wall. Same as footwall. Fay.


ledger. a. In mine timbering, a prop or upright member of a set or frame. Pryor, 3. Also member of a set or frame. Pryor, 3. Also, a term sometimes applied to a right-hand screw thread. H & C, p. 130. b. Eng. A prop set under a balk or bar is known as uprights; posts; arms. Nelson. c. The uprights of a set of mine timbers. A.G.I. Supp. d. The surface of such a projecting bed. A.G.I. Supp. e. A projecting in a step-like manner. A.G.I. Supp. f. Tile only true ledges are distinguished from boulders or rock that has been transported. Standard, 1964. Compare false bottom, g. In mining, a projecting bed in which the individual wires or fibers in the strands are twisted to the right and the strands to the left. Called also regular-right lead lay. Long. h. Same as right lay, and corresponds to a right-hand screw thread. H & G, p. 130.


left seismograph. A portable three-compartment recording instrument, usually provided with registration of vibrations from blasts, traffic, machinery, and general industrial sources. Leitz, 2, p. 90.

lefkosbeta. A (bleached) variety of chrysotile asbestos; from Mt. Troodos, Cyprus. English.

left-hand cutting tool. A cutter all of whose flutes twist away in a counterclockwise direction when viewed from either end. A.S.M. Glas.

left-handed. Threaded members, such as pipe or drill bits, which can be coupled together only by turning or twisting the members in an anticlockwise or counterclockwise direction opposed to the clockwise direction used when coupling standard right-hand-threaded components. Long.

left-hand rule. See Fleming's rule.

left long lay. Synonym of left long lay. Long.

left regular lay. Wire or fiber rope or cable in which the wires or fibers in the strands are twisted to the right and the strands to the left. Called also regular-left lead lay. Long.

left twist. Same as left lay, and corresponds to a left-hand screw thread. H & G, p. 130.


leg. a. The wires attached to and forming part of a lead; also, the frame of such a lead. b. The uprights of a set of mine timbers. See also leg piece. Fay. c. Legs are used under crossbars, headers, or collars in the three-piece set of timbers, and between the mudsill and the collar in the four-piece set. They may also be called side-pieces or posts. When used in four-piece sets, the reason of which is usually side pressure, the legs must be locked in the mudsill and the collar. This is called a d.p. Kentucky, p. 141. d. Aust. The two sides or wings of a saddle reef or anticline. Fay.

legua. Sp. Land league used in the original surveys of the Philippines, California, and Texas. It is equal to 2,63 miles or 4.24 kilometers. See also league. A.G.I.

leg wire. One of the two wires attached to and forming part of an electric cable or cap or spool. ASA C64.85: 1956.

Lehigh jig. A plunger-type jig with the following distinguishing characteristics: (1) the plunger contains check valves that open on the upstream to reduce suction; (2) the makeup water is introduced with the feed; (3) the screen plate is at two levels, which have different perforations, to keep the water distribution uniform; (4) the bottom of the discharge end of the jig is hinged. This jig has been used extensively in washing anthracite. Mitchell, 29.

lehr. A hydrophous salt of calcium, sodium, potassium, and aluminum, CaNa₂Al₂(OH)₆.6H₂O; colorless; white; crust of coals; fibers. Found near Fairfield, Utah. English; American Mining Congress, p. 27, No. 4, April 1964, p. 24.

lehr man. The same as lehr or mud. Standard, 1964.

Lehmann process. A process for treating coal by disintegration and separation of the petrographic constituents (Fusain, durain, and vitrain). It consists of subjecting the coal to resilient disintegrating or shattering action for a sufficient length of time to break the constituents into granules of various sizes by reason of their respective resistances to shattering impacts and separating the granules into different sizes by screening or equivalent means. Mitchell, p. 601.

lehre. An enclosed oven or furnace used for annealing, or other form of heat treatment, particularly used in glass manufacture. It is a kind of tunnel down which glass, hot from the forming process, is sent to cool slowly, so that strain is removed, and cooling takes place without additional strain being introduced. Lehrs may be of the open type (in which the flame comes in contact with ware), or of the closed type, C.T.D.

lehren. A device for properly placing and spacing slats articles on a continuous lehr belt. ASTM C162-66.

lehren. One who works at the annealing of a reheating oven (lehr) used to fire-glaze glass articles. Arranges glass articles according to size and shape of the finished article so that maximum quantity will be carried in oven on a long paddle. Also called lehr man; lehr operator; glass lehr tender. D.O.T. 1.
leidelite

leidelite. A glassy dacite or rhyolite with microlites instead of phenocrysts of plagioclase, hornblende, apatite, and opaque oxides. A.G.I.

leitite. A colorless highly acidic, fluorescent variety of humite and albite leucite, Na(Al,F)SiO; prisms; hexagonal; from Narrows, Greenland. English.

Leighton buzzard sand. An important source of sand from the Lower Greensand deposit of Bedfordshire, England. The sand is high in silica and washed; it is used as a refractory foundry sand and as a standard sand for mixing with portland cement for testing according to British Standard 12, Dodd.


leip. Scot. See lip. Fay.


Leitz tyndallometer. Measures the intensity of the light scattered at an angle from the incident beam by a dust cloud, and correlates well with the concentration determined by the thermal precipitator or the surface area calculated from such counts. However, it needs to be calibrated for each type of dust cloud, owing to differences in mineralogical content, against the thermal precipitator. Sinclair, 1., p. 181.


-electron. One in the second innermost shell which surrounds the atomic nucleus. Pryor, 3.


Leibniz. A greenish feldspar from Lenni Mills, Delaware County, Penn. Hess.

lemanite. A variety of chlorite. From Chuquicamata, Chile. English.

Lenz's law. When an electromotive force is such as to produce a current, the direction of the electromotive force is such as to oppose the change in the magnetic field, the direction of the electromotive force is such as to produce a current whose magnetic field will oppose the change. Handbook of Chemistry and Physics, 45th ed., 1964, p. 4-49.

Leone. A yellowish mineral. L.L.


Leonardite. A soft, earthy, medium-brown coallike substance associated with lignitic outliers, in North Dakota. It is a naturally oxidized form of lignite with variations in color and properties depending upon the extent of weathering. Usually, the material occurs at shallow depths, overlying or grading into the harder and more compact lignite. Of little value as a fuel, it has been used in oil-drilling muds, in water treatment, and in certain wood stairs. It is frequently referred to as "slack" because of its texture; but in most cases the term is finding common usage. R.I. 5611, 1960, p. 2.

Leonardread test. A fireproof detector developed in 1902. A form of Wheatstone bridge is used and changes in electrical resistance due to temperature differences are measured. The fireproof/aire sample flows over one set of wires and the gas burns catalytically while the other wires do not come into contact with the sample. Nelson.


leoniite. A colorless, white, yellowish hydrous sulfate of magnesium and potassium, K2SO4.MgSO4.4H2O; monoclinic; tabular crystals and massive. From Westeregeln and Leopoldshall, Germany, English.

leopardite. A siliceous rock from North Carolina that is spotted with grains of magnetite; usually considered to be a quartz-porphyr. Fay. b. A variety of pyroxene porphyry containing small phenocrysts of quartz in a microgranitic or microgranophyric groundmass of calcic plagioclase, and mica. The rock has a characteristically spotted or streaked appearance.
due to staining by hydroxides of iron and manganese. Holms, 1928.

leopardite. See ACL kiln. Dodd.


leopard stone. Trade name given to a gray Leopoldi furnace. A furnace Leopardi rock. a. A local name in Canada, p. 337.

leopardite. Syonym for sylvite. Dana 64, p. 156.

leptodolomite. Pertaining to a flaky schistosity caused by an abundance of minerals like micas and chlorites with a general parallel arrangement. A.G.I.

lepidocrocite. An orthorhombic hydroxy of iron and oxygen, occurring as scaly blood-red crystals, associated with limonite, in iron ores; one very perfect and two less perfect cleavages; dimorphism form of goethite. C.M.D.; Larsen, p. 144.

lepidodendron. A common member of the lepidodendron plant group that flourished during Coal Measures times. The straight trunks of this tree sometimes reached a height of 100 feet. Its large, rounded, flat leaves were from 2 feet at the base. Reproduction was by branches. Nelson.

lepidolite; lillith mica. A fluorescent of potassic, lithium, and aluminum. K, LiAl2- (AlSiO3)(OH),; monoclinic; color, pink and lilac; to grayish white; luster, pearly; perfect micaceous cleavage; Mohs' hardness, 2.5 to 4; specific gravity, 2.8 to 3.0. A comparatively rare mineral found in pegmatite dikes, usually associated with other lithium-bearing minerals such as spodumene and tourmaline, albite, and a variety of other minerals. Found in Connecticut, California, South Dakota, and New Mexico. Used as a source of lithium, and in the manufacture of heat-resistant glass. Dana 17, pp. 471-472.

lepidolitene. A mineral, near biotite, but characterized by the presence of a large amount of ferric iron. Pay.


lepidolite; lepidolithite. Copper-bearing lepidolite; lepidolite. Dana 64, p. 258.

lepidolite. Syonym for anorthite. Dana 64, p. 337.

lepre. (Sl.) See ACL kiln. Dodd.

leppy. Eng. Work that is easy, "soft, kind, and winy, without any hardness, as bor-
Leucite phonolite. According to Rosenbusch, a volcanic rock, the felsic minerals of which are leucite and orthoclase without nepheline. With the addition of nepheline (or nocon, etc.), the rock becomes a leucitophyre. It is preferable to follow Zirkel who calls the leucite phonolite and the former, from which nepheline is missing, leucite trachyte. Holmes, 1928.

Leucitophyre. A variety of leucite phonolite, leucitophyre. A tephrite containing leucite in addition to the constituents of trachyte which is equal to the leucite phonolite of Rosenbusch. Holmes, 1928.

Leucite. A volcanic rock containing leucite in addition to the constituents of trachyte. Holmes, 1928.

Leucite, O. Of, pertaining to, leucite; containing or resembling leucite. Fay.

Leucite. A fine-grained or porphyritic rock composed essentially of leucite and plagioclase. Holmes, 1928.

Leucitic. Of, or pertaining to, leucite; composed of leucite and orthoclase without nepheline. Holmes, 1928.

Leucite in addition to the constituents of nepheline is missing, leucite trachyte. Holmes, 1928.

Leucite. A feldspathoidal syenite containing leucite or more generally, pseudo-leucite, which consists mainly of orthoclase and nepheline. Holmes, 1929.

Leucite tephrite. A lava of basaltic habit, consisting of leucite, plagioclase, and pyroxene, usually with accessory magnetite, and differing from leucite basanite in containing no basanite. Webster 2d.

Leucitohedron. A synomyn for leucitohedron. Webster 2d.


Leucotephrite. A tephrite containing leucite, but free from nepheline or other soda feldspathoid. The form leucotephrite is preferable as leucite suggests a leucocratic tephrite. Holmes, 1928.


Leucotephrite. A synonym for trapezohedron. A.G.I. Supp. b. The term is derived from trapezoid, a natural or artificial dead-level course. a. A direction along the strike of an inclined coal seam; a coal seam contour line. The productive faces in a coal mine, such as stalls and conveyor faces are, in general, advanced on level course or slightly to the right. Nelson b. Scot. In the direction of the strike of the strata, or at right angles to the dip and rise. Fay. b. All openings in each of the different horizons from which the ore body is opened up and mining is started. Higham. In a mine, the set of passageways for the removal of coal or ore. See stoping.水平 course. a. A direction along the strike of an inclined coal seam; a coal seam contour line. The productive faces in a coal mine, such as stalls and conveyor faces are, in general, advanced on level course or slightly to the right. Nelson b. Scot. In the direction of the strike of the strata, or at right angles to the dip and rise. Fay. b. All openings in each of the different horizons from which the ore body is opened up and mining is started. Higham. In a mine, the set of passageways for the removal of coal or ore. See stoping.水平 course. a. A direction along the strike of an inclined coal seam; a coal seam contour line. The productive faces in a coal mine, such as stalls and conveyor faces are, in general, advanced on level course or slightly to the right. Nelson b. Scot. In the direction of the strike of the strata, or at right angles to the dip and rise. Fay. b. All openings in each of the different horizons from which the ore body is opened up and mining is started. Higham. In a mine, the set of passageways for the removal of coal or ore. See stoping.水平 course. a. A direction along the strike of an inclined coal seam; a coal seam contour line. The productive faces in a coal mine, such as stalls and conveyor faces are, in general, advanced on level course or slightly to the right. Nelson b. Scot. In the direction of the strike of the strata, or at right angles to the dip and rise. Fay. b. All openings in each of the different horizons from which the ore body is opened up and mining is started. Higham. In a mine, the set of passageways for the removal of coal or ore. See stoping.
leveling

leveling. The telescope is first sighted on a station of known height (the back sight, B.S.) and the next station on a position a convenient distance away. The staff is then rotated without being removed from its base and the instrument is moved to a new setup from which a reading can be made (a new B.S. reading). From any station intermediate sights can be made, to lie in the heights of known points with the leveling survey. In the United States, first-order leveling describes work over a distance of under two kilometers, leveled in both directions with high precision; second-order leveling must close on to first-order bench marks (B.M.'s) and be of fairly high accuracy; third-order leveling must not go more than thirty miles from established first- or second-order lines and must close on to lines of their accuracy. Pryor, 3. b. The method of determining the relative heights of any number of points from a datum plane. Mason, v. 2, p. 728. c. Flattening of rolled sheet, strip, or plate by reducing or eliminating distortions. See also stretcher leveling; roller leveling. ASSL Gloss.

leveling action. Action exhibited by a plating lever. A plating lever is an instrument consisting of a rigid bar which has one fixed point about which it can turn. This point is known as the fulcrum. Morris and Cooper, p. 155.

leveler. A simple machine consisting essentially of a rigid bar which has one fixed point about which it can turn. This point is known as the fulcrum. Morris and Cooper, p. 155.

level reading. A reading taken on the staff at a known elevation of the point at which the staff is held and not in position of the instrument. The reading is transferred and the point at which the staff is held by magnetic fields from coils surrounding the instrument. See also level.

level recorder. An instrument operated by pressure or by a float, recording continuously the level of water in a channel. Ham.

level tool. A stone or a metal rod. A. Scott. Stones on the surface of the ground indicating the direction of old underground level. Fay.

level surface ripple. A ripple that migrates along a level surface. Pettijohn.

level tool. A. Scott. Brakes, or levers, at the top of an inclined plane. A brake man.

lever. A simple machine consisting essentially of a rigid bar which has one fixed point about which it can turn. This point is known as the fulcrum. Morris and Cooper, p. 155.

lever action. Action exhibited by a plating lever. A plating lever is an instrument consisting of a rigid bar which has one fixed point about which it can turn. This point is known as the fulcrum. Morris and Cooper, p. 155.

leveret. In masonry a treated steel wedge with a wide hole, having its greatest diameter in a plane with the desired rift. Blasts from such levers are destructive in their action, and by means of them larger and better-shaped blocks can be taken out than would have been possible by hand. Fay. b. A dovetail mortise, as in a block of stone, for attaching a lever for hoisting. Standard, 1964.

lewis pin. A pin used for attachment to a key block. It is placed in a shallow drill hole with its point up. If the pin is large it is situated below the top. When it is pulled upward it tends to tighten on the wedge, which prevents it from slipping out. Fay.

lewistonite. A hydrous phosphosite of calcium, potassium and sodium, K2CaO·(K.Na)4·3P2O7·16H2O; hexagonal; white; minute prisms or powdery crusts. Found near Fairfield, Utah. Libby-Ingersoll drill. See Water: Libby.


leytonite. A white or light-colored silicate mineral; a member of the tectosilicate group, CaAl2[Si4O10](OH)2. Synonym for levynite. E.C.T., v. 12, p. 279; Webster 3d, p. 297; Webster 3d; Hey, 4, 1955.

liber. An iron shaft by which a horse draws a wide hole, having its greatest diameter in a plane with the desired rift. Blasts from such levers are destructive in their action, and by means of them larger and better-shaped blocks can be taken out than would have been possible by hand. Fay. b. A dovetail mortise, as in a block of stone, for attaching a lever for hoisting. Standard, 1964.

leydenite. A white or light-colored silicate mineral; a member of the tectosilicate group, CaAl2[Si4O10](OH)2. Synonym for levynite. E.C.T., v. 12, p. 279; Webster 3d, p. 297; Webster 3d; Hey, 4, 1955.

leveling machine. One who operates a surveyor’s level. Crittin.

level of control. A measure of mastery over a process of production; in concrete work, it is measured by cube crushing strength and the acceptance of the concrete by the surveyor. See also statistical uniformity. Ham.

level recorder. An instrument operated by pressure or by a float, recording continuously the level of water in a channel. Ham.

levynite. A white or light-colored silicate mineral; a member of the tectosilicate group, CaAl3Si4O10·5H2O. Trigonal. Synonym for leydenite. E.C.T., v. 12, pp. 279; Webster 3d.

liberation. A. A process of production; in concrete work, the separation of the aggregate from a suspension. ASM Gloss. Compare as to particle size by the rate of settling test. Ham. b. A means of classifying a natural material, as to size, by passing a given screen. Libby-Owens process. See Colburn process.

lever principle. A. The principle of a lever, as given in elementary geometry, in which one of the two equal bars, or levers, is fixedly attached to a rigid body at a point, the other lever is free to move. Libby-Owens process. See Colburn process.


leveling rod. A graduated rod used in survey instruments, the rods are read only by the rodman, while the target rods are read directly by the level man. Crittin.


lever. A. Scott. Brakes, or levers, at the top of an inclined plane. A brake man.

lewis hole. A. A series of two or more holes drilled at any alteration of the operating radius. See also fluming. Ham.

lever. A simple machine consisting essentially of a rigid bar which has one fixed point about which it can turn. This point is known as the fulcrum. Morris and Cooper, p. 155.
lithene. An olive green to dark green, hydrous basic phosphate of copper, [Cu₄(PO₄)₂(OH)₃]·3H₂O. Often found with sphalerite, calcite, and dolomite. Lib. See also copper.


lifeline. A slide wire or cable extending from a work platform in a drill tripod or derrick at an oblique angle downward to an anchor on the ground, which the derrick or tripod man could grasp and use when sliding to safety in an emergency. Long.

lifeline. A diver's helper who remains by the lifeline as long as the diver is submerged. Ham.

lifetimes. The time for making up lies/gang banding. Banding in color in coal seam forma- tion. See also gang time, a. Fay.

life skill. The cover or flap of a valve. Fay.

lift. A. Scot. The time for making up lies/gang banding. Banding in color in coal seam formation. See also gang time, a. Fay.

lift. Eng. Applied to the contracted top spring, the soil of which is licked up by explosives. See also magazine; registered nuclear material, or byproduct material received, possessed, used, or transferred under a general or special license issued by the Atomic Energy Commission. LBL.

lift store. A place or building licensed by the local authority for the storage of explosives. See also magazine; registered premises. B.S. 3616, 1964, sec. 6.


lidded. In the coke-products industry, a laborer who lifts lids of charging holes of coke ovens and lifts coal from below. Fay.

lidded. Also referred to as peeling ACSB-3. Pryor.

life cycle. The roofstone of a coal mine. Fay.

lifeline. The roofline as long as the derrick or tripod man could grasp and use when sliding to safety in an emergency. Long.

life check. A metal identification check carrying out the liquid is discharged. Long. v. Eng. See lift gate. A lock gate which is raised vertically to open. Ham.

life. When in cutting or getting coal it makes a cracking or bursting noise and works easily, it is said to have life in it, or to be alive. Fay.

life. May be defined as the time in which, through the emolument of the available capital, the ore reserves—or such reasonable extension of the ore reserves as conservative geological analysis may justify—will be extracted. Hoe, p. 194.

life. When in cutting or getting coal it makes a cracking or bursting noise and works easily, it is said to have life in it, or to be alive. Fay.

life. The condition of a coal from which a coal entry can be made without the use of a cutter or other cutting tool. Fay.

life. A short, flat piece of wood or steel plate, welded over a post, timber set, or steel arch. A lid is used to tighten the support against the ground and also to increase the area supported. See also clog; derrick. Nelson e. A cap piece used in timbering. B.C.I. c. Eng. See headrise. SMRB, Paper No. 61, d. Eng. The roof of an ironstone working, from Forest of Dean coalfield. Fay. e. A cap or crossbeam on an upright prop. Standard, 1964, l. A steel plate wedged over a post, timber set, or coal reserves divided by the actual or projected average annual production. Nelson.

lift a. The vertical height traveled by a cage in a shaft. Fay. b. The distance that the first box or cable is used or between any two levels. Fay. c. Any of the various gangways from which coal is raised at a slope colliery. Fay. d. The position a piece of coal in the roofline of the seam as long as the derrick or tripod man could grasp and use when sliding to safety in an emergency. Long.

life. A certain thickness of coal worked in one operation. Fay. g. N. of Eng. To clear gas out of a working place. Fay. h. A broken jud. Fay. i. Penn. A block of coal measuring three-quarters of a mile on the strike by 1,000 yards to the rise. Fay. j. Eng. A rise in the price of coal or coal wages, from Forest of Dean coalfield. Fay. k. To break up, bend, or blast coal from the bottom of the seam upward. Fay. l. The plane approximately parallel with the floor of the quarry, along which the stone is usually split in quarrying. Fay. m. The upheaval of the floor in coal mines. See also creep. Nelson. n. The extraction of a coal pillar in lifts or slices. See also jud. Nelson. p. The quantity of ore between one haulage level and the next above or below. Nelson. q. A step or bench in a one haulage level and the next 'above or below. Nelson.

lifeline. A diver's helper who remains by the lifeline as long as the diver is submerged. Ham.


lifeline. The roofline as long as the derrick or tripod man could grasp and use when sliding to safety in an emergency. Long.

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lifting tackle

lifting wicket. S. of Wales. See lifting guard.

lift joint. A type of tensional fracture observed in massive rocks, such as granite, thought to originate from the removal of load by erosion. Such joints lie parallel to present or former ground surfaces. Stokes and Varnes, 1955.


Ligand field theory. A theory concerned with the changes in electronic energy levels of ions, especially of transition element ions, which occur when other ions or polar groups ligands are brought into their immediate neighborhood. Variations in the environment of the ion, for example, in the nature of the ligands or the symmetry of the complex arrangement in the spacings of the energy levels. This forms the basis of the modern explanation of the colors of crystals and of glasses. Dodd.

ligands. Molecular groups bonded about a central metal atom. If this offers one point of attachment the ligand is monodentate; if more, bidentate, etc. Bidentate ligands are also bidentate chelates. The number of uniden
tes which can surround a metal atom is a coordination number, four to six being common, each in its definite position. Pryor, 3.


light. a. A form of radiant energy which gives rise to the sensation of sight. Light travels through space with a velocity of 186,283 miles per second, in common with radio and other waves of electromagnetic nature but different wavelength. Anderson. b. Visible radiation or radiant energy capable of stimulating the eye so as to produce the sensation of vision. Sinclair, I, p. 199. c. In optical glass, the subclass of a lower index of refraction. ASTM C162-66.

light alloy. General term for alloys of aluminum, used for structural purposes; alloys of magnesium are also in use and are even lighter. Ham.

light blasting. Includes loosening up of shallow or small outcrops of rock and breaking boulders. It may constitute the entire job, be done in connection with dirt excavation, or follow heavy blasting which has failed to cut gradelines or slope lines, or has left chucks or piers too large to load. Nichols, p. 2-25.

light burden. See burden, j.


lightening. A peculiar brightening of molten sludge or liquid metal consisting of a metal wire with a light coating applied subsequent to the drawing operation, primarily for stabilizing the arc. Coal Age, v. 66, No. 3, Mar. 1961, p. 91.

lightman. One who uses an electric extension light as an aid in detecting blasters and flaws in the inside of green pipe. D.O.T. light metals; light metal alloys. The low-density metals and alloys, especially aluminum and magnesium, and their alloys. See also low-density metals. Henderson.

light mineral. A rock-forming mineral that has a specific gravity less than 2.8, including such minerals as quartz, calcite, feldspars, feldspathoids, and some micas. Also applied to the rock-forming minerals that are light in color; these minerals generally being the same as those that are classified as light on the basis of weight. A.G.I.

lightning arrester. A lightning arrester is a protective device for limiting surge voltages on equipment discharging or bypassing surge current; it prevents continued flow of follow current to ground, and it is capable of repeating these functions as specified. ASA M2.1-1963.

lightning explosion. Eng. An explosion of fire-damp caused by electric current, during a thunderstorm, entering a mine and igniting the gas. Fay.

lighting gap. A lightning gap is a break about 6 feet long made at the mine entrance in blasting circuits, used in firing blasts from the outside, to prevent lightning discharges from following the circuits into the mine. ASA M2.1-1963.

lightning protection. A system to enable high electrical discharges from thunderstorms and lightning to be conducted safely to earth by one or more conductors. The provision is very important in the case of mine explosive devices, and also headgear, tower winders, and chimneys. Nelson.

lightningube. See sulfite. C.M.D.

light oil. A crude fraction distilled from high-temperature coal tar, containing hydrocarbons distillable at about 200° C. See also heavy oil. Nelson.

light, polarized. Light that vibrates only in one plane. Fay.

light railway. A railway built to narrow gauge. Ham.

light gray. See metallic gray. Fay.

light green. See metallic green. Fay.

light gray. See metallic gray. Fay.

light water. Ordinary water (H2O) as distinguished from heavy water (D2O); D being the symbol for deuterium (heavy hydrogen or hydrogen 2). L.E.F.

lightweight aggregate. Aggregate of appreciably lower apparent specific gravity than that of ordinary aggregate. Taylor.

lightweight concreate. Concrete of appreciably lower unit weight than one made from gravel or crushed stone. Taylor.

lightweight expanded clay aggregate. A floated clay aggregate made by the sudden heating of suitable clays either in a rotary kiln (the original method used in Denmark in 1939) or on a sinter hearth. It is used as an aggregate for making lightweight concrete. Dodd.


ligroin; benzine


ligroin. Organic portion of benzine consisting of 25 percent or more of the tree; approximate composition C9H10O2, and considered to be aromatic or hydroaromatic. Pryor, 3.

ligroin sulfonates. See lignosulfonates. CCD 64, 1961.


lignite. a. A brownish-black coal in which the alteration of vegetal material has proceeded further than in peat but not so far as subbituminous coal. Fay. b. Consolidated lignite coal having less than 8,300 British thermal units (moist, mineral-matter-free). ASTM D388-38. c. Coal of low rank with a high inherent moisture and volatile matter; in this general sense, lignite may be subdivided into black lignite, brown lignite and brown coal. E.S. 3232, 1960. d. In the English language, "brown". Metallographically, the terms lignite and brown coal are used synonymously, although some authors confine the term brown coal to those coal seams consisting largely of easily recognized wood. In Germany, the term lignite is restricted to individual pieces of wood found in the brown coal. Tomkei. 1954, e. In France, it is combustible fossil fuel younger than Permo carboniferous, even though this includes Jurassic and other real coals. In Germany, it is partly carbonized wood and other vegetal substances of a clear color possessing more, the properties of wood than of carbon. Hess.

lignite-containing lignite. Fay.

lignito. Black. See as black lignite or subbituminous coal. Tomkei. 1954.


lignitic. To convert into lignite. Fay.

lignotif. Clarain laminae in coal; vitrain made of recognizable wood tissue. Tomkei. 1954.

lignius. Coal containing 75 percent to 95 percent of carbon (ashless, dry basis). Tomkei. 1954.


ligno-sulfonates: Basic Metallic sulfonic acids made from the lignin of sulfite pulp-mill liquors. Molecular weights range from 11000 to 20100. Light tan to dark brown powder; no pronounced odor; soluble in all organic solvents. Used as dispersing agents in concrete, in oil mud additives, in ore flotation agents, and in the production of gyspum slurries. CCD 64, 1961.

lignum fossile. Old name applied to fossil wood, peat or lignite. Tomkei. 1954.

ligroin; benzine; petroleum ether. a. The term lignite should be used instead of benzine or petroleum ether. CCD 64, 1961. b. A saturated, volatile fraction of petroleum boiling in the range of 100 to 200° C. Used as a solvent, chiefly in laboratories. Flammable; use with adequate ventilation; avoid prolonged inhalation. See lifting tackle.
ligroin; benzine

volatile; flammable; liquid; etheral or petroleum-like odor; specific gravity, 0.634 to 0.680 (at 25°C, referred to water at 25°C). It may be explosive if mixed with air and ignited; distillation range, 35° to 80°C; insoluble in water; and soluble in or miscible with most organic solvents and most oils. Derived from petroleum by distillation. Used as a solvent or as an extraction medium. CCD 6d, 1961.

lime blowing. The falling away of small pieces from the face of a clay building brick as a result of decomposition (following hydration and carbonation by the atmosphere) of nodules of lime present in the fired brick. Some brick clays contain nodules of calcite (CaCO3) which are converted into CaO during the kiln firing; these nodules can be rendered innocuous by fine grinding and hard firing. A cure that is more of an expedient is docking. See also docking, Dodd.

lime boil. A fraction in an open-hearth furnace caused by the decomposition of limestone and the escape of the carbon dioxide gas. This reaction begins before the ore boil is completed. See also ore boil. Newton, p. 320.

lime bostonite. A bostonite containing a notable amount of actual or normative anorthite in the plagioclase or pyroxene respectively. Holmes, 1928.

lime burner. One that burns limestone or shells to make lime. Webster 3d.

lime cartridge. A cartridge, 4 inches in diameter by 2 feet, 3 inches long, filled with compressed, ground lime. It is placed in a shot hole and the gases evolved by slaking the lime burn the charge of the coal which has been previously undercut to assist the process. It was introduced in 1881 by C. S. Smith and T. Moore. Nelson.

lime catcher. A filtering apparatus for extracting lime salts from the feed water of a steam boiler, thus preventing the deposit of scale in the boiler. Standard, 1964.

lime coal. Staff. Interior variety of coal suitable only for lime burning and similar purposes. Temkeieff, 1954.

lime crag. Scot. Limestone rock in situ; the face of a lichen growing on it. Fay.


lime feldspar. Micaformer for calcium feldspar. See also anorthite. A.G.I.

lime glass. A glass containing a substantial proportion of lime, soda, and silica. ASTM C162-66.

lime hydrate. Hydrated lime or calcium hydroxide. ASTM C162-66.

lime, hydraulic. See hydraulic lime.


lime kiln. A vertical shaft furnace or a rotary kiln for producing lime. Bureau of Mines Staff.

lime slaker. A brilliant light produced by white-hot quicklime, formerly used in lanterns and in theaters for illuminating the actors. Cooper, p. 291.

lime malachite. Apparently merely a malachite carrying pyrrhotite or calcite, or both, as impurities. Weed, 1918.

lime men. One who attends to slaking lime, protects against overspeed, overwind, too much steam and electric winding engines that should commence. Sinclair, V, p. 208.

lime mill. Eng. A light, wooden, or iron shaft for attaching pit ponies to the tram. Fay.


lime saturation value. The ratio of the actual lime content of a hydraulic cement to that calculated from an equation deduced as representing the amount of lime combined as silicate, aluminate and ferrite. Several such equations have been proposed; all are empirical. Dodd.


lime slaker. A thick layer indurated by calcium carbonate. Schieferdecker.

lime stone. Black. Webster 3d.

lime pit. a. A limestone quarry. Webster 3d. b. A pit where lime is made. Webster 3d. c. A pit where lime is used (as in liming hides). Webster 3d.


lime process. The method of mining coal by the use of the lime cartridge. Fay.

lime putty. The product that is obtained by slaking quicklime with an excess of water or soaking hydrated lime and, after settlement, siphoning off the excess liquor. Lime putty is highly plastic and its consistency varies with water content. Taylor.


lime refractory. Because of its abundance and high melting point (2,570°C), lime would be an attractive basic refractory but for its ready hydration and carbonation when exposed to the air. There has been much research on methods of stabilization, but the only accepted use of lime as a refractory has been as a container material for the melting of the platinum metals. Dodd.


lime rock. An unconsolidated or partly consolidated form of limestone, usually containing shells or shell fragments. Of marine origin. Urquhart, Sec. 8, p. 4.


lime slaking. The process of converting lime or limestone to lime slaker by slaking (calcining) at 900°C or by roasting (calcining) at 900°C. The lime slaker is a thick layer indurated by calcium carbonate. Schieferdecker.


lime-silicate rock. a. A rock that results from the high-temperature contact metamorphism of limestone containing silica and alumina under the influence of high temperature, commonly from an adjacent igneous body. The silica combines with the calcium oxide to form calcium-silicate minerals. C.T.D. b. A rock that results from the recrystallization of impure limestone containing silica and alumina under the influence of high temperature, commonly from an adjacent igneous body. It may also result from the recrystallization of pure limestone in the presence of high-temperature silica- and alumina-bearing emanations from an adjacent crystals-allizing magma. Among the calcium-silicate minerals formed in this way and occurring in lime-silicate rocks are anorthite, andenite, amphibole, forsterite, grossularite, scapolite, tremolite, vesuvianite and wollastonite. Bureau of Mines Staff.

lime slake. A thick layer indurated by calcium carbonate. Schieferdecker.

lime slaker. One who mixes lime and water in rotary slaker or open batch tank to make
limestone

milk of lime (slaked lime). Also called lime mixer; milk-of-lime slaker; slaker. D.O.T. 1.0.1

t lime slurry. A form of lime hydrate in aqueous suspension that contains considerable free water. Boynton.

lime-soda method. A treatment of water designed to remove both temporary and permanent hardness of water. The water is first analyzed to determine the degree of temporary and/or permanent hardness, then the amount of lime and soda ash required to remove the hardness is calculated. The insolubles are either filtered or are given time to settle. Cooper, p. 371.

lime-soda sinter process. A process for manufacturing alumina (ALO). The raw material, which may be clay or anorthosite, is sintered with limestone and soda ash to form sodium aluminate and calcium sulfate. The resulting slurry is then filtered, and the liquor is decomposed as in the Bayer process or it is treated with carbon dioxide to precipitate hydrated lime. When operated in conjunction with the Bayer process to recover alumina and soda ash, this method has been employed to produce a wide range of grades, from red mud, it is called the combination process. Bureau of Mines Staff.

lime-water. A clear, colorless, odorless, alkaline aqueous solution of calcium hydroxide, containing not less than 0.14 gram of Ca(OH)₂ in each 100 cubic centimeters at 15°C. Specific gravity, approximates the value 1.00 (25°C). Absorbs carbon dioxide from the air. Used in medicine. C.C.D. 6d, 1961.


liming material. A general term which includes all of the carbonate and noncarbonate (calcite), or calcium-magnesium carbonates (dolomite), or any combination of these two carbonates at least to the extent of 50 percent of the rock. If the carbonate is calcite, the rock is a calcitic limestone; if dolomite is also present, it is a dolomitic limestone; or if calcite is absent. Limestones are formed by the consolidation of calcareous ooze, which may be chemically precipitated from solution, derived from some preexisting limestone by the normal processes of rock erosion, or formed by organic agencies (coral reefs and shell deposits, for example). G. T. D. b. A bedded, sedimentary rock, consisting chiefly of calcium carbonate, which yields lime (quicklime) when burned (calcined). Limestone is the most important and widely distributed of the carbonate rocks and is the consolidated equivalent of dolomite limestone, or shell fragments. Stokes and Barnes, 1955. c. The suitability of the rock for the manufacture of lime is not constant. In general, the term limestone is applied to those rocks in which the carbonate fraction exceeds the noncarbonate constituents. Normally, a rock in which the carbonate fraction is composed primarily of calcite. Pettijohn, 24, 1957, p. 381. d. Usage included dolomite term dolomite limestone or dolostone, oilitic limestone, and crystaline limestone. Some highly crystallized limestones can be polished and are considered the most important and widely distributed of the carbonate rocks and is the consolidated equivalent of dolomite limestone, or shell fragments. Stokes and Barnes, 1955. e. The suitability of the rock for the manufacture of lime is not constant. In general, the term limestone is applied to those rocks in which the carbonate fraction exceeds the noncarbonate constituents. Normally, a rock in which the carbonate fraction is composed primarily of calcite. Pettijohn, 24, 1957, p. 381. d. Usage included dolomite term dolomite limestone or dolostone, oilitic limestone, and crystaline limestone. Some highly crystallized limestones can be polished and are considered the most important and widely distributed of the carbonate rocks and is the consolidated equivalent of dolomite limestone, or shell fragments. Stokes and Barnes, 1955. f. The suitability of the rock for the manufacture of lime is not constant. In general, the term limestone is applied to those rocks in which the carbonate fraction exceeds the noncarbonate constituents. Normally, a rock in which the carbonate fraction is composed primarily of calcite. Pettijohn, 24, 1957, p. 381. d. Usage included dolomite term dolomite limestone or dolostone, oilitic limestone, and crystaline limestone. Some highly crystallized limestones can be polished and are considered the most important and widely distributed of the carbonate rocks and is the consolidated equivalent of dolomite limestone, or shell fragments. Stokes and Barnes, 1955.

lime water. A clear, colorless, odorless, alkaline aqueous solution of calcium hydroxide, containing not less than 0.14 gram of Ca(OH)₂ in each 100 cubic centimeters at 15°C. Specific gravity, approximates the value 1.00 (25°C). Absorbs carbon dioxide from the air. Used in medicine. C.C.D. 6d, 1961.


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limonitization

limits law. The presence of combustible gases affect the limits of flammability. New limits can be calculated from the limits law: where L equals limits of flammability in volume percent; x, y, and z equal the percent of each gas present in the mixture; and Lx, Ly, and Lz equal the limits of flammability of gases x, y, and z, respectively. Mason, u. 1, p. 264.

limits of flammability. a. Extreme concentration limits of a combustible in an oxidant through which a flame, once initiated, will continue propagating at a specified temperature and pressure. J.C. 8197, 1985, p. 76. b. Usually expressed at the limiting percentages of methane in air, beyond which the mixture will burn. The lowest percentage of methane in air that yields a flammable mixture is called the lower limit of flammability, and the highest percentage of methane in air to yield, a similar mixture is called the higher limit of flammability. These limiting percentages depend on a number of factors, such as the initial temperature and pressure; whether the mixture is at rest or moving; the manner in which the mixture is confined, etc. With methane mixtures at ordinary mine pressures and temperatures, the lowest limit of flammability is about 5.4 percent of methane in air; higher limit of flammability about 14.8 percent of methane in air. Nelson.

limit switch. a. A device fitted to an electrically driven hoist or winding engine which becomes effective at the end of a wind to prevent the cage overwind or underwind. Nelson. b. A control to limit some function. Examples are pressure limit switches which shut off the fuel burner when the steam pressure reaches a predetermined point; temperature limit switches for hot water and warm air. Strock, 10.

limiter. A device which applies a preset limit to any operation or movement. NCB.

limner, Newc. The shafts by which the horses draw mine cars. See also limber. Fay.

limic. A term applied to eul al deposits which were formed inland in freshwater basins or peat bogs. Tomkeeff, 1954. Compare paralic. See also limnic coal basin.

limnic coal basin. A coal basin formed inland from the sea coasts— as opposed to paralic coal basin. A.G.J.

limnic peat. Peat formed beneath a body of standing water, consists mainly of the remains of planktonic organisms. A.G.J.

limnic. A yellow ochre or brown iron ore, containing more water than limonite. Fay.

limonite. Hydrous ferric oxide, Fe₂O₃·nH₂O, an important ore of iron, occurring in stalactitic, marmillary, or earthy forms, of a dark brown color and as a yellowish-brown powder. The chief constituent of bog iron ore. Also called brown hematite. See also brown iron ore. Webster 3d; 17.

limonite boxwork. Residual limonite of sulfide derivation left by oxidation in former sulfide voids and displaying a characteristic meshwork. Bateman.

limonite. Consisting of, or resembling, limonite in appearance. Fay.

limonite. The process of altering to or supplying with limonite. Standard, 1964.
limp


limp

A term used in the context of structural features that are linear rather than planes. Lineation may be expressed by the parallel orientation of the long dimensions of minerals, long axes of pebbles, striee on slickensides, streaks of minerals, cleavage-bedding intersection, intersection of two cleavages, and fold axis. Synonym for linear parallelism; linear structure. A.G.I. b. Linear parallelism in fabric of some clastic rocks caused by preferred alignment of the long axes of the component particles at the time of deposition. A.G.I.

line. A partition placed in an opening to divide it into intake and return airways. Hartman, p. 252. See also bratice.

line clinometer. A borehole-survey clinometer designed to be inserted between rods at any point in a string of drill rods. Compare clinometer; end clinometer; plain clinometer. Long.

line drop. Loss in voltage owing to the resistance of conductors conveying electricity from a power station to the consumer. Ham.

line electrode. A series of electrodes used in the method of drilling and boring. A.G.I.

line element. See element, linear. A.G.I.


linear acceleration. A property of a metamorphic rock whereby they break in long pencil-like fragments; results from two intersecting cleavages or from linear parallelism of platy or prismatic minerals. A.G.I.

linear alkylbenzene sulfonate. A high-quality, biodegradable detergent, obtained from lignite tar, which is derived from carbonizing coal at low temperatures. This detergent meets the most stringent requirements (for modern washday products. Bureau of Mines, 1961).

linear cleavage. A property of metamorphic rocks whereby they break in long pencil-like fragments; results from two intersecting cleavages or from linear parallelism of platy or prismatic minerals. A.G.I.

linear drop. Loss in voltage owing to the resistance of conductors conveying electricity from a power station to the consumer. Ham.

linear electrode. A series of electrodes used in the method of drilling and boring. A.G.I.

linear element. See element, linear. A.G.I.

linear expansion. The increase in one dimension of a soil mass, expressed as a percentage of that dimension at the shrinkage limit to any given water content. ASCE P1826.

linear flow structure. Lineation caused by flow in magma. A.G.I.

linear hydrophone. A directional hydrophone consisting of a single, straight line element or any array of contiguous straight electroacoustic transducers, disposed on the right line, or the acoustic equivalent of such an array. Hoy.

line drop. Loss in voltage owing to the resistance of conductors conveying electricity from a power station to the consumer. Ham.

line electrode. A series of electrodes used in the method of drilling and boring. A.G.I.

linear fibrous. A term used in the description of fabrics in rayon, nylon, and other synthetic fibers. A.G.I.

linear flow structure. Lineation caused by flow in magma. A.G.I.

linear measure. Includes the following: 12 inches (12 in.) equal 1 foot (ft); 3 feet equal 1 yard (yd); 5/16 yards equal 1 rod or pole; 40 rods equal 1 furlong; 8 furlongs equal 1 statute mile; 1 mile equals 1,760 yards or 5,280 feet; and 3 miles equal 1 league. Crispin, p. 121.

linear parallelism. See lineation. A.G.I.

linear structure. See lineation. A.G.I.

line structure. Deviations from perfect parallelism of parts of columnar dendrite as a result of interdendritic shrinkage during solidification from a liquid. A.G.I. c. A unit of length that equals one-twelfth inch. Fay. A cable, rope, chain, or other flexible device for transmitting pull. Nicholas, e. To line pieces up in order to couple them together. Nicholas, f. See plumbline. Fay.

lineage structure. Deviations from perfect parallelism of parts of columnar dendrite as a result of interdendritic shrinkage during solidification from a liquid. A.G.I. c. A unit of length that equals one-twelfth inch. Fay. A cable, rope, chain, or other flexible device for transmitting pull. Nicholas, e. To line pieces up in order to couple them together. Nicholas, f. See plumbline. Fay.

linear flow structure. Lineation caused by flow in magma. A.G.I.

linear structure. See lineation. A.G.I.

linear transducer. A transducer for which the linear dimension between separate measurements is linear rather than circular. Lineation may be expressed by the parallel orientation of the long dimensions of minerals, long axes of pebbles, striee on slickensides, streaks of minerals, cleavage-bedding intersection, intersection of two cleavages, and fold axis. Synonym for linear parallelism; linear structure. A.G.I. b. Linear parallelism in fabric of some clastic rocks caused by preferred alignment of the long axes of the component particles at the time of deposition. A.G.I.

linear structure. See lineation. A.G.I.

linear strain. See strain. ASM Gloss.

linear shrinkage. Decrease in one dimension of a soil mass, expressed as a percentage of the original dimension, when the water content is reduced to the shrinkage limit. ASCE P1826. See also shrinkage test.

linear strain. See strain. ASM Gloss.

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linen tapes

of the linen is much stronger and withstands rough usage better. Mason, v. 2, p. 724.


line of collimation; line of sight. A continuation of the line through the optical center of an object, and the intersection of the diaphragm hairs, and it is essential that this line be parallel to the axis of the bubble tube. Mason, v. 2, p. 724.

line of creep; path of percolation. The path that water follows along the impervious surface of contact between the foundation soil and the base of a dam or other structure. ASCE P1826.

line of dip. a. The line of greatest inclination of a stratum from the horizontal plane. Fay. b. The direction in which an inclined borehole is pointed. Long. c. A synonym for dip as applied to the inclination of a line. Long.

line of etch. See etch line. Long.

line of face of coal. A term sometimes employed for the main cleats in the coal. Nelson.

line of force. a. The straight line in which a force acts. Standard, 1964, a. A curve in a field of force drawn so that at every point it has the direction of resultant force; specifically, a line of magnetic force. Long.

line of least resistance; burden. The shortest distance between the center line of a drill hole and the free rock face. Fransel.

line of overturn. The intersection of a stratum with the ground surface. Schiefer., 1964.

line of reefs. A belt of country in which a series of saddle reefs occur at intervals. Fern.

line of seepage; seepage line; phreatic line. The upper free-water surface of the zone of seepage. ASCE P1826.

line of sight. The line of delivery or pointing line of a telescope, defined by the optical center of the objective and the intersection of the two strings or wires, as the case may be, represents the bearing or course to be followed. Fay.

line speed. See cable speed. Long.

line ups. The number of lines strung through the traveling block and crown block. Brantly, 2.

line, a. A foot piece for uprights in timber. Standard, 1964, b and c. Nelson. b. Timber supports erected to reinforce existing sets which are beginning to collapse due to heavy static pressure. Nelson. c. Leic. A bar put up between two other bars to assist in carrying the load. Fay. d. A string of casing in a borehole. Long. e. A replaceable tubular sleeve inside a hydraulic or pump-pressure cylinder in which the piston travels. Long. f. Casing of small diameter extending into a producing sand from just inside the bottom of the last string of casing cemented in a well. Institute of Petroleum, 1961. g. The slab of coating metal that is placed on the core alloy and is subsequently rolled down to clad sheet as a composite. ASM Gloss. h. In extrusion, a removable, alloy-steel, cylindrical chamber, having an outside-longitudinal taper firmly positioned in the container or main body of the press, into which the billet is placed for extrusion. ASM Gloss. i. See lining, h and i. Pryor, 3.

lines. Plumblines, not less than two in number, hung from hooks driven in wooden posts. A line is put through the center of the two strings or wires, as the case may be, for pump impellers exposed to abrasion and chemical attack. Pryor, 3. j. A cup or other hollow vessel partially formed on the wheel, to be finished in a mold. C.T.D.

lining mark. Eng. A drill hole in the mine roof with a wooden plug driven into it from which to hang a plumber. Fay.

lining, mill. Porcelain enamel mills are usually of steel construction having a lining of porcelain bricks which are so designed as to conform with the contour of the steel shell. Hansen.

lining sight. An instrument consisting essentially of a flat plate with a longitudinal slit in the middle, and the means of suspending it vertically. It is used in conjunction with a plumpline for directing the courses of underground drifts, headings, etc. Webster 2d.

lining up a mine. In surveying, placing the sights for driving entries, drifts, or rooms nearer the working face. Fay.

linishing. The operation of polishing as carried out on machine tools. This machine is designed for the polishing of flat objects and carries a flat revolving cloth belt whose surface is impregnated with a suitable abrasive material. Osborne.


link bar. A lightweight steel bar extending faceward from the steel supports behind

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The conveyor. It supports the area between the conveyor and the coal on longwall faces where cutter loaders are carried on railroad tracks. The chain-locking device may consist of a hinge pin and wedge. The standard bar can carry in addition to the conveying belt, such as the cutting edge on a fishtail bit, such as the cutting edge on a fishtail bit, long, straight carbon chain with three double bonds. Available commercially as a 50 to 60 percent pure alcohol. It is liquid at room temperature. Iodine value, 137;云点, 59° F; specific gravity, 0.855; at room temperature. Iodine value, 137; cloud point, 59° F; specific gravity, 0.855; and 0.855. Available used in floatation. C6D 6D1, 1961.


Lipulin. A special form of union characteristically applied to rocks formed of such materials, such as spore coal, pollen, etc. Tomkiewicz.


Lip union. a. A special form of union characterized by the affinity for molten sulfur. lip, a. The edge of the rippings in a road-face. lip angle. For a milling cutter. liparite. Synonym for rhyolite that is largely used among Europeans, although rhyolite is chiefly current in the United States and Canada. lipariite. Synonym for rhyolite that is largely used among Europeans, although rhyolite is chiefly current in the United States and Canada. The name is derived from the Lipari islands, off the coast of Italy, where this rock is abundant. Fay.

Lip type; lip. Scot. A small hitch or irregularity in the joints of a coal seam. Fay.


Linseed oil. Flotation agent used as collector in the flotation of lead ore. Fay.

Linseed fatty acid. Byproduct of manufacture of linseed oil. Flotation agent used as collector, emulsifier or stabilizer for dewatering, an uranium mineral. Fay., 3.

Linseed plastically. A design devised by M. Linsen for the evaluation of the plasticity of clay on the basis of two parameters; cohesion (measured as tensile strength) and the capacity for relative movement of the clay particles without rupture. The apparatus is made by Netzsche Bros., Selb, Germany. Dodd.

Linseed. A steel-gray, metallic mineral, Co3S4, or (CoNi)3S4, with reddish tarnish. Essentially cobalt sulfide but part of the cobalt is replaced by nickel, and 20 percent of the cobalt is replaced by iron and copper. Luster, metallic; Mohs' hardness, 5.5; specific gravity, 4.8 to 5. Found in Maryland, Missouri, Nevada; Germany. A source of cobalt and nickel. C6D 6D1, 1961.

Link bar. A link bar is a pin link or a roller link in a roller chain. For a silent chain, any one of the plates or links of which an assembled chain is composed. JOM.

Link plate. One of the side plates of either cross veinlets. Schieferdecker.

Linkenbach table. In mineral processing, a table for separating by size. CCD 6D1, 1961.

Linoleic acid. An unsaturated fatty acid, C17H31COOH, used as a collector in the flotation process. Fay., 3.

Linolenic acid. An unsaturated fatty acid, C18H33COOH. Pryor, 3.

Linolenyl alcohol. CH3CH=CHCH2CH2CH2CH=CH2; the fatty alcohol derived from linolenic acid. It has a long, straight carbon chain with two double bonds in it. Available commercially as a 50 to 60 percent pure alcohol. It is liquid at room temperature. Iodine value, 190; cloud point, 59° F; specific gravity, 0.863; and 0.855. Used in flotation. C6D 6D1, 1961.

Linoleal alcohol. CH3(CH2)=CHCH2CH2CH2CH2CH2OH; the fatty alcohol derived from linoleic acid. It has a long, straight carbon chain with two double bonds in it. Available commercially as a 50 to 60 percent pure alcohol. It is liquid at room temperature. Iodine value, 137; cloud point, 59° F; specific gravity, 0.855; and 0.855. Used in flotation. C6D 6D1, 1961.

Linophytre. A rock in which the phenocrysts are arranged in lines or streaks. Fay.

Lip Weber. Pertaining to porphyritic rocks in which the phenocrysts are arranged in lines or streaks. Holmes, 1928.

Linonite. A agatellite variety of thomsonite that is greenish with alternating bands of pink and green. From the Lake Superior region where it is cut and sold as a gem stone. Shipley.

Lipum virum; linium asbesti. Used to describe early forms of asbestos cloth. Sinclaire. W. E., P. 484.


Lippsche. A common term applied to stationary screens installed in the loading chutes over which the coal flows as it is loaded into railroad cars for market. Mitchill, p. 155. A small screen or screen bars placed at the drain hole of a coal pocket to take out the fine coal. Fay.


Lipite; liporite. The Nomenclature Subcommission of the International Committee for Coal Petrology agreed in 1962 to adopt these terms to describe a microcrhythype consisting mainly of the exinite group of macerals and especially of sporinite. Contains not less than 95 percent of exinite (lipite) with thickness (bands) of exinite greater than 50 microns recorded as lipite (sporite). Lipite (sporite) is a rare constituent of hard coal. IHCP, 1963, part 1.

Liptocolate. The resistant materials of plant decay, such as resins, waxes, spore, and exines, left behind after the less resistant parts of the plant have decayed. Also applies to rocks formed of such materials, such as spore coal, pollen, etc. Tomkiewicz.


Lip union. a. A special form of union characterized by the affinity for molten sulfur. lip, a. The edge of the rippings in a road-face. lip angle. For a milling cutter. liparite. Synonym for rhyolite that is largely used among Europeans, although rhyolite is chiefly current in the United States and Canada. lipariite. Synonym for rhyolite that is largely used among Europeans, although rhyolite is chiefly current in the United States and Canada. The name is derived from the Lipari islands, off the coast of Italy, where this rock is abundant. Fay.
liquefaction
cold or by pressure. *Webster 3d.* b. The state of being liquid. *Webster 3d.* c. The sudden large decrease of the shearing resistance of a cohesionless soil. It is caused by a collapse of the structure by shock or other type of strain and is associated with a sudden increase of the pore fluid pressure. It involves a temporary transformation of the material into a fluid mass. Also called spontaneous liquefaction. *ASCE P1826.*

**liquid.** a. The state of matter which has definite volume and assumes the shape of the containing vessel. *Griffin.* b. The three types are nonpolar: (1) a normal non-associated liquid with independent molecules (for example, carbon tetra-chloride); (2) polar-associated, with its molecules grouped and bonded (for example, water); and (3) semipolar, intermediate between the above (for example, alcohol). *Pryor.*

**liquid air.** Air in the liquid state but usually richer in oxygen than gaseous air. A faintly bluish-transparent, mobile, intensely cold liquid. Obtained by compressing purified air and cooling it by its own expansion in a temperature below the boiling points of its principal components, nitrogen (−195.8° C, at 760 mm) and oxygen (−182.96° C, at 760 mm). Used chiefly as a refrigerant and as a source of oxygen, nitrogen, and inert gases (as argon). *Webster 3d; Handbook of Chemistry and Physics,* 45th ed. *ASCE.* p. B-23, B-200.

**liquid hazing apparatus.** See Brown-Mills apparatus; Aerenechus apparatus. *McAdam,* p. 37, 42.

**liquid asphalt.** Asphalts which are more than 350. *Sinclair,* Sec. 2, p. 81.

**liquid controller.** The most common device used for speed control in electric winding systems. *Crispin.*

**liquid dump bailer.** See dump bailer. Long.

**liquid emulsion.** A mixture of two immiscible liquids, both liquids being in the finely divided state. *Webster 3d,* p. 81.

**liquid expeller.** A device used for separating the water from a liquid mixture by centrifugal force or contact with a second liquid, which is itself nearly insoluble in the first liquid and dissolves the impurities and unspecified substances. *CD 6d,* 1961. b. A process in which two immiscible liquids are brought into contact to effect a separation or transfer of substances between them. *NRC-ASA N1-1957.*

**liquid magnatic deposit.** Includes the following: straight magnetic mineral or ore deposits. *Schielerdecker Standard,* 1964.

**liquid measure.** Includes the following: 4 gills (pl) equal 1 pint (pl); 2 pints equal 1 quart (qt); 4 quarts equal 1 gallon (gal); 31/ 2 gallons equal 1 barrel (bbl); and 2 barrels equal 1 hogshead (hd). *Crispin.*

**liquid oxygen.** A highly concentrated oxygen which is used in industry and for respiratory purposes. *Pryor.*

**liquid oxygen explosive.** Sawdust or other suitable combustible material, formed into a cartridge and dipped into liquid oxygen before use in blasting. A little-used low explosive, with the value that in the event of a misfire it soon becomes innocuous. *Pryor.*

**liquid pitch oil.** See coal-tar creosote. *Benetti,* 2d, 1962.

**liquid platinum.** Liquid gold, silver, platinum.

**liquid pressure.** The pressure of a liquid on the surface of its container or on the surface of any body in the liquid is equal to the weight of a column of the liquid whose height equals the depth of the liquid at that certain point. *ASCE.*

**liquid silver.** See liquid gold, silver, platinum.

**liquidus temperature.** The maximum temperature at which equilibrium exists between the molten glass and its primary crystalline phase. *ASTM C162-66.*

**liquor.** A mixture of finely divided solid particles in suspension. If an impeller wheel is used to propel the suspension, the process is called wet blending. *ASME Gloss.*

**liquor inclusion.** A mineral found in fibrous crystals. *Bateman.*

**liquidity index.** Water-elasticity ratio; relative dry content. *Webster 3d.*

**live water content.** A ratio expressed as a percentage of the natural water content of a soil minus its plastic limit to its plasticity index. *ASCE P1826.*


**liquid-liquid extraction; solvent extraction.** a. A process in which one or more components are removed from a liquid mixture by contacting or contact with a second liquid, which is itself nearly insoluble in the first liquid and dissolves the impurities and unspecified substances. *CD 6d,* 1961. b. A process in which two immiscible liquids are brought into contact to effect a separation or transfer of substances between them. *NRC-ASA N1-1957.*

**litharge.** Lead.oxide, yellow. A native lead oxide. Also called litharke or lead oxide. *Sinclair,* 1964.

**limestone.** A plasticizer added to concrete to retard or ease the flow rate. *Sinclair,* II, p. 291.

**list mill.** In gem cutting, a wheel covered with list or cloth on which gems are polished. Also called list wheel. *Standard,* 1964.

**list pan.** A perforated skimmer for skimming the surface of molten tin. *Standard,* 1964.

**list pot.** In tinplate manufacturing, the last of a series of five pots used in coating the surface of tin. *Standard,* 1964.

**listric.** a. Descriptive of rock surfaces that are polished, but not striated as in slickensides. *B.S. 3616,* 1964, sec. 5. a. Descriptive of rock surfaces that are polished, but not striated as in slickensides. *B.S. 3616,* 1964, sec. 5.

**listric surface.** A moderately inclined overthrust sliding plane conceivably flexed towards the surface. *Schielerdecker.*

**listwarte.** A schistose rock of yellowish-green color composed of various combinations of quartz, dolomite, magnesite, talc, and limonite. *Holmes,* 1928.

**lity bed.** Eng. Soft freestone between the Chert Vein and House Cap in the Portland beds at Winstip in Purbeck. *Arkell.*

**listric bedding.** A sequence of rocks of nearly uniform lithology. *Arkell.*

**listric horizon.** A rock horizon that dips gently. *Arkell.*

**listric.** a. Descriptive of rock surfaces that are polished, but not striated as in slickensides. *B.S. 3616,* 1964, sec. 5. b. Descriptive of rock surfaces that are polished, but not striated as in slickensides. *B.S. 3616,* 1964, sec. 5.

**lithic.** a. Descriptive of rock surfaces that are polished, but not striated as in slickensides. *B.S. 3616,* 1964, sec. 5. b. Descriptive of rock surfaces that are polished, but not striated as in slickensides. *B.S. 3616,* 1964, sec. 5.
marginal; lead oxide, yellow

marked as such. The solid material that remains on the screens is ground wet, settled water, and dried. This product is known as leviigated litharge. The colors of the commercial grades vary from canary yellow through lemon yellow to reddish-yellow or red, while a very pure product has the color of yellow ochre. Mechanical compression will turn the pure yellow varieties red. Soluble in alkalies and acids; insoluble in water; specific gravity, 9.53; and melting point, 688° C. Used in ceramic and fluxes, in pottery and glasses, in glass, and in oil refining. CCD 6d, 1961. Also used in assaying. Also called manometric. Fey.


litharge-glycerin cement. Made by mixing glycerin with one-sixth to one-half portion of water and mixing with enough litharge to give a paste of desired consistency. Must be used as soon as mixed. Fillers retard the setting and avoid cracking. The product is somewhat resistant to acids. CCD 6d, 1961.

lithargeite. Wherry's name for litharge. Eng. J.


lithia amethyst. Kunzite, Shipley.

lithia emerald. Hiddenite, Shipley.

lithia mica. See lepidolite. Dana 17, p. 471.

lithiophorite. A manganous mineral near psilomelane, containing some lithium, Fey.

lithic. a. Synonym for lithologic. A.C.I. Supp. b. Refers to sediments and rocks in which rock fragments are more important than sedimentary matrix, is employed. Lithical, from the Greek for stone, is contrasted with petrical, referring to textural characters of rocks, that is those which are the complex of processes according to Krynine. Pettijohn, 2d, 1957, p. 888.

lithic graywacke. A low-rank graywacke, also added, in small amounts, to some lead-base bearing metals. Used also as a basis for lubricant grease with high resistance to oxidation and to changes of temperature, and as an ingredient of high-energy fuels. Isoptoe lithium 6 is used in hydrogen-bomb manufacture. Symbol, Li; valence, 1; isometric; atomic number, 3; atomic weight, 6.939; specific gravity, 0.534 (at 20°C and boiling point, 179°C); boiling point, 13¹°C; and decomposes in water. C.T.D.; C.T.D. Supp.; Handbook of Chemistry and Physics, 45th ed., 1964, pp. 2-5, 116-118, 187.

lithium. A soft, silvery-white metallic element of the alkali group (group 1), the lightest metal known, and never found uncombined in nature. Used, in alloy with calcium, as a deoxidizer for copper, and also added, in small amounts, to some lead-base bearing metals. Used also as a basis for lubricant grease with high resistance to oxidation and to changes of temperature, and as an ingredient of high-energy fuels. Isotopes lithium 6 is used in hydrogen-bomb manufacture. Symbol, Li; valence, 1; isometric; atomic number, 3; atomic weight, 6.939; specific gravity, 0.534 (at 20°C and boiling point, 179°C); boiling point, 13¹°C; and decomposes in water. C.T.D.; C.T.D. Supp.; Handbook of Chemistry and Physics, 45th ed., 1964, pp. 2-5, 116-118, 187.

lithium aluminate; lithium metaluminate. White; LiAlO2; orthorhombic; insoluble in water; melting point, 1,900° to 2,000°C; and specific gravity, 2.55 (at 25°C, referred to water at 4°C). Used as a flux in high-refractory, acid-resistant refractories. CCD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. 2-187.

lithium boroclicate. Li₂O·BO₂·SO₃. Used in low-temperature enamels and as a component of high-temperature, corrosion-resistant coatings. Lee.

lithium carbonate. White; Li₂CO₃; monoclinic; molecular weight, 84.27; specific gravity, 2.111; melting point, 795°C; decomposes at 1,310°C (at 760 mm); more soluble in cold water than in hot water; soluble in acids; and insoluble in alcohol and in acetone. CCD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. 2-187. It has been the principal source material for converting LiO into glasses, glazes, and enamels. It gives a low melting range, greater fluidity, and smoother surfaces post-metamorphism. Lee.

lithium ceramics. Ceramics based upon lithium aluminate, with some of its properties are of value in certain glazes. In addition to normal properties, it increases resistance to thermal shock, and can be produced with properties so controlled as to provide a range of coefficients of thermal expansion, from negative to positive. The ceramics are produced from blends of lithium-bearing minerals and clay or blends of ceramic raw materials to obtain the desired ratio of lithium, alumina, and silica. Osborne.

lithium cobaltite. Dark blue; LiCoO₂; and insoluble in water. Exhibits both the fluxing property of lithium oxide and the adherence-promoting property of cobalt oxide. Used in ceramics. CCD 6d, 1961. Used in certain ground coat enamel frits in place of cobalt oxide and also in some blue enamels, because the blue color is stabilized and intensified by it. Lee.

lithium fluorophosphate. White; crystals; LiF·Li₃PO₄·H₂O. Used in ceramics. CCD 6d, 1961.


lithium fluoride. White; LiF; isometric; molecular weight, 25.8; specific gravity, 2.55 (at 20°C); melting point, 842°C; boiling point, 1,676°C; slightly soluble in water; does not react with water at red heat; soluble in acids, including hydrofluoric acid; and insoluble in alcohol. Used in welding and soldering fluxes, in ceramics, as synthetic crystals in infrared and ultra-violet instruments, and proposed for use in space components. CCD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. 2-187. Has high fluxing power in glasses, glazes, and enamels. Used in acid-resistant, cover coat enamels. It provides a valuable component of leadless glasses. Its low solubility permits using it as a mill addition. Lee.

lithium hydride. LiH; colorless; tetragonal; specific gravity, 1.46; melting point, 462°C; decomposes at 924°C; soluble in water; and slightly soluble in alcohol. Used in ceramics. CCD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. 2-188.

lithium hydroxide monohydrate. LiOH·H₂O; colorless; monoclinic; specific gravity, 1.51; soluble in water; slightly soluble in alcohol; and insoluble in ether. Used in ceramics. CCD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. 2-188.

lithium manganite. Reddish-brown; Li₄MnO₄; insoluble in water; and extremely stable. Used as a smelter addition in the manufacture of frit and is used in ceramic-bonded grinding wheels. CCD 6d, 1961.

lithium metaborate dihydrate. White; crystals; Li₂O·H₂O; soluble in water, melting point (anhydrous), 104°C. Used in ceramics as a flux in enamel cover coats and it increases resistance to toning. CCD 6d, 1961.

lithium metasilicate. Colorless or white; Li₂SiO₃; orthorhombic; specific gravity, 2.52 (at 25°C, referred to water at 4°C); melting point, 1,201°C; insoluble in cold water and soluble in dilute hydrochloric acid. Used as a flux in glasses and ceramic enamels. CCD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. 2-188. Has been used as a smelter addition in titania-opacified enamels to lower the firing temperature and improve surface texture. The strong fluxing properties are of value in certain glasses.

lithium nitrates. See lepidolite.

lithium minerals. a. Main mineral sources of the element lithium such as spodumene (LiAl(Si₂O₆)); amblygonite (Li(AlF)PO₄); and lithium mica, lepidolite. Pryor, J. B. Used in glassmaking and ceramics. Mined in North Carolina and South Dakota. Barger.

lithium niobate. LiNbO₃; a ferroelectric compound having the lithium tantalite structure and of potential interest as an electroceramic medium. Dodd.

lithium oxide. Colorless or white; Li₂O; tetragonal trigoonal; specific gravity, 2.38; melting point, 261°C; decomposes at 600°C; soluble in water, in alcohol, and in ammonium hydroxide. CCD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. 2-188.

lithium tantalite. LiTiO₂; a ferroelectric
lithium tantalate

A dull, very close-grained structure giving the rock a strong appearance. The rock may or may not contain this glassy material. The term lithoidal is used in opposition to viroose, and is especially applied to rocks formerly about which have become partially devitrified, for example, obsidian. *Nelson.*

lithoidite. A rhyolite with a dull, stony luster. *A.G.I.*

lithologic. Pertaining to lithology, or the study of rocks. Also pertaining to rock character. See also petrology. *Fay.*

lithologic correlation. The matching or linking up of identical rock formations, veins, or coal seams, exposed in different areas. *By lithology. See also correlation. *Nelson.*


lithology. A. The character of a rock described in terms of its structure, color, mineral composition, grain-size, and arrangement of its component parts; all those visible features that in the aggregate impart individuality of the rock. Lithology is the basis of correlation of coal mines and, commonly, is reliable over a distance of a few miles. *Nelson.* b. The study of rocks based on the megascopic observation of hand specimens. In French usage, the term is synonymous with petrography. *Holmes,* 1928.

lithomarge. Compact kaolin; mineral. *Benjamin.*

lithophosphate. A mineral, such as barite, that becomes phosphorescent when heated. *A.G.I.*

lithophyl. A petrified leaf or its impression, especially silicates. *A.G.I.*

lithosome. A group name for stony iron meteorites belonging to the subgroups of siderophyre and pallasite. *Compare siderealite. Holmes,* 1928.

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lithosphere. The solid globe of the earth, as contrasted with the enveloping hydrosphere and atmosphere. Especially, the crust, or the outermost portion or shell of the globe, of unknown thickness and is believed from direct observation or reasonable deduction to consist of solid rock, as distinguished from the unknown barysphere or centrosphere. *Fay.*

lithotope. An area of uniform sedimentation. *Schlesinger.*

lithotype. a. This term was proposed by C. W. Seely in 1954 in a communication to the Nomenclature Subcommittee of the International Committee for Coal Petrology to designate the different macroscopic bands of humic coals. These bands were described by M. C. Stopes in 1919 as the four visible ingredients, in banded bituminous coal. The following macroscopic bands are distinguished in humic coals: vitrain, clarain, durain, and fusain. *Hey,* 1963, part 1, b. A rock defined on the basis of certain selected physical characters. *A.G.I.* Supp. 2d. Wood opal, water-transparent, cloudy structure. *Hey,* 2d, 1955; *Hey.*

lithyalin. The patent name used by Friedrich Egermann of his opaque marbled glass. *Hey.*

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littoral current

which usually moves parallel to and adjacent to the shoreline within the surf zone. See also longshore current. A.G.I.

littoral drift. A deposit of littoral drift located between high- and low-water lines. A.G.I.

littoral. Applied to the movement along the coast of gravel, sand, and other material composing the bars and beaches. A.G.I. b. Material moved in the littoral zone under the influence of waves and currents. A.G.I.

littoral rock. A rock composed of the coarse material deposited within the limits of the littoral zone through the agency of the waves and tidal currents. Standard, 1964.

littoral zone. a. In subsidence, the zone that embraces the disturbed strata lying round about and outside the mineral strata. Briggs, p. 61. b. The marine environment influenced by a land mass; the coastal region. Hy. c. The zone between the level of the highest tides and the lower limit of illumination. Also called intertidal zone. Schieferdecker. d. The coastal strip lying between the lines of lowest and highest tides. Also called intertidal zone. Schieferdecker.

defined.

live a. Electrically charged. In mechanical electricity to the inner end of the hose or wire wound on it.

live load. a. In drilling, a variable load sus-

cpected of being a dynamic load, and it does not include wind load or earthquake shocks.

live roller conveyor. A series of rolls or rollers while being undermined or sheared coal that may be chipped off in good-sized pieces while being undermined or sheared with a pike. Fay.

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live bearing test


Lloyd Davis formula. A formula in use in Great Britain for calculating the amount of run off, from which sizes of sewers are determined: Run-off water in cubic feet= 0.8 times the area drained in acres times the rainfall in inches per hour times the impermeability factor. Ham.

LSL. See shallow investigation laterolog.

Lith. Abbreviation for local mean time. Zimmerman, p. 64.


load. a. Unit of weight of ore used in the South African diamond mines; equal to 1,600 pounds or 0.8 short tons. The equivalent of about 16 cubic feet of broken ore. I.C. 8200, 1964, p. 149, b. Scot. An old measure of weight for coal. Fay. c. To transfer material to a ruling unit or hopper. Nichols. d. Sometimes used as a synonym for bit load. Long. e. The act or process of placing an explosive in a borehole; also the explosive so placed. Also called charge, a and b. Long. f. The weight borne by a structure caused by gravity alone (dead load) or by gravity increased by the stress of moving weight (live load), as in the case of hoisting a string of drill rods. Long. g. Full mine wagon. Maun. h. The resistance to a motor of the machinery that it drives, apart from its own friction. Standard, 1954, p. 912. i. In geology, the amount of material that a transporting agency, such as a stream, glacier, or the wind, is actually carrying at a given time. Leti. k. See pull, k. ASTM C162-66.

load-bearing test. Load-bearing tests may be divided into two types, horizontal and vertical. Both types give evidence as to the bearing resistance of the test pit into the region which is being investigated. This test pit must be excavated with a minimum of blasting, with particular attention to the bearing surfaces to avoid disturbance of the foundation rock. In the horizontal test, a hydraulic jack may be used to apply loads to a probe or a core extracted from the core of the probe. The load is increased in increments, and the load at which the core is broken is recorded. The test is repeated on the opposite wall of the pit. The
load-bearing test

thrust is applied 6 to 8 feet from the pit floor to minimize the effect of that boundary. Sufficiently large bearing plates eliminate the need for a pit floor on the bearing plates and the rocks to secure uniform contact. Deflection of the load-bearing plate is measured by means of dial gages mounted two to a plate to get the average deflection. Deflections of the rock outside the bearing plates are also measured. In vertical tests, a hydraulic jack, working against a dead weight, applies loads to a single bearing plate seated against the bottom of the pit. Where the rock is severely fractured, upward movement of the area adjacent to the bearing plate is restricted by use of a reinforced concrete mat at the bottom of the test pit; the load being applied through a central hole in the mat. Dial gages are used in the same manner as in the horizontal tests. Tests are conducted for periods extending from a few hours to several weeks duration. Load-bearing tests are being utilized to an increasing extent as a source of information for the design of heavily loaded surface structures and have been the subject of several seismic tests where the foundation rock is highly shattered. Lewis, pp. 576-577.

load-bearing tile. Tile for use in masonry constructions designed to carry superimposed loads. ASTM C43-65T.

load-bearing wall. A wall carrying any load that is imposed on the drive. JaM. c. Also called binder. A lever that pulls two grab-hooks together, and holds them by locking over center. Nichols.

load cast. The bulbous, mammillary or pailiform downward protrusions of sand produced by load deformation of underlying hydrolastic mud; due to yielding under unequal load. Also called flow cast. Pettijohn.

load-cast markings. Flutes, grooves and other current marks swollen and misshapen due to load casting. Pettijohn.

load-cast sole marks. See load cast curvatures on the sole of a coal.

load-cast curvatures. Small-scale, rather poorly defined, irregular, linear structures appearing on the sole of coal that are attributed to dense sluggish turbidity current moving over soft mud. Pettijohn.


load cell. Consists essentially of a hollow steel cylinder capped top and bottom by a steel plate. Strain gages are bonded on the inner wall of the cylinder in such a way that as the cylinder is compressed so the strain gages affixed thereto will be distorted with a resultant change in resistance. This instrument is designed for measuring the load transferred from the load-casting mechanism to props or other units used for support. Isackson, p. 212.

load classification. A classification of drive loads based on the peak or maximum of the shock that is imposed on the drive. JaM.

load controller. A device to control the load and peak pressure of the striking or impacting chisel or chuck receiving coal or mineral from several loading points or subsidiary conveyors. The machine designed to travel over the seam and is installed on the main belt a short distance before the intermediate loading point. When the main belt is fully loaded, the time for this break and causes a break in the electrical circuit of the inter-

mediate conveyor which is stopped. Immediately the flood loading on the main conveyor is finished, the load controller operates and starts the subsidiary conveyor. See also sequence control. Nelson.

load dropper. Ark. A person who drops down a lightly inclined track, one at a time. Fay. See also car runner; car dropper. D.O.T. 1.


load fold. Load folds are plications of the underlying stratum which are believed to be the result of unequal pressure from the overlying load pockets and waves. Pettijohn.

load impendence. The load impendence of an energy load is the impendence which would be measured at the terminals of that load if they were not connected to a source. HaG.

load indicator. A measuring device used to indicate the load or weight suspended on a drum hoisting line or cable. Long.

load, machine I. In anthracite coal mining, biterminer, a miner who operates a small electric or air-power shovel in underground working places to load ore or rock into cars after it has been blasted from the working face. Also called loader operator; loading-machine operator; mechanical-shovel operator; shovel loader.

load, machine II. In anthracite coal mining, bituminous coal mining, metal mining, one who operates a loading machine consisting of a small hoisting engine and a cable-drawn scraper, or scoop, to load ore or rock into cars after it has been blasted from the working face of underground or open-pit mines. Also called scraper-loader hoistman; scraper-loader operator; scraper operator. G.F.

load-off. Eng. A man who regulates the sending out of the full cars from a long-wall stull, or gate. Fay.


load-extension curve. A line plotted from the results of a tensile test, or a load-extension curve, the loadings being shown as ordinates and the elongations of the gauge length as abscissae, thus relating the extension of the material under test to the applied load. See also stress-strain curve. Ham.

load factor. a. The ratio of the average compressor load during a certain period to the maximum rated load of the compressor. Lewis, p. 663. b. The ratio of the collapse load to the working load on a structure or section. Taylor. c. In electric power engineering, the ratio of average electrical load to peak electrical load usually calculated over a 1-hour period. L.A.L. d. Average load carried by an engine, machine, or plant, expressed as a percentage of its maximum capacity. Nichols. e. Ratio of average output during a period to maximum output during the period. Sometimes expressed as a percentage of output to maximum capacity. Strock, 10.

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loading belt. A loading boom in which the
loading belt

conveying element is a belt. B.S. 3552, 1962.

loading boom. a. In coal preparation, an
overhanging steel chute for loading coal
into rail wagons or lorries; usually capable of
vertical movement as loading proceeds
to minimize breakage. Grove. b. See loader

loading boss. See loader boss. D.O.T. 1.

loading chute. a. A three-sided tray for
loading or transferring material from one
point to another. See also chute. Nelson. b. A gravity chute used to convey
coal from a pocket or the screen to the
railroad car. Mitchell, p. 801. c. Used to
direct material to a conveyor. ASA MH 4.1-1958.

loading chute, screen. See screen loading

loading conveyor. Any of several types of
conveyors adapted for loading bulk ma-
terials, packages, or objects into cars,
trucks, or other conveyors. ASA MH 4.1-
1958.

loading density. The number of pounds of
explosives per square foot of drill hole.
Nelson.

loading equipment. Mechanical shovels or
other machines singly or in combination
used to load excavated or stockpiled ma-
terials into trucks, mine cars, conveyors,
or other materials transportation or haul-
age units. Bureau of Mines Staff.

loading factor. In ion exchange, pounds of
uranium oxide, U3O8, which can be loaded
per cubic foot of resin. Pryor, 3.

loading gate. Dimensions limiting the height
and width of rolling stock including any
loads. Ham.

loading head. That part of a loading ma-
chine which gathers the coal or rock and
places it on the machine's elevating con-

loading head man. A man who operates the
loading device of a duck bill or other type
of conveyor equipped with self-loading
head for the mechanical underground
loading of coal or other mineral. Hess.

loading hopper. A hopper used to receive
and direct material to a conveyor. ASA

loading machine. A machine for loading
materials such as coal, ore, or rock into cars
or other means of conveying for trans-
portation to the surface of the mine. ASA

loading machine operator. a. A person who
operates a single loading machine. Grove.

loading runner. See loader, machine
D.O.T. 1.

loading pan. A box or scoop into which
rock is shoveled in a sinking shaft
while the hoist is traveling in the shaft.
A small hoist is used to lift and discharge
the load at the bottom of the shaft.
Nelson.

Fay.

loading point. a. The place where coal or
ore is loaded into cars or conveyors; where
a conveyor discharges into mine cars;
where a wheel loader releases its load. See
also transfer point. Nelson. b. N. of Eng. Where
coal is transferred from a mother gate or
truck belt conveyor into tubs. Trut.

loading ramp. A surface structure, often in-
corporating storage bins, used for gravity
loading bulk material into transport vehi-
cles. Nelson.

loading ratio. In quarrying, the number of
tons of rock blasted per 1 pound of explo-
vive. This term is confusing because in
soft rock the ratio is high whereas con-
sumption is low. The harder the rock, the

Also called powder factor.

loadings. Eng. Pillars of masonry carrying a
winding drum or pulley. Fay.

loading shovel. A mechanical shovel able to
operate as a forklift truck, a crane, or a
loader. Ham. See also shovel loader.
Nelson.

loading station. A device which consists of
one or more plates, or a hopper which
receives and places material on the 
conveyor belt for transport. When such a
loading station is located at the tail end,
it is known as a tail-end loading station;
when it is located along the intermediate
section, it is known as an intermediate
loading station. NEMA MB1-1961.

loading-unit boss. See loader boss. D.O.T. 1.

loading weight. Weight of a powder which
is filled into a container under stated
conditions. Pryor, 3.

load metamorphism. The change in rocks
supposedly brought about by a regular
increase in temperature and hydrostatic
pressure through deep burial. A.G.I.

load mold. The depression in the underlying
bed occupied by the load pocket. Pettijohn.

load of ore. Derb. In mines where ore is
taken out of the mine. Fay.

load pocket. A load pocket is a sole mark
formed in the pans into the hopper and
into the hoppit. Where a wagon or lorry is
loaded. See also pocket.

load pressure. The ratio of the output power
of the transducer to the load power of
the transducer. HaG.

load wave. The load voltage of an energy
load is the root-mean-square voltage be-
tween the terminals of that load when
connected to a specified source. HaG.

load wave. A load wave (wisp or plume) is
the salient curved unevenness of under-
lying material which appears to have been
squirted up into the superjacent turbidity-
current deposit. See also flame structure.
Petitjohn.

load. a. A mixture of sand, silt, or clay,
or a combination of any of these with
organic matter, humus. It is sometimes
called topsoil in contrast to the subsoils
that contain little or no organic matter.
ASCE PI1260. b. In founding, a mixture of
sand and clay to wash straw, horse
dung, or other binding material is fre-
quently added; used to make molds for
iron or brass castings. Standard, 1964.
c. A potter's clay, containing mica or iron
ocher. An impure clay. Fay.

load beater. A rammer or bag for making a

load board. A founder's tool and template
used in making cores of load. Fay.

load box. A container in which load is
boiled in water by leading a steampipe
into the mixture; the mixture is used in
load furnace runners. Pettijohn.

load cake. A disk of dried load used to
cover a load mold, having holes through
which melted metal is poured and air

load casting. A casting made in a load mold.

load. a. A method used in prospecting for
tracing a hidden ore body consisting in
systematically testing the surface material
for indications of gold. As the ore body
is approached, the ground may become
richer or carry more soil material. See also
grooehmistry. Nelson. b. A method of
prospecting for a metalliferous vein or
mineralized area (source of eluvial min-
eral); dirt is washed from placer mines
systematically around and up the slope
of a hill. Presence, absence and the number
of colors in the minerals eventually
indicate the mineral source. Hess. c. In
Tasmania, prospecting surface soil in an
effort to locate the source of different
minerals. Hess. d. In Australia prospecting
by which the earth of a hillside is washed
(panned) to locate mineral deposits, the
panning being continued in the direction
of the greatest richness. Hess.

load mold. a. Mold for casting metal in
which low grade of sand is used with
clay, backed by brick or similar substance.
Bennett 2d, 1962. b. A founder's mold
made of load and originally requiring no

load molding. The act or operation of sweep-
ing up a mold in load, by templates;
distinguished from dry-sand molding.

load mold. A condition showing a pattern.
Lobbe Hobel.

lobe plume structure. See flute cast. Pettij-
on.

lobe till mark. The lobe till mark is ap-
parently the same as flute cast. See also
lobe cast. Pettijohn.

Lobbe Hobel. An earlier type of rapid ploughing...
local extension. The extension which is local. Current density. Current density local. A natural earth local corrosion. This is the difference local 'current. A natural earth local 'current. A natural earth local action. Corrosion due to the action of local syngenetic Pattern. In geochemical exploration to indicate presence of certain metallic elements from the soil and which can be used in geochemical exploration to indicate presence of local concentrations of metals. Compare universal plant indicators. They include the following:

- Genus & Species
  - Anabasis salsa
  - Salsolea sp.
  - Allium sp.
  - Salsolea nitaria
  - Eurotia ceratoides
  - Limonium sulcatum
  - Polycarpa spiristylis
  - Elhotechia haichowensis
  - Retaholita mexicana
  - Armoria martiana
  - Enigma inuliflora
  - Eriogonum inflatum
  - Betula sp.
  - Clisia rosea
  - Eriogonum giganense
  - Convolvulus althaeoides
  - Astragalus preussii
  - Astragalus sp.
  - Eriogonum ovalifolium
  - Philadelphus sp.

location plan

local plant indicators. Plants of wide geographic distribution having an affinity for absorbing certain metallic elements from the soil and which can be used in geochemical exploration to indicate presence of local concentrations of metals. Compare universal plant indicators. They include the following:

- Common Name
  - Salicornia
  - Ononis
  - Suaeda
  - Salsola
  - Glycine
  - Adenophora
  - Mentzelia spp.
  - Eriogonum inflatum
  - Convolvulus althaeoides
  - Clusia rosea
  - Eriogonum giganense
  - Convolvulus althaeoides
  - Astragalus preussii
  - Astragalus sp.
  - Eriogonum ovalifolium
  - Philadelphus sp.

location plan

local peat. Peat produced under the influence of ground waters. Also called basin peat. It is divided into (1) low moor stage peat and (2) raised moor stage peat. Tomkeiff, 1954. See also basin peat; and raised moor peat.

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  - Polycarpa spiristylis
  - Elhotechia haichowensis
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  - Armoria martiana
  - Enigma inuliflora
  - Eriogonum inflatum
  - Betula sp.
  - Clisia rosea
  - Eriogonum giganense
  - Convolvulus althaeoides
  - Astragalus preussii
  - Astragalus sp.
  - Eriogonum ovalifolium
  - Philadelphus sp.

location plan

local current density. Current density at a point or on a small area. A.M. Gloss.

local current density. Current density at a point or on a small area. A.M. Gloss.

local corrosion. Corrosion due to the action of local cells; that is, galvanic cells resulting from inhomogeneities between adjacent areas on a metal surface exposed to an electrolyte. The inhomogeneity pattern may be of physical or chemical nature in either the metal or its environment. A.M. Gloss.

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location plan

660
location plan

scale, showing the proposed mine development, shafts, works, etc., in relation to existing surface features. See also site plan.

location survey. a. See location, a. Fay. b. Laying out the line of railroad or canal, or any works.

location work. Labor required by law to be done on mining claims within 60 days of location, in order to establish ownership. Weed, 1922. Synonymous with assessment work. Fay.

locator. a. A prospector who according to the law is required to find valuable minerals in place on the surface as a condition preliminary to making a location. Lewis, p. 23. b. One who locate (or stakes) a mining claim; a prospector. Bureau of Mines Staff.

lock. a. In a compressed air system, a chamber that any one entrance is not entirely in one place. Where two or more changes occur, it is called a compound lock; where a lock is placed in the direction of the flow, the lock is called a counterclock. ASM Gloss.

lockage. Water consumed in passing from the upper reach of a canal when a vessel passes through a lock. Ham.

lock band. A course of bondstones. Standish.

locked particles. Particles of ore consisting of a lode channel. The track of the lode along which the ore body may make or develop again. Nelson.

locked test. In laboratory tests on small quantities of ore, a method in which any selected fraction of the product is added to a fresh batch of the sample, so that the cumulative effect of its retention can be studied. It is an alteration of the verb lead; and which the miner could be led or guided. The term lode simply meant that formation representing only a small portion of the total tractive effort. Kentucky, p. 225.

lock band. A course of bondstones. Standish.

lock piece. Eng. A piece of timber for supporting the mine workings. See also lock timber. Fay.

lockpin. Any pin or plug inserted in a part to prevent play or motion in the part so fastened. Crispin.

lockport limestone. Marine, highly fossiliferous strata of the top of the scarao and the lip of the Niagara Falls, having a thickness of 130 feet above the falls, and faunally closely resembling the Wenlock limestone in England. Sometimes called Niagara limestone. C.T.D.

lock silt. A raised portion of the floor of a lock chamber, forming a stop against which the lock gates bear when they are shut. Ham.

lock timber. Eng. An old plan of putting in stull pieces in Cornwall and Devonshire. The pieces were called lock pieces. Fay.

lockup clutch. A clutch that can be engaged to provide a nonslip mechanical drive through a fluid coupling. Nichols.

locking bolts. Bolts of any type used for resisting wear. Such ropes are used in bituminous coal mining, one who works on an intake airway of a mine for servicing locomotives. It contains two or three rail tracks (with pit space under one), good lighting, lifting equipment, oils, benches, and tools. Where battery locomotives are used, the garage will serve as a charging station. An average air velocity of about 150 feet per minute is desirable in underground garages. Nelson.

locomotive brake. An electric engine, either operating from current supplied from trolley and track or from storage batteries carried on the locomotive. In some foreign countries, operated with compressed air. Used to move empty and loaded mine cars in and out of the mine. B.C.I. See also mine locomotive; electric mine locomotive; electric locomotive.

locomotive arches. Arches built of special refractory material, either fired or made by water-circulating members. Bureau of Mines Staff.

locomotive brake man. In anthracite and bituminous coal mining, one who works on trains or trips of cars hauled by locomotive or motor, displaced from rope haulage. Also called locomotive helper; locomotive patcher; motor brakeman; motor nipper; polman. D.O.T.

locomotive crane. A crane traveling on a standard gage railway track. Ham.

locomotive garage. An apparatus used recess in an intake airway of a mine for servicing locomotives. It contains two or three rail tracks (with pit space under one), good lighting, lifting equipment, oils, benches, and tools. Where battery locomotives are used, the garage will serve as a charging station. An average air velocity of about 150 feet per minute is desirable in underground garages. Nelson.

locomotive gradient. The statutory maximum gradient for locomotive haulage is 1 in 15, but ordinarily the practical limit is about 1 in 3. Roads driven specially for locomotives are normally graded about 1 in 400 in favor of the load, unless a steeper gradient is required for drainage. Nelson.

locomotive haulage. The transport of coal, ore, men and materials underground by means of locomotive hauled mine cars. The locomotive may be powered by battery, diesel, compressed air, trolley, or some combined types such as battery/trolley or trolley/diesel. The ton-mileage of locomotive haulage has steadily increased to about 15 tons and 100 horsepower. Nelson.


locomotive pan brick. Shapes, used to build locomotive pan brick. Shapes, used to build locomotive resistance. The combined resistance caused by the friction of the journal and the wheel tread. It may vary from 12 to 20 pounds, but for practical purposes may be taken as 15 pounds, as the locomotive represents only a small portion of the total tractive effort. Kentucky, p. 225.


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locked particles. Particles of ore consisting of a lode channel. The track of the lode along which the ore body may make or develop again. Nelson.

locked test. In laboratory tests on small quantities of ore, a method in which any selected fraction of the product is added to a fresh batch of the sample, so that the cumulative effect of its retention can be studied. It is an alteration of the verb lead; and which the miner could be led or guided. The term lode simply meant that formation representing only a small portion of the total tractive effort. Kentucky, p. 225.

lockage. Water consumed in passing from the upper reach of a canal when a vessel passes through a lock. Ham.

lock band. A course of bondstones. Standish.

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lodestuff. Minerals included in a lode or lode plot. A horizontal lode. Fay.

lode tin. Tin ore (cassiterite) occurring in lodranite. A siderolitic meteorite containing planes through the surface lines. See also face location. The extension of inclined boundary which lies their entire depth, all mum width is 600 feet. A tract of land veins, as distinguished from stream tin or vein, a vein in rising ground. Fay.

mariners. Nelson. b. Stone found in veins through the surface boundaries. Fay.

meters square, and is bounded by vertical lines, much litigation. In Meixco a claim is 100 rights the side of the vertical side planes of the surface climb, the other at a distance from the plane, and ledges throughout their downward course may extend out-

of the lode or vein is 1,500 feet and the maxi-

mum width is 600 feet. A tract of land veins, as distinguished from stream tin or vein, a vein in rising ground. Fay.

minerals. Included in a lode or vein, including economically valueless gangue. Pryor, 3.

mold. Tin ore (cassiterite) occurring in veins, as distinguished from stream tin or placer tin. A.G.I.

lodge. a. A reservoir of any size used for holding water in a mine. A sump or stand-

age. Also called lodgement. B.S. 3619, 1963, sec. 4, b. Eng. A subterranean reservoir for drainage of the mine, made at the shaft bottom, in the interior of the workings, or at different levels in the shaft. Fay. c. A sump. Fay. d. Scot. A cabin at the mine shaft for workmen. Fay. e. Wales. See platt. Fay. f. The room or flat at the shaft into which the pushers or tramming men descend. Standard, 1964, g. In South Wales, the local branch of the coal miners' union. Nelson. h. A pump room, near the pit bottom or other points. It consists of a carrying chain running between the rails. The dummy or live axles of the cars are held firmly by the chain's profile and an overload slipping action is pro-

vided. See also retarder, a. Nelson. LOF-Colburn process. See Colburn process.


lofting. a. S. Wales. An old or disused head-

ing over the top of another one. Fay. b. N. of Eng. See lacing, b. Fay. c. Scot. Wood filling up vacant space on top of 

crowns or gears. Fay. d. Timbers, usually 

old, laid across the caps of steel frames or 

sets in a working to support the roof. Webster 2d.

lofty tin. Corn. Large and rough tin ore. 

lo g. A piece of timber either rough or 

squared. Crispin. b. The record of, or the 

performance of an engine or boiler or 

Staff. See dolly, b. Fay. e. A record of the 

action of an engine or boiler or similar piece of equipment. Webster 3d. f. 


Logan slaking machine. This machine includes essentially two horizontal cutting chains, one working at the base of the coal 

stack, and a second one to shear off the 

coal at the back of the cut. The upper jib breaks the coal up into loadable size and a short conveyor transfers it to the face conveyor. Also called logged; logging. Log. c. S. Staff. A balance weight near the end of the hoisting rope of a shaft to prevent its run-

ning back over the pulley. Fay. d. N. Staff. See dolly. Fay. e. A record of the 

performance of an engine or boiler or similar piece of equipment. Webster 3d. f. 


Logan slaking machine. This machine includes essentially two horizontal cutting chains, one working at the base of the coal stack, and a second one to shear off the coal at the back of the cut. The upper jib breaks the coal up into loadable size and a short conveyor transfers it to the face conveyor. Also called logged; logging. Log. c. S. Staff. A balance weight near the end of the hoisting rope of a shaft to prevent its running back over the pulley. Fay. d. N. Staff. See dolly. Fay. e. A record of the performance of an engine or boiler or similar piece of equipment. Webster 3d. f. Abbreviation for logarithm. BuMin Style Guide, p. 50.

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lok batanite

656

long rigid cartridges

metal cracks, then neither is weldable.

longitudinal coast; conformable coast; Pa-
fic type of coast. Coast parallel to the trend lines of a coastal orogenetic belt.

longitudinal direction. The principal direc-
tion of flow in a worked metal. ASM Gloss.

longitudinal dune. A general term for vari-
sous types of linear dune ridges, commonly,
more or less symmetrical in cross profile,
which are known or inferred to extend par-
allel to the direction of the dominant dune-building winds. A.G.I.

longitudinal fault. A fault, the strike of
which is parallel to the general structure.

longitudinal field. A magnetic field which
extends within a magnetized part from one
or more poles to another or other poles,
and which is completed through a path external to the part. ASM Gloss.

longitudinal fissure. A fissure that is par-
allel with the strike of the deposit. Stoess, v. 1, p. 266.

longitudinal joint. A joint running parallel
to the flow lines in igneous rocks, usually
dipping and best developed where flow lines are horizontal. A.G.I. Supp.

longitudinal profiles. A section drawn verti-
cally through the centerline of a road, rail-
way, or canal giving both the original and
final contours of the ground.

longitudinal ripple marks. Relatively straight
cracks parallel to current direction. May be
symmetrical or asymmetrical. Pettijohn.

longitudinal valley. A valley having the same
direction as the strike of the underlying
rocks. See also subsequent stream. A.G.I.

longitudinal velocity. See Young's modulus of elasticity. Lewis, p. 566.

longitudinal wave. An elastic wave in which
the displacements are in the direction of
wave propagation. A.G.I.


long (lay) frames. Partially erected frames,
particularly when aerated in stages. Non-

long-piggyback conveyor; pick-a-back con-
veyor. An appliance to provide a constant
flow of coal from a continuous miner to the
main haulage system. It consists of a con-
veyor slung under the tail end of the loader
and running on a bogey straddling the
headway conveyor so that it can telescope
over it. Nelson.

long pull. Coal winning in three stages
underground mining. First, large pillars
are left as the face is advanced by means of
drivers. Second, permanently fixed drives connect
these drives and form large blocks. Finally,
the pillars so formed are mined. Pryor, 3.

long-range. Of crushed or ground ore, size
distribution consisting of a wide range of
meshes. Pryor, 4.

long-range order. Repulsion of coordination
of many nonequilibrium states. The resulting
structure is crystalline. VV.

long rigid cartridges. To facilitate the load-
ing of drill holes long, rigid cartridges

long hole. Underground boreholes and blast-
holes exceeding 10 feet in depth or requir-
ing the use of two or more lengths of drill
steel or rock drills must be spaced together to attain the desired depth. Long.

long-hole blasting. This method of blasting,
employing diamond drills or extension
holes wùth tungsten carbide bits, is
being applied increasingly to ore winning
operations where conditions are suitable.


long lay. A test for weldability in which a welded test piece is bent double; if the parent metal or the weld


long glass. Glass that is slow setting. Dodd.


longitudinal dune. A general term for vari-
sous types of linear dune ridges, commonly,
more or less symmetrical in cross profile,
which are known or inferred to extend par-
allel to the direction of the dominant dune-building winds. A.G.I.

longitudinal fault. A fault, the strike of
which is parallel to the general structure.
long running thermal precipitator. A dust-collecting device designed by the Mining Research Establishment of Great Britain that operates over periods of up to 8 hours and collects only respirable dust which is selected aerodynamically during the sampling process. The respirable fraction is selected by drawing the dust through a horizontal duct selector which simulates the action principle of the human nose and respiratory passages in that the larger and faster-falling particles are caught by the selection of movement and impaction. See also short run. Long.

long sample. A sample that is long enough to allow for a complete analysis. See also short sample. Long.

longshore current. A current in the shore zone, generated by waves breaking at the shoreline, and from the rip currents. Schieferdecker.

longshore drift. See beach drift. Schieferdecker.

longshore trend. A trend or line which may be several hundred miles long. It may be defined as a series of parallel straight lines which may rise or fall in elevation and is maintained, and by working the seam in the direction of the face. Pryor, 3.

longwall. The longwall working method, in which the developing headings are driven parallel to the face and the coal is extracted by longwall faces facing towards the shaft. In this method, all the roadways are in the form of a loop. ASA MH4.1-1958.

longwall advancing. A specialized method known as longwall mining, in which all coal is extracted as a series of longwall stalls. A common method of working in which the developing headings are driven parallel to the face and the coal is extracted by longwall faces facing towards the shaft. In this method, all the roadways are in the form of a loop. ASA MH4.1-1958.

longwall coal cutter. A machine driven by compressed air or electricity, which cuts into the coal face with its jet at right angles to its body. Pryor, 3.

longwall coal mining. A power-driven machine used for undercutting coal from relatively long faces. ASA C42.85: 1956. See also longwall coal cutter.

longwall coal miner. In bituminous coal mining, one who extracts coal from seams by a specialized method known as longwall mining. In this method, all coal is extracted as the work progresses, packs (supports of stone and timber) being built instead of leaving pillars of coal to support the roof. D.O.T. 1.

longwall mining. N. of Eng. A system of mining on straight faces 80 yards or more in length. Trist.

longwall peak stopping. A method of under-length stopping in which rapid advance of the face is maintained, and by working the faces at an angle of 60° to the strike, the peak travels down the dip at twice the rate of the face advance. This method was introduced on the Witwatersrand for stopping below 3,000 feet where rapid advance results in closer spacing of holes reduces the incidence of rock bursts. Higham, pp. 213-215.

longwall powered roof bolting. The extraction of the coal pillars formed by a pillar method of working, by a longwall face, which can be advancing or retreating. Where the crush is not excessive, this method is more efficient and often safer than extracting each pillar individually. Nelson.

longwall retreating. A system of longwall working in which the developing headings are driven narrow to the boundary or other limit lines. In this method, all the roadways are in the form of a loop. ASA MH4.1-1958.

loop. A bend, or folding, or doubling of a part of a river or stream. Pettijohn.

loop-bedding. Small groups of laminae that are rather irregular are quite sharp, mostly constricted or even abruptly at intervals, giving the effect of long, thin loops or links of a chain. Though to be a deformation feature. Observed in some fine calcareous sediments and also in oil shales. Pettijohn.

looped hand. See hand loop. Long.

loop head. An en masse elevator in which the lower end of the casing is in the form of a loop. ASA MHA-1-1958.

loop head elevator. A term used when two positive wires are installed in divergent directions but later come close enough together to test them under different conditions. When the loop and contents are placed in a reactor, it is called an in-pile loop. See also loop hanger. Long.

loop hanger. A hanger for a loop of wire, used for holding the casing in place in the hole. See also loop head. Long.

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loose core. Large aggregate which has been separated from a concrete mix by a hoist with the rope attached to a clip fixed to the side of the cars. The rope is pulled back by hand for a distance of three or four car-lengths and the process is repeated frequently as the end of the rope approaches the hoist. Wheeler, H.R., pp. 32-33.

looping. The running together of ore matter into a mass when the ore is only heated for calcination. Standard, 1906.

loop takeup. An arrangement for storing spare belting (for extension of the conveyor) and so for applying tension to the belt. It is usually situated behind the drive unit. Nelson.

loop tunnel. A method of gaining grade in which the loaded cars are fed to the cage from one side only and the empties are returned to the same side by means of a loop roadway. The loop arrangement provides more standage room for cars and is more suitable for multideck cages. When the coal reaches the pit bottom the belt. It is usually situated behind the drive unit. Nelson.

loop-type pit bottom. A pit bottom layout in which the loaded cars are fed to the cage from one side only and the empties are returned to the same side by means of a loop roadway. The loop arrangement provides more standage room for cars and is more suitable for multideck cages. When the coal reaches the pit bottom the belt. It is usually situated behind the drive unit. Nelson.


loose. a. Eng. Applied to a working place to which the track is open at both sides, that is, the coal has been previously removed at both sides. "Loose at an end," or "loose at one side," denotes that the coal has been removed at one side only. Fay. b. The end of a shaft or of the day's work is spoken of as "loosing time," or "loosing out," and when the workmen leave, the pit is said to be "loosed out." Fay. c. Synonym for junk when applied to pieces of metal that must be fished out. "Loose," or lenner; and when the workmen leave, the pit is said to be "loosed out." Fay. d. A pattern from a sand mold. Standard, 1964.

loose-packed splittings. Applied to mica, splittings of heterogeneous shapes, not arranged in any particular order but packed loosely in such a way that the packed splittings may or may not be dusted. Skow.

loose rails. Aust. Rails that can be lifted and placed across a permanent line when desired to run skips across it. Fay.

loose rock. See loose ground. Long.

loose rock. a. A fragment of alternating masses of igneous rock, generally concordant, and in bank ovens just back of a single row of parallel lines of ovens composing a block; laid, one on top of the other. Fay. b. A car used on mine tramways, or at coke ovens. See also lorry, a and b. Fay. c. Gr. Beit. A long wagon having a very low platform and four very small wheels. Standard, 1964.

loose dusted splittings. Loose-pack splittings of heterogeneous shapes, not arranged in any particular order but packed loosely in such a way that the packed splittings may or may not be dusted. Skow.

loose-end survey. Dial survey, in which the magnetic bearing of the traverse line is read at each setup of the instrument. Pryor, J.

loose-end traversing. A method of traversing in which the magnetic bearings of survey lines are separately obtained with reference to the magnetic needle. B. S. 3618, 1965, sec. 1.


loosening bar. A diamond used to loosen, or to loosen, rock that must be barred down to make an opening. Long. 

loose diamonds. See loose goods. Long. 

loose dusted splittings. Loose-pack splittings dusted with mica powder. Skow.

loose end. a. A gangway in longwall workings, driven so that one side is solid ground while the other opens upon old workings. See also split end, a. Fay. b. Coal prepared by cutting, or that coal which is certain to be loosened by a shot. Fay. c. The limit of a stall next to the goal, or where the adjoining stall is in advance. Fay.

loose-flange joint. There are several patterns of this type of joint. The flanges are slipped on to the tubular portion of the pipe, one being made to slide within the other, the pipe ends being pressed outwards to form facings for the joint washer and another being reinforced by the formation of a special shoulder or the addition of a welded-on mild steel ring. Maron, e. v., p. 628.

loose goods. Industrial diamonds as purchased from a diamond supplier in bulk. Long.

loose ground. a. Broken, fragmented, or loosely cemented bedrock material that tends to slough from sidewalls into a bore-hole. Also called broken ground. Compare brecia, b. Long. b. As used by miners, rock that must be barred down to make an underground workplace safe; also fragmented or weak rock in which under-ground openings cannot be held open unless artificially supported, as with timber sets and lagging. Compare broken ground, b. Long.

loose iron. See loose, c; junk. Long.

loose junking. See junking, b. Fay, p. 372.

loose needles. Same as junking. Fay, p. 372.

loose needle survey. Dial survey, in which the magnetic bearing of the traverse line is read at each setup of the instrument. Pryor, J.

loose needle traveling. A method of traversing in which the magnetic bearings of survey lines are separately obtained with reference to the magnetic needle. B. S. 3618, 1965, sec. 1.


loose-packed splittings. Applied to mica, splittings of heterogeneous shapes, not arranged in any particular order but packed loosely in such a way that the packed splittings may or may not be dusted. Skow.

loose rails. Aust. Rails that can be lifted and placed across a permanent line when desired to run skips across it. Fay.

loose rock. See loose ground. Long.
Fay. u. A pit shaft is said to be "lost" when it has run in or collapsed beyond recovery. Fay.

lost hole. A borehole in which the target could not be reached because of caving, squeezing, loose ground, or inability to return for work. Fay.

lost level. Corn. A level or gallery driven with an unnecessarily great departure from the horizontal. Fay.

lost returns. See lost circulation. Long.

lost river. a. A river that, by a secular increase in aridity in its region, has ceased to exist, its remnant tributaries sinking into the ground before reaching into former channel. Standard, 1964. b. A river in a mountain region that is being pulled from the drill hole. Long.

lost time. The time spent in drilling operations on work other than deepening the hole, e.g., on work other than fishing, moving, and setups. Long.

lost water. See lost circulation. Long.

lost wax. Process. An investment casting process in which a wax pattern is used. ASM Gloss.

lost-yest. A bluish-white basic carbonate of magnesium and zinc with a little manganese and zinc with a little magnesium and zinc. Fay. Seelye, I.

loss. Difference between weight of rock and that of saleable products, expressed as a percentage. Pryor, 3.

loss on ignition. As applied to chemical analyses, the loss in weight which results from heating a sample of material to a temperature just above the boiling point of water. The loss in weight upon drying is called free moisture; that which occurs above the boiling point, loss on ignition, HW.

lost circulation. A condition that occurs when the mud pressure escapes into crevices or porous sidewalls of a borehole and does not return to the collar of the drill hole. Also called lose returns; lose water; lost returns; lost water. Long.

lost-circulation material. Pulverized or shredded material added to the circulation media or drilling mud to plug cracks or crevices through which the circulation fluid is escaping from a drill hole. Materials sometimes used in combating lost circulation include shredded cellulose, bark, cottonseed hulls, manure, and cement.

lost closure. The amount of closure of the walls of a stope which occurs before supports have been put in place and begins to oppose that closure, is known as the lost closure. Spalding.

lost core. The portion of a core that is not recovered. It may be the soft rock that crumbles and falls from the core barrel or the solid piece or pieces of core that drop to the bottom of the hole. Fay.

lost corner. A borehole that cannot be determined, beyond reasonable doubt, either from traces of the monument, or by reliable testimony relating to it; and whose location can be ascertained only by surveying methods and with reference to independent existing corners, by mutual agreement of abutters, or by court decision. Selys, 2.

lost head. The energy of a given flow that is not recoverable (in the usual sense, useless), as a result of friction, eddies, and impact expressed as a head, that is, as the height to which the flow would have to fall to produce an equivalent amount of energy. Selys, 1.

low-density explosives. Explosives designed for use in mining the coal of soft and medium hardness, where it is required to be extracted to the least possible depth. The density of ordinary permitted explosives may be decreased, by (1) loose powder, (2) an admixture of a state of the ammonia nitrate, and (3) the impregnation of woodmeal or suitable substitutes. By decreasing the density of an explosive the same weight of explosive is used, but owing to its greater bulk the ex-
low-density explosives

low-dense metals. The lightest alloy-forming metals, in ascending order of their densities, are lithium, calcium, magnesium, beryllium, and aluminum. See also high-density metals. Hender.


low-discharge bail mill. One with a substantially down slope between the trunion-high feed end and the peripheral discharge end. This facilitates the brisk movement of ore through the mill. Pryor, 3.

low doors. Scot. The lowest of two or more landings in a shaft. Fay.

low fire. A fire refractory having a pyrometric cone equivalent not lower than 19 and a minimum modulus of rupture of 600 pounds per square inch. A.R.I.

low. Scotch. A light. A piece of l owe is part of a candle. See also low, b. Fay.

low. By a slight bend of either a terrace or a monocline, also known as the foot or the lower change of dip. Stokls and Barnes, 1953.

Lower Carboniferous. See Avonian. A.G.I.

lower high water. The lower of the two high waters of any tidal day. Abbreviation, low, Hy.

lowering conveyor. Any type of vertical conveyor in which the load is conveyed at a controlled speed. See also arm conveyor; suspended tray conveyor; vertical reciprocating conveyor. ASA MH4.1-1958.

lower iron. A tool used in lieu of a safety clamp to grasp and hold rods during round and/or drilling operations carried on a system of pumps. Fay.

lowering skips. Used in some river tipples to let the coal down into the barges. Also known as weigh pans. Mitchell, pp. 800-801.

lowering tongues. Synonym for brown tongues. Long.

lower leaf. Scot. The lower portion of a seam of coal that is worked in two sections or leaves. Fay.

lower limit of flammability. The smallest quantity of combustible gas which, when mixed with a given quantity of air (or oxygen), will just support a self-propagating flame. Francis, 1965, p. 2, 437.

lower maker. In polarizing microscope, the moisture content at which soil changes from plastic to liquid. Pryor, 3.

lower mild steel. A grade of the two lowest waters of any tidal day or the whole low water when a semidiurnal tide becomes diurnal. Abbreviation, lww, Hy.

lower pole. In polarizing microscope, lower polarizing member. It is usually located in place (crossed with respect to the upper member) by a small click when turned to its correct position. Pryor, 3.

lower official. See underofficial. Nelson.

lower point. N. Of Eng. A piece of rope used lower pickup. The lowest point reached by the traveling block during a hoisting operation. Long.

lower plastic limit. Moisture content of soil at which it changes from a plastic to a semisolid state. Pryor, 3.

lower pump. In powder metallurgy, the lower part or plate at the bottom of the die cavity and which may or may not move in relation to the die body. ASM Gloss.

lower side. See dip side. Mason.

lower water datum. An approximation of mean low water which has been adopted as a standard for a limited area, although it may differ slightly from a later determination. Hy.

lowest low water. A plane of reference approximating the level of the lowest low water of any normal tide. Hy.

lowest low-water springs. A plane of reference approximating the level of the lowest low water during spring. Hy.

lowest tidal. A plane of reference lower than mean sea level by half the maximum range. This does not take into account wind or barometric pressure fluctuations. Hy.


low explosive. An explosive in which the change into the gaseous state is effected by burning and not by detonation as with high explosives. Blasting powder (black powder) contains the only low explosive in common use. It requires no detonator but is ignited by means of a safety fuse. Also called propellant. low. Fuse gear. S. low gear. Long.

low-freezing dynamics. Dynamites made by replacing part of the nitroglycerin of straight dynaphex with some ingredient to render the dynamite incapable of freezing under ordinary conditions of use. The freezing point is depressed by adding nitro substitution compounds, such as nitrated sugars, nitrotoluene, nitrated polymerized glycerin or ethylene glycol dinitrile. Lewis, p. 108.


low-frequency induction furnace. See electric furnaces for melting and refining metals. Dodd.

low. gear. 1. See slow gear. Long. b. Mining and/or drilling operations carried on at a leisurely pace and at less-than-normal output per man-shift. Long.

low groin. See duntless. Bryant.

low-grade. a. An arbitrary designation of dynamites of less strength than 40 per cent. It has no bearing on the quality of the materials, as they are of as great purity and high quality as the ingredients in a so-called high-grade explosive. Fay. b. Sometimes applied to poor- or low-quality drill diamonds. Long. c. Pertaining to ores that have a relatively low content of metal compared to other richer material from the same general area. Also designates coal high in impurities. Low-grade metamorphism refers to metamorphism at a relatively low temperature and/or pressure. Stokls and Barnes, 1953, d. Lean ore. Fay.

low-grade coal. Combustible material which has only limited uses owing to undesirable characteristics (e.g., ash content or size). B.S. 5352, 1962.

low-grade ore. Ore which is relatively poor in the metal for which it is mined.

low-pressure cement. A cement in which there is only limited generation of gas during setting, achieved by modifying the chemical composition of normal portland cement. A.G.I.

low-pressure components. See under pressure components. Nelson.


low-pressure mechanism. A detonating device in which the reaction of the explosive material is controlled by a separate mechanism, usually of air or water, to stop the reaction of the explosive material at a desired point. See also pressure mechanism. Nelson.

low-pressure stowing. The filling of the waste by means of an inby compressed-air blower. The lower is usually located close to a machine which is operated at a pressure below 15 pounds per square inch. For light duties, only one blower is required to operate one stowing machine. For heavier-duty or long-lengths of pipeline, two blowers are used in series. The maximum horsepower for two blowers is limited to about 175 net. For stowage at large installations. See also pneumatic stowing. Nelson.

low-pressure limits. The lowest pressure at
low-pressure limit

which flame propagation can be obtained through a combustible-oxygen system at a lower temperature in a particular chamber. I.C. 8137, 1963, p. 76.

low quartz. Low-temperature quartz; when formed below 500° C, SiO₂ tetrahedra are less symmetrically arranged than at higher temperatures; inversion is reversible. A.G.I. Supp.

low-rank coals. See rank, B.S.1.


low-rank metamorphism. Metamorphism accomplished under conditions of low to moderate temperature and pressure. See also metamorphic grade. A.G.I. Supp.


low side. That portion of a mechanical conductor that has ceased for the clay comb, wise, loose, b. Fay.

low shaft furnace. A short shaft-type blast furnace used to produce pig iron and ferro-alloys. The steel core, using almost the whole of the fuel. The air blast is often enriched with oxygen. It is also used for making a variety of other metallic products such as alumina, cement-making slags, and ammonia synthesis gas. ASM News.

low side. That portion of a mechanical refrigeration system under relatively low pressure, extending from the expansion valve through the evaporator to but not including the condenser. Strick, 10.

low-soda alunina. Aluminum oxide (Al₂O₃) with less than 0.15 percent sodium oxide (Na₂O) in content. Used in high-grade electric insulators and in other ceramic bodies. CCD 6D, 1961.

low-temperature glass. The British Pottery (Health and Welfare) Special Regulations, 1947 and 1950, define this as a glass which does not yield to dilute HCl more than 3 percent by weight of a soluble lead compound, calculated as PbO, when determined by the lead solubility test. Bidwell lead solubility test. Dood.

low steel. Steel weak in carbon, containing from 0.3 to 0.5 percent (carbon) and therefore comparatively tough and soft; usually not susceptible of hardening or tempering. Standard, 1964.

low, structural. An area in which the beds are not more than 50 feet in thickness and the streets and sidewalks between the local highs along the crest of anticlines. A.G.I.

low-temperature carbonization. Carbonization carried out at a low-temperature (between 500° and 700° C). During the process, the smoke producing compounds are driven off as tars and oils and collected as valuable byproducts, leaving a coke with about 10 percent volatile matter. The coke yield is about 14 hundredweight per ton and oil and tar is 19 percent of the fuel. Nelson. See also carbonization of coal. low-temperature coke. A solid fuel produced by the low-temperature carbonisation of coal. Nelson.

low-temperature incineration method. In this method for the determination of incombustible matter, the material to be tested (dust containing ash) is incinerated at a temperature of not less than 500° C and not more than 530° C until it is constant in weight. This temperature is sufficient to complete the combustion of the organic matter in the dust, but is not high enough to decompose the carbonates. However, this method is unsuitable for dust containing magnesia carbonate because this substance decomposes below 500° C and therefore a low result for the incombustible matter would be obtained. The moisture content of the sample may be calculated and that an allowance can be made for the weight loss attributed to moisture. Coop, p. 316.

low-tenso detergent. A detergent requiring a minimum current of 1 ampere for firing and having a resistance of about 1 ohm. B.S. 3618, 1964, sec. 6.

low-terrace drift. Aust. Gravel and Sand. 1947 and 1950, define this as a glaze which contains not more than 5 percent of its dry weight of lead compound, calculated as PbO, when determined by the lead solubility test. Dodd.


low-temperature drift. Australian Gravel and Sand. 1947 and 1950, define this as a glaze which contains not more than 5 percent of its dry weight of a lead compound, calculated as PbO, when determined by the lead solubility test. See also mold lubricant. Crispin.

low-temperature iron. Temperature of iron at which redness is observable in subdued daylight (525° to 700° C.). Bright red heat is in the range 700° to 1,000° C, and is followed by orange, at 1,000°; white, 1,300° and, blue-white at 1,500° C+. Pryor, 3.

low-temperature kerosine. A form of cut stone produced by the intersection of the low-water datum with the shore. Schieferdecker.


low-tide drift. Aust. Gravel and Sand. 1947 and 1950, define this as a glaze which contains not more than 5 percent of its dry weight of a lead compound, calculated as PbO, when determined by the lead solubility test. See also mold lubricant. Crispin.

low-tide level. See low-water line. Schieferdecker.

low-tide line. See low-water line. Schieferdecker.

low-velocity. See velocity.

low-volatile bituminous coal. A coal containing less than 0.15 percent sodium oxide (Na₂O) in content. Used in high-grade electric insulators and in other ceramic bodies. CCD 6D, 1961.

low-water datum. An approximation of mean low water which has been adopted as a standard datum for a limited area, although it may differ slightly from a later determination. Hy.

low-water level. Level; low-tide level. The plane of low water. Schieferdecker.

low-water level; low-tide level. The plane of low water. Schieferdecker.

low-water line; low-tide line. The line of intersection of the low-water datum with the shore. Schieferdecker.

low working voltage. Low working voltage in coal mines is one of the many special properties which must be given continual attention. Los. Hy.

low-working voltage. Low working voltage in coal mines is one of the many special properties which must be given continual attention. Los. Hy.

lubricance. A. Oil, grease, graphite, and in general, anything of the sort used to overcome friction and to permit a freer action of parts. Crispin. b. A solution which, when applied to glass fibers, facilitates their handling by reducing mutual abrasion. See also mold lubricant. Crispin.

lubricate. A. Oil, grease, graphite, and in general, anything of the sort used to overcome friction and to permit a freer action of parts. Crispin. b. A solution which, when applied to glass fibers, facilitates their handling by reducing mutual abrasion. See also mold lubricant. Crispin.

lubricating. A. Oil, grease, graphite, and in general, anything of the sort used to overcome friction and to permit a freer action of parts. Crispin. b. A solution which, when applied to glass fibers, facilitates their handling by reducing mutual abrasion. See also mold lubricant. Crispin.


lubricating gran. A solid to semifluid product, usually a mixture of emulsions of polyvinyl alcohol, polyvinyl chloride, kerosine-lard oil mixtures, graphite, talc, and other materials. This is used to facilitate pressing. Crispin.

lubricating oil. A solution, emulsion, or mixture of other materials, which is used to coat dies or molds to facilitate the forming of ceramic ware. Bureau of Mines Style Guide, p. 60.

lubricating oil. A solution, emulsion, or mixture of other materials, which is used to coat dies or molds to facilitate the forming of ceramic ware. Bureau of Mines Style Guide, p. 60.

lubrication. In powder metallurgy, mixing with or incorporating in a powder, some agent to facilitate pressing. Henderson.

lubricating grease. A solid to semifluid product of dispersion of a thickening agent in a liquid lubricant. Other ingredients important properties may be included. ASTM D398-37.

lubricating grease. A solid to semifluid product of dispersion of a thickening agent in a liquid lubricant. Other ingredients important properties may be included. ASTM D398-37.

lubrication. The act of applying lubricants to rotating shafts. There are two main types of lubricants, solid and liquid. Examples of the solid type are graphite, French chalk, mica, and wax. Liquid lubricants are by far the more important, and among these, oil
lubrication and greases the most common. Morris and Cooper, p. 167.

lubricity. See line oiler. Long.

lubricites. Used by Wadsworth to include all mineral lubricants or antifriction materials. Fay.

Ludlax. Trade name; a translucent, pure, polycrystalline alumina made by General Electric Company. The translucency results from the absence of micropores. Because the crystals are directly bonded to one another, without either matrix or pores between the crystal boundaries, the mechanical strength is very high; transverse strength, 50,000 pounds per square inch; having of elasticity 35/10 per square inch. Dodd.

Lucas sounder. See sounder. C.T.D.

Luc and Rozan process. A modification of the Patterson process whereby the molten lead is stirred by the injection of steam; used in desilverizing base bullion. Fay. Ludlowite. A fine-grained diorite, composed essentially of plagioclase, hornblende, and in some varieties a little quartz. It differs from malachite only in its coarser grain. Holmes, 1926.

ludite. Variscite from Lumin, Utah. Shipley.


Luckhart furnace. A continuously working shaft furnace for roasting quicksilver ores, having the fireplace in the shaft at the bottom, protected by a cast-iron roof. The fuel is wood. Fay.

Luckiesh-Moss visibility meter. This instrument has been used over a wide range of lighting applications. It consists of a pair of similar photographic gradient filters, which incorporate density as their reds are rotated together before the eyes. The filters therefore reduce the apparent brightness of the white of the face and at the same time lower the contrast between the object of view and its background. Roberts, II, p. 100.

ludite. A fine-grained diorite, composed essentially of plagioclase, hornblende, and in some varieties a little quartz. It differs from malachite only in its coarser grain. Holmes, 1926.

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and therefore occurs at low temperatures, that is produced by physiological processes (as in the firefly), chemical action, friction, radiation, or electrical activity. a. (as the glow of gases in vacuum tubes when subjected to electric oscillations of high frequency or as the glow of certain bodies when subjected to cathode rays), by certain bodies while crystallizing, by suddenly and moderately heating certain bodies previously exposed to light or to cathode rays, or by exposure to light, or that occurs in radioactivity, Webster 3d. b. The light produced by luminiscence. Webster 3d.

Luminescent enamel. Enamels which glow in the dark after exposure to light. ACSB 3.

Luminosity. a. The quality of emitting or of giving out light; shining. Crispin. b. Subjective brightness sensation. Roberts, I, p. 27.

Luminous. Radiating or emitting light; bright; clear. Crispin.


Luminous flux. a. Customarily referred to as air surface transmissions given out from a lamp and the unit of luminous flux is given the name lumen. Roberts, II, p. 15. b. The rate of passage or flow of light. Sinclair, I, p. 199.


Luminous wall firing. Term sometimes used for kiln or furnace firing by surface combustion. See also surface combustion. Dodd.

Luminescente photometer. This type photometer makes more refined measurements possible, and its principle is used in a wide variety of instruments. There are two types, one employing an equality of brightness field and the other employing a contrast field. On the other hand, since the two surfaces of the cube are not in optical contact over the peripheral field, light which is totally reflected at the glass to the left-hand side and the annular ring is light from the right-hand side. The point of balance is then determined by equality of brightness on the two parts of the field, that is, when the spot is no longer defined against its background. Roberts, II, p. 24-26.

Lumatite. A well-known brand of quick-setting cement, for sealing rock cavities, plugging drill holes, etc. Cumming. Is made from quicklime, sand and limestone and is highly resistant to acids and heat. Hess.

Luminate cement. Trade name; a high-alumina cement. Universal Atlas Cement Division of U.S. Steel Corp. See also high-alumina cement. Dodd.

Lump. a. A heap of unmelted batch feeding on the furnace, or of a crucible; secondly, Dodd. b. The most defective saleable pottery ware remaining after the sorting and grading is completed. Compare Four B. Second, Dodd. c. Bituminous coal. Bituminous coal in the large lumps remaining after: a single screening that is often designated by the size of the mesh over which it passes and by which the minimum size is determined. Webster 3d. Also, the largest marketable size. Fay.

Lump Coal. Trademark for permissible dynamite (types C and GC) with very low velocity of detonation. Are used in coal mining where maximum production of large-size coal is desired. CCD 6d, 1961.

Lumper. a. In quarry industry, one who chips out dogholes (notches) in blocks of stone with a pick, or with a hammer and a steel point. D.O.T. 1. b. In stone work industry, a laborer who performs heavy laboring duties involved in transporting blocks and slabs of stone in the shop and yard of a stone working plant. Also called stonabaker. D.O.T. 1.

Lumping. A system of railway track renewal in which a crane is used to pick up a complete assembly of rails and sleepers, replacing it with another complete assembly. Ham.

Lump line. A physical shape of quicklime. A definite plane through a vertical plane, Hoyton.

Lump line, screened. Lump line after forking or screening to remove the finer portion. The portion removed is usually that which will pass a 1/8-inch sieve. ASTM C51-47.

Lumino. A workman in a glassworks whose job is to observe and control any lumps of floating batch in a glass-tank furnace. Dodd.

Lump picker. In anthracite coal mining, a laborer who picks out large lumps from run-of-mine coal as it is dumped at the breaker for crushing, sizing, and cleaning. D.O.T. 1.


Lunary day. The time for one rotation of the earth with respect to the moon or the interval between two successive upper transits of the moon's vertical meridian. The mean lunar day is approximately 24.84 solar hours or 1,035 times as great as the mean solar day. Also called tidal day. Hy.


Lurching allowance. An allowance calculated to allow for additional load imposed on the outer girders and stringers of a railway bridge owing to the sway of a locomotive and train. Ham.

Lurching coal seam. In areas of jumbled coal associated with tremor tracts, whole masses of coal material and shale have been set in motion and the material is found in the direction of travel of the shock. This lurching of the deposits is an indication of the nature of the disturbance. Nelson.

Lurgi gasifier. A process for the production of gas from coal. The coal is made to react with a controlled mixture of oxygen and superheated steam under very high pressure (about 23 atmospheres). The oxygen reacts with the carbon in the coal to form a mixture of carbon monoxide and carbon dioxide absorbing heat. At the same time the high pressure conditions produce a synthesis reaction between the hydrogen and carbon monoxide. Resulting in the formation of methane which increases the heating power of the gas produced. Nelson.
distributed throughout the periphery of the kiln so that roasting and reduction can be controlled in the various zones to the required temperature. Blast furnace gas for reduction passes into the center of the lower end of the kiln while the gas and air for heating pass in from the circumference of the drum, nearer to the center and upper end of the furnace. The ingoing ore is crushed to give a maximum size of 0.8 inch, while the outgoing concentrate is crushed to 0.15 inch after cooling.

Lorrman front. An arrangement of water-cooled castings through which iron and cinder are tapped from the blast furnace, thus avoiding the use of a forehearth. See also closed front. Fay.

lorry. a. York. A weighted tram to which an endless rope is attached, fixed at the inbye end of the plane, forming part of an appliance for taking up the slack rope. Fay. b. A movable platform on wheels, the top of which is level with the bank or surface. It is run over the mouth of a shaft to receive the bucket when it reaches the top. A.G.I. Supp.

lussatite. A crystalline form of chalcedonylike quartz having the elongation of the fibers perpendicular to the c-axis (opposite of the usual orientation of chalcedony fibers) and showing optical anomalies that have led to their being considered distinct species.

lute. a. A mixture of fire clay used to seal cracks between the crucible and cover or between the container and cover when heat is to be applied. A.SM. Gloss. b. To seal with clay or other plastic material. A.SM. Gloss. c. In brickmaking, a scaper having a cutting edge. Standard, 1964. d. To smooth the surface of a (drying) yard before placing new bricks upon it to dry. Standard, 1964.

luteclite. A fibrous chalcedonylike quartz having the elongation of the fibers perpendicular to the c-axis (opposite of the usual orientation of chalcedony fibers) and showing optical anomalies that have led to their being considered distinct species.

lutesite. A general name for all natural materials composed of muds; that is, clay-sized particles. A.G.I. Sapp. c. Lutestite. A fibrous variety of the tourmaline occurring in perpendicular to the c-axis (opposite of the usual orientation of chalcedony fibers) and showing optical anomalies that have led to their being considered distinct species.

lutection. See lutetium. A.G.I.

luster. See luteran. D.O.T.I.

luteran. Lamination of feldspars, that is, a layering or banding. Fay. c. Pure, free of impurities. Fay.

lustre. a. Metallic. The character of the light reflected by minerals; it constitutes one of the means for distinguishing them. There are several kinds of lustre: metallic, the luster of metals; adamantine, the luster of diamonds; vitreous, the luster of broken glass; resinous, the lustre of yellow amber; opalescent, as that of eolite; pearl-like lustre, and silky-like lustre. These lustres have different degrees of intensity, being either splendid, shining, glittering, or glimmering. When there is a total absence of luster, the mineral is characterized as being dull. Fay. b. In ceramic and glass, varnish, or enamel applied to porcelain in a thin layer, and giving it a smooth, glintening surface. Standard, 1964. c. An intrinsic deceptive surface appearance. ASTM C286-65. See also gloss.


luster ware. In ceramics, glazed ware painted with metallic pigments and fired a second time in a kiln so constructed that the gases come into contact with the surface, giving a prismatic effect. Standard, 1964.

luster mortitng. a. Applied by Pumpelly to cement the rhyolites which have a shimmerning luster because the shining cleavage faces of the augite crystals are mortitted by small inclinations. Fay. b. In some rocks, occurrence of extremities or gradations into polikilitic; roughly circular patches of pyroxene envelo (feldspar) laths to produce a luster mortitng. Bureau of Mines Staff. c. The largest crystals of calcite in sandstone may incorporate whole colonies of detrital grains and form a single crystal and plan what is known as luster mortitng. Barite and gypsum cements also develop this habit locally. Bureau of Mines Staff. 664


lusterous; lustre. A fine-grained texture and particularly, but not entirely, applicable to slits and clay's and their de-rivatives. A.G.I.

lutesite. A tephritic leucite nepheline containing over 50 percent mafic minerals. A.G.I.

lute. a. A mixture of fire clay used to seal cracks between the crucible and cover or between the container and cover when heat is to be applied. A.SM. Gloss. b. To seal with clay or other plastic material. A.SM. Gloss. c. In brickmaking, a scaper having a cutting edge. Standard, 1964. d. To smooth the surface of a (drying) yard before placing new bricks upon it to dry. Standard, 1964.

luteclite. A fibrous chalcedonylike quartz having the elongation of the fibers perpendicular to the c-axis (opposite of the usual orientation of chalcedony fibers) and showing optical anomalies that have led to their being considered distinct species.

lydite. a. A general name for all natural materials composed of muds; that is, clay-sized particles. A.G.I. Sapp. c. Lydite. A fibrous variety of the tourmaline occurring in perpendicular to the c-axis (opposite of the usual orientation of chalcedony fibers) and showing optical anomalies that have led to their being considered distinct species.

lydite. a. A mixture of fire clay used to seal cracks between the crucible and cover or between the container and cover when heat is to be applied. A.SM. Gloss. b. To seal with clay or other plastic material. A.SM. Gloss. c. In brickmaking, a scaper having a cutting edge. Standard, 1964. d. To smooth the surface of a (drying) yard before placing new bricks upon it to dry. Standard, 1964.

luteclite. A fibrous chalcedonylike quartz having the elongation of the fibers perpendicular to the c-axis (opposite of the usual orientation of chalcedony fibers) and showing optical anomalies that have led to their being considered distinct species.

luteclization. A luster produced by the use of metallic oxides, sulfides, or salt solutions on the surface of pottery or enameled ware. Standard, 1964.
Lynch machine

1917 and operated on the blow-and-blow principle. Press-and-blow Lynch machines are also widely used. Dodd.

Lynnea furnace. A zinc-distillation furnace for intaglions, not now identified with certainty, but supposed to be the modern hacinia. Pliny used the name for amber, 17 A.D. Fay.

Lynex. A zinc-refining furnace with a common condensation chamber. Fay.


Lynx eye labradorite. Labradorite with a green schiller. Shipley.


Lynx stone. An early synonym for Pliny's lyncurium. Fay.


Lyoabsorptive. Of, relating to, or having an affinity for the phase in which one group is dissolved, and a repulsion from the phase for another group or ion (Hardley's analogy). When the solvent is water these groups are hydrophilic or hydrophobic, and influence the attraction of surface films which they are adsorbed either toward the aqueous or the gaseous phase of a gas/liquid system. If aqueous, they are wetting agents and oriented with most of their hydrophilic groups turned toward the aqueous phase and most of the hydrophobic groups toward the solid phase. Opposite of lyophobic. Pryor, 3.

See also hydrophilic. c. b. Having the proper property. Pryor, 4.

Lyoephobic. Of, relating to, or having a lack of strong affinity between a dispersed phase and the liquid in which it is dispersed; such as colloidal metals in water are easily coagulated. Opposite of lyophobic. Webster 3d.

Lyosorptive. Adsorption of liquid to a solid surface. Fry, 3.


Lymphetamine. Structure containing a mass of soil, and so designed as to permit the measurement of water draining through the soil, A.G.I.

Lyster process. A flotation process that separates galena and zinc byblende at a low temperature, with eucalyptus oil or other frothing agent, and with agitation or aeration in a neutral or alkaline, but not acid, solution of the sulfates, chlorides, or nitrates of calcium, magnesium, sodium, potassium, or mixtures of these substances. Fry.

Lyser. Tradename for a lightweight aggregate for concrete made by sintering pulverized fuel ash. Dodd.

Lysergic acid. Trademark for a finely divided, pale yellow powder, ployelectrolyte designed especially for foundry sand. Ab. Abbreviation for mill; nautical mile. Zimmerman, pp. 67, 87. d. Abbreviation for the prefix milli-, which indicates that the basic unit that follows is multiplied by one-thousandth or by 10^-3. Zimmerman, p. 172. e. Abbreviation for the prefix micro-, which indicates that the basic unit that follows is multiplied by one-millionth or by 10^-6. The lowercase Greek letter μ (mu) is the preferred symbol for the prefix micro-, because it avoids confusion with the abbreviations for the same basic units prefixed by μ (mu), which multiplies the basic unit by one thousandth or by 10^-3 and which is also abbreviated μ. Handbook of Chemistry and Physics, 45th ed., 1964, p. F-97; Webster 3d; Bureau of Mines Staff, 6d, 1961.

Lyophilic. a. Condition of solid-liquid mixture in which surface-active molecules which contain two or more groups have an affinity for the phase in which one group is dissolved, and a repulsion from the phase for another group or ion (Hardley's analogy). When the solvent is water these groups are hydrophilic or hydrophobic, and influence the attraction of surface films which they are adsorbed either toward the aqueous or the gaseous phase of a gas/liquid system. If aqueous, they are wetting agents and oriented with most of their hydrophilic groups turned toward the aqueous phase and most of the hydrophobic groups toward the solid phase. Opposite of lyophobic. Pryor, 3. See also hydrophilic. c. b. Having the proper property. Pryor, 4.

Lyophobic. Of, relating to, or having a lack of strong affinity between a dispersed phase and the liquid in which it is dispersed; such as colloidal metals in water are easily coagulated. Opposite of lyophobic. Webster 3d.

Lyoosorption. Adsorption of liquid to a solid surface. Fry, 3.


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Lyophobic. Of, relating to, or having a lack of strong affinity between a dispersed phase and the liquid in which it is dispersed; such as colloidal metals in water are easily coagulated. Opposite of lyophobic. Webster 3d.

Lyoosorption. Adsorption of liquid to a solid surface. Fry, 3.


Lymphetamine. Structure containing a mass of soil, and so designed as to permit the measurement of water draining through the soil, A.G.I.
machineman


macouine. a. An olive-bearing trachyte. A.G.I. b. An amphibitic basalt rock containing minute feldspars, noesan, olivine, perovskite, and chromite, with olivine (serpentine or chlorite) in a green vitreous or chloritic base. Holmes, 1926.

maeral. Applied to all petrologic units seen in microscopic sections of coal, as distinct from the visible units seen in the hand specimen. Comparable in rank to mineral as used in petrography. Thus, macerals are organic units composing the coal mass, being the individual elemental particles of the inorganic units composing rock masses and universally called minerals. Individual macerals have the termination -inite, that is, vinitrite, as the organic unit making up the lithologic specimen, vitroin. Three groups are recognized, (1) vitrinites, (2) exinites, and (3) inertinites. A.G.I. A.G.I. Supp.

maere. a. Thames. b. Often and wear away especially as a result of being wetted or steamed. Webster 3d.

macf. A flat triangular diamond crystal which is a twin crystal. Hess.

macgal. A relatively flat cored volcanic explosion crater at a vent that is either conical or has an inconspicuous cone. Fras.

mass borehole compass. A borehole surveying instrument. A glass tube, containing a compass floating in molten gelatin in the lower part, is lowered in the borehole. The instrument is allowed to remain until the gelatin solidifies and the acid has etched a line on the glass. On removal, the tube may be placed in a goniometer from which the angles of vertical and horizontal deflection may be determined. See also syphonic inclinometer.

mass survey. A borehole surveying technique employing a Mass compass. Long.

mass survey instrument. See Mass borehole compass.

macadam. Crushed stone of regular sizes below 3 inches for road construction. The smaller sizes below 1 inch are more specifically defined as chippings. See also penetration macadam, tar macadam. Nelson.

MacAdam system. A method of color notation in which nonphotopic regions of equal perceptual differences are inscribed in the Commission Internationale de l'Éclairage (CIE) space. See also CIE System. Dodd.

MacArthur and Forest Cynamide process. A process for recovering gold by leaching the pulped gold ore with a solution of 0.2 to 0.8 percent of potassium cyanide, K4CN, and then with water. The gold is obtained from this solution by precipitating it on zinc or aluminum, or by extractive methods. Nichols.

Macbeth Illuminometer. This contains a comparison surface of optical glass which is graduated by a lamp carried at the end of an extendible arm, so that its distance from the comparison surface can be determined. This is done by a rack and pinion device and provides the means of controlling the illumination on, and therefore the brightness of, the comparison field. B. Ratcliff, 112.

macerate. a. To wear away especially as a result of being wetted or steamed. Webster 3d.
machineman

sets up and operates an electrically driven or compressed-air-driven coal-cutting ma-
chine which is used to cut out a channel along the bottom or side of the working face of coal so that it may be blasted down without shattering the mass. Also called coal cutter; coal-cutting machine operator; cutter; machine; cutter oppor-
tor; cutting machine operator; holer; undercutter. D.O.T. 1, Eng. One who weighs coal, etc., and keeps an account of the number of cars sent to the sur-


machine. In bituminous coal mining, a general term applied to workers who are capable of operating one or more coal mining machines used for drilling, loading, and winding. Fay. a. Includes machine operators. See D.O.T. 1.

machine. In anthracite and bituminous coal mining, a. Implies the use of power for the purpose of cutting out or breaking up the coal. Includes mining machines and equipment in the excavation or removal of coal from the ground. Kiser, M. A. b. Includes machines and equipment in the extraction of coal or ore. In coal mines, the term almost invariably refers to the extraction of coal or ore. In non-coal mines, the term refers to the excavation of minerals, etc. Thomas, W. H. Also called machine operator; machine runner; mining machine operator. D.O.T. 1.

machine. Mines in which coal is cut by machines. Freeman, R. A. Also called cut coal mines.


machine. a. The amount of power a machine can deliver without overheating. Freeman, R. A. b. The number of horses a machine can perform under the observation and direction of a general foreman. Bureau of Mines Staff.


machinery steel. An open-hearth steel with 0.15 percent to 0.25 percent carbon content. The term is used to cut out coal and stone and to scrape fine coal and chippings from groove (channel) as it is cut along the bottom of the coal working face, using a shovel or some special scraping tool. Also called sheave; bent; eyelet. MacMichael, I. C. 1964; Fleischer, I. C. 1964; MacMichael, I. C. 1964; Fleischer, I. C. 1964.

machine. A variety of head shapes. It may be used or not used along with the machine scraper. A general term applied to workers who are capable of operating one or more coal mining machines used for drilling, loading, and winding. Usually designated as driller, machine; loader, machine I; loader, machine II; machine loader. Also called machine man. D.O.T. 1.


machine. a. Twinned crystal of diamond, usually composed of two flat crystals. Occupies the position of three flat crystals are found. Useful for certain industrial applications, such as wire-reinforcing dies and ornamental and gem. Also spelled mac- be, twin. MacMichael, I. C. 1964. c. Extremely large. A.G. 1. d. As a prefix meaning large, long; visit. e. As a prefix meaning large, long; visit.

macropyramid. In crystallography, the larger lateral axis in the orthorhombic and tricula-

macer. Applied to the texture of holocrystalline igneous rocks in which the constituents are distinguishable with the naked eye. Opposite of microcrystal-
line. A.G. I. b. In neocrystallized sedimentary rocks, the texture of a rock with grains or clasts over 0.75 millimeter in diameter. A.G. I.

macroura. A prefix meaning large, long; visit.

macun. A suffix meaning large, long; visit.

macuroxy. The b axis (long) in orthorhombic and triclinic crystals. Fay.

macrocrystalline coal. A well-laminated coal with a high proportion of vitrinite bands and fragments together with some resins, spheroid, cuticles, and a little fusinite. Compare microcrystal-

macrolaminated. Applied to the texture of holocrystalline igneous rocks in which the constituents are distinguishable with the naked eye. Opposite of microcrystal-
line. A.G. I. b. In neocrystallized sedimentary rocks, the texture of a rock with grains or clasts over 0.75 millimeter in diameter. A.G. I.

macrotrend. In crystallography, the larger lateral axis in the orthorhombic and tri-


macrotetch. Etching of a metal surface for accentuation of gross structural details and for the detection of defects by the unaided eye or at magnifications not exceeding 10 diameters. ASM Gloss.

macrofragmental coal. Coal composed of visible fragments or lenticles of various constituents, such as vitrain, durain, and fusain. Tomkoff, M.

macrograph. A graphic reproduction of the surface of a prepared specimen at a magnification not exceeding ten diameters. When photographed, the reproduction is known as a photomacrograph. ASM Gloss.

macrographite. Of or pertaining to a gran-
toid structure of rocks that is discernible to the naked dye; opposite of micro-

macromolecule. Very large molecule, noma-
tively one polymerized to a size visible without a low magnification. See 3.

macropyramid. A pyramid, the intercept of which on the macrodiagonal is larger than 1. Standard, 1964.

macrasp. In crystallography, a pina-
cord parallel to the vertical and macro-

macroscopic. Applied to a body of rock or a mineral deposit whose fabric of which consists of macroscopically different domains, that is, a coarse-grained (fabric. See also chon- droclastic, G.I.

macroporous. Poreosity visible without the aid of a microscope, such as pipes and caves in igneous rocks. Standard, 1964.

macrospim. A prism, the intercept of which on the macrodiagonal is larger than 1. Standard, 1964.

macropyramid. A pyramid, the intercept of which on the macrodiagonal is larger than 1. Standard, 1964.

macroura. A prefix meaning large, long; visit.
macropyramid


macropyramidal. A sample large enough to be measured on an analytical balance. ASTM STP No. 148-D.


macroconchis. A small residual stresses which vary from tension to compression in a distance (presumably many times the grain size) which is comparable to the gage length in ordinary strain measurements, hence, detectable by X-ray or dissection methods. ASM Gloss.

macrosedimentation. Gross differences in concentration of constituents in an alloy mass; for example, from one area of an ingot to another. See also segregation; coring. Handieron.

macrosedimentary. The area in which the earthwork is felt by the inhabitants. Schieferdecker.

macrosedimentary. A casting defect, detectable at magnifications exceeding 10 diameters, consisting of voids in the form of stringers shorter than shrinkage cracks. This results from contraction during solidification where there is not an adequate opportunity to supply filler material to compensate for the shrinkage. It is usually associated with abrupt changes in section size. ASM Gloss.

macrotension. The same as macroscopic stress. ASM Gloss.

macrotension. a. The general arrangement of pores in the matrix (for example, an ingot) as seen by the naked eye or at low magnification. The term is also applied to the general distribution of lge purities in a mass of metal as seen by the naked eye after certain methods of etching. C.T.D. b. The structure of metals as revealed by examination of the etched surface of a polished specimen at a magnification exceeding 10 diameters. ASM Gloss. c. A structural feature of a rock that is discernible to the unaided eye and with the help of a simple magnifier. Fay.

maculate. Applied to the group of contact-metamorphic rocks represented by spotted slates to denote their spotted or knotted character. May be applied either to the rocks or to their structure. See also spotted slate. Schieferdecker.

maculate. A rock in which the porphyroblasts of such minerals as andalusite, cordierite, chlorite, biotite, etc., are well developed, or in which spotting appears as the result of the incipient crystallization of these minerals and of the segregation of carbonaceous matter. Compare maculate structure. Synonym for spotted slate. Schieferdecker.

maculate. A structure typically developed in argillaceous rocks under contact or regional metamorphism. Compare maculate rock. Schieferdecker.

maculate structure. A structure typically developed in argillaceous rocks under contact or regional metamorphism. Compare maculate rock. Schieferdecker.

maculae. A rock from the Malagasy Republic of inferior quality to Ceylon alexandrite or Russian alexandrite. Shipley.

maculose. Amethyst from the Malagasy Republic, which is dark violet, has a slightly smoky tinge, and, if lighter in color, is usually violetish purple. Church.

maculose. A strongly dichroic variety of blue beryl obtained, as a gem stone material, from Malagasy Republic. Gal.

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magma type may chemically represent only fraction of the bulk magma and may, therefore, differ considerably from the magma. Holmes, 1928.

magnatic basalt. In part synonymous with limburgite, but also applied to porphyritic, glassy basaltic rocks more closely related to ordinary basalt. Holmes, 1928.


magnatic. a. Or pertaining to, or derived from magma. Fay. b. Related to bodies of molten rock within the earth. Bateman.

magnatic assimilation. See assimilation.

magnatic blaster. The swell up by differential heating of magma; for example, by local concentrations of radioactive matter. Schieferdecker.

magnatic cycle. See igneous cycle. C.T.D.

magnatic deposit. One of certain kinds of mineral deposits that form integral parts of igneous rock masses and permit the inference that they originated in their present form by processes of differentiation and cooling in molten magmas.

magnatic differentiation. The process by which different types of igneous rocks are derived from a single parent magma, or by which different parts of a single molten mass assume different compositions and textures as it solidifies. Also called magnatic segregation.

magnatic discriminant ore deposit. Straight magmatic mineral (ore) deposit having discriminant crystallization, but without local concentrations of the valuable mineral. Schieferdecker.

magnatic formations. See emonations, magmatic. A.G.I.

magnatic injection deposit. Straight magmatic deposit of mineral (ore) deposit, the formation of which has often been ascribed to injection into the older country rock of liquid magma, and the crystallization of residual liquid segregations, or of immiscible-liquid separations and accumulations. Schieberdecker.

magnatic ore deposit. During the progress of differentiation certain metallic substances, and cementitious materials, may be collected into fractions concentrated in these substances, and consolidated either as part of the intrusion or as isolated bodies to form magmatic ore deposits. Stokes and Varne, 1955.

magnatic segregation. A process of ore formation dependent upon the concentration of valuable minerals in particular parts of a cooling magma. The ore body grades off gradually into the igneous rock and is usually marginal in position. Examples are the Sudbury nickel deposits, many magmatic deposits of Scandinavia, etc. Nelson. See also mineralization; syngenetic igneous intrusions.

magnatic segregation deposit. a. An ore deposit formed by preferential solidification of a magma. Fay. b. A magmatic mineral (ore) deposit which was formed by the accumulation of early crystallized immobiles, by the crystallization of residual liquid accumulations, or by the crystallization of immiscible-liquid segregations. Schieferdecker.

magnatic stoping. A process of igneous intrushen in which a magma gradually works its way upward by breaking off blocks of the country rock. As originally proposed, the hypothesis maintained that these blocks sank downward. In piecemeal stoping, the blocks are small, measured in feet or in hundreds of feet. In ring-fracture stoping, they are large, thousands of feet or miles across. A.G.I.

magnatic water. Water derived from igneous magma. See also juvenile water. Fay. b. Water that exists in, or which is derived from, molten magma or rock. A.G.I. c. Water which constitutes an important part of fluid magmas. As the magma comes to the surface the water may be released in part giving rise to hot springs. Lewis, p. 630.

magnatic who believes that much granitic magma crystallized from a mobile magma whatever the origin of that magma. See assimilation.

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magnesite, caustic calcined

fractures; minor uses are glass constitu-
magnesite. See magnesite. Common term for ground
magnesite. Bureau of Mines Staff.
magnesite-chrome brick. A refractory brick, which may be either bonded, manufactured substantially of a mixture of dead-burned magnesite (magnesia) and refractory chrome ore, in which the magnesite predominates by weight. HW.
magnesite grain. See grain magnesite. ACSG, 1963.
magnesite H-W. Trade name for an over 90 percent burned magnesite brick with minor added components to control prop-
certies. Resistant to molten metal and basic slags. Used in open-hearth furnaces, ele-
tric steel furnaces; copper and nickel con-
verters; refining industries, and other applications. M.M., 1964.
magnesite refractory. A refractory material, fired or chemically bonded, consisting ess-
entially of dead-burned magnesite; the MgO content usually exceeds 80 percent. Such refractories are used in the hearths and walls of basic steel furnaces, mixer furnaces, and cement kilns. Dodd.
magnesite wheel. A grinding wheel bonded with magnesium oxychloride. AEM Glass.
magnesia. A silvery-white metallic ele-
mence. See magnesium. Lea.
magnesite, caustic calcined. A mineral, MgSO₄.5H₂O, triclinic, the artificial analogue of chalcanthite. Synonym for allenite; penta-
magnesium chloride. Colorless or white; MgCl₂; hexagonal; deliquescent; specific gravity, 2.32; melting point, 708° C; boiling point, 1,142° C; and soluble in water and in alcohol. Used for the electro-
lytic production of magnesium metal, in manufacturing magnesium-oxychloride ce-
ment, in ceramics, in cooling drilling tools in drilling metal, in electrolytic deposits, in dust-laying compounds, as a floculating agent, and as a catalyst. C.C.D. 6d, 1961; Hand-
magnesium chloride hexahydrate; bichlorid. Colorless or white; MgCl₂.6H₂O; mono-
clinic; deliquescent; specific gravity, 1.35; no melting point because it loses 2H₂O at 116° to 118° C; and soluble in water and in alcohol. Used for the electrolytic production of magnesium metal, in manufacturing magnesium-oxychloride ce-
ment, in ceramics, in cooling drilling tools in drilling metal, in electrolytic deposits, in dust-laying compounds, as a floculating agent, and as a catalyst. C.C.D. 6d, 1961; Hand-
magnesium chloride hexahydrate; magnesium hydroxide. White; Mg(OH)₂; tetragonal; 4.3 mg. Specific gravity, 3.6; no melting point because it de-
composes to the hexahydrate; and soluble in water and in alcohol. Used for the electro-
lytic production of magnesium metal, in manufacturing magnesium-oxychloride ce-
ment, in ceramics, in cooling drilling tools in drilling metal, in electrolytic deposits, in dust-laying compounds, as a floculating agent, and as a catalyst. C.C.D. 6d, 1961; Hand-
magnesium chloride hexahydrate; magnesium hydroxide. White, effloresces; MgSiF₆.H₂O; hexagonal trigor-
mal; molecular weight, 274.48; specific gravity, 2.44; colorless at 212° C; soluble in water and in alcohol. Used in ceramics and in concrete harden-
ers. C.C.D. 6d, 1961; Handbook of Chem-
magnesium fluoride; sellaite. Colorless or white; MgF₂; tetragonal; Mohs hardness, 3.0; no melting point because it loses 2H₂O at 116° to 118° C; and soluble in water and in alcohol. Used for the electrolytic production of magnesium metal, in manufacturing magnesium-oxychloride cement, in ceramics, in cooling drilling tools in drilling metal, in electrolytic deposits, in dust-laying compounds, as a floculating agent, and as a catalyst. C.C.D. 6d, 1961; Hand-
magnesium fluorosilicate hexahydrate; magnesium silicofluoride hydrate. White, effloresces; MgF₂.SiO₃.6H₂O; hexagonal trigor-
mal; molecular weight, 267.3; specific gravity, 2.29; colorless at 212° C; soluble in water and in alcohol. Used in ceramics and in concrete harden-
ers. C.C.D. 6d, 1961; Handbook of Chem-
magnesium fluoride; magnesium hydroxide. White; MgF₂; molecular weight, 94.03; specific gravity, 3.18; and sol-
uble in water and alcohol. Used as a flocculating agent, in inorganic paint, as a carrier.
C.C.D. 6d, 1961; Handbook of Chem-
magnesium hydroxide. White; Mg(OH)₂; molecu-
lar weight, 58.34; tetragonal; and it de-
composes with the evolution of hydrogen on contact with water. Decomposes at 180° C in a vacuum and is insoluble in ether. Bennett 2d, 1962 Add.; Handbook of Chem-
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magnesium hydroxide; magnesia. See magnesium. Lea.
magnesium hydroxide; magnesium oxide. A mixture of magnesium chloride and magnesium oxide that reac-
ches with water to form a solid mass, presumed to be magnesium oxychloride. Fills such as wood flour, sawdust, sand, powdered stone, tals, coke, and powdered charcoal, are usually present. A variety of proprietary mixtures are available. C.C.D. 6d, 1961. Used as building stone, marble, stone floor. Synonym for xlylo-
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magnesium stannate trihydrate

as an additive in ceramic capacitors. **CCD** 6d, 1961.

magnesium stannate, MgSn, molecular weight, 163.55; bluish-white metal melting point, 778° C; and soluble in cold water and in dilute hydrochloric acid. Used as a binder in the powder coating for a number of magnets. A magnet consists of a body that produces a magnetic field external to itself. An electromagnet is a magnet that is produced by an electrical current. Permanent magnets are magnets that have a magnetic field that is produced by an electrical current. The magnetic field of which has a substantial portion of its magnetism. See also magnetic. **Hen.**

magnetic Of or pertaining to magnetic phenomena, objects, or locales possessing the properties of a magnet. **Long.**

magnetic alloys. Alnico is an alloy of aluminum, nickel, and cobalt, with strong magnetic properties similar in all directions. Alnicos is anisotropic, with magnetic flux preferred axis. **Hvy.**

magnetically hard alloy. A ferromagnetic alloy capable of being magnetized permanently because of its ability to retain a residual magnetization and magnetic poles after removal of externally applied field; an alloy with high coercive force. The name is based on the fact that the quality of the early permanent magnets was related to their hardness. **Hyco.**

magnetically soft alloy. A ferromagnetic alloy that becomes magnetized readily upon application of a field and that returns to a practically nonmagnetic condition when the field is removed; an alloy with the property of being magnetically permeable, low coercive force and low magnetic hysteresis loss. **ASM Glus.**

magnetic moment. A nondestructive method of inspection to determine the existence of variations in magnetic flux concentration in ferromagnetic materials of constant cross section, such as might be caused by defects, discontinuities, and variations in hardness. The variations are usually established by a change in pattern on an oscilloscope screen. **ASM Glus.**

magnetic anomaly. Variation of the measurable magnetic pattern from a theoretical or empirically smooth field on the earth's surface. **ASM Glus.**

magnetic bearing. Azimuth angle of line from horizontal. Pryor, 3.

magnetic bottle. A magnetic field used to confine a plasma in controlled fusion experiments. **ASM Glus.**

magnetic ceramics. Ceramic products which have unique electrical properties particularly useful in high frequency microwave electronic applications. **Bureau of Mines Staff.**

magnetic circuit. The closed path taken by the magnetic flux in an electric machine or other piece of apparatus. **C.T.D.**

magnetic currents. On which connection between drive and driven member is provided by electromagnetic force. Pryor, 3.

magnetic deflector. An electrical device for deflecting a beam of charged particles. Pryor, 3.

magnetic dipoles. Aggregation of ferromagnetic atoms into a group, usually a chain of a micron in size, which lines among similar groups with random group orientation. This cancels out any magnetic moment until or unless they are all oriented by an applied magnetic field. **Pryor, 3.**

magnetic drift. Rotating cylinder with magnetic surface, used as a memory store. **Magnetic tape is also used. Pryor, 3, p. 31.**

magnetic field. Pheneomene characterized by certain metals, particularly nickel and its alloys, which change in length when magnetized or, if certain materials are then mechanically distorted, undergo a corresponding change in magnetic properties. **Hyco.**

magnetic flux. These are declination, dip, and magnetic intensity in the horizontal plane. **Pryor, 3.**

magnetic strength. The line on the surface of the earth where the magnetic needle remains horizontal, or does not dip; that is, where the magnetic field is horizontal. Also called the climatic line. **A.G.I.**

magnetic field strength. H. The force exerted on a unit pole at any point is the field strength at that point. **A.G.I.**

magnetics. Phenomenon which results from residual magnetism of ferromagnetic materials which have been assembled together under the influence of their individual polar forces. Pryor, 3.

magnetc flux. Induced strength or flux density in a magnetic field, measured in maxwells: B = 4πm

where B is the flux density, in the strength of the magnetic field, in the horizontal or vertical direction, in a cross-sectional area of a cylinder through which the flux flows, and H is the magnetic in-
magnetic flux
tensity in oersteds. See also magnetic inten-
sity. Pryor, 3.
magnetic force. The mechanical force ex-
certed by a magnetic field upon a magnetic
pole placed in it. Webster 3d. b. Magnetic
force. Webster 3d. c. Magnetic intensity.
Webster 3d.
magnetic gradiometer. An instrument, de-
designed but not applied, for measuring the
gradient of the magnetic intensity. A.G.I.
magnetic guard. A double mask of magne-
tic gauze, placed on the flying dust of iron
magnetic level coil. A device for measuring
the magnetic field as it existed at the time
magnetic ore. See magnetic Nelson.
magnetic iron oxide. See black iron oxide
Benett 2d, 1962.
magnetic level rock. A device for measuring
the liquid level in sumps and other ves-
els. It consists of a loop of wire which is
encased in a fiber gauze, placed on the
sheath. The loop is inserted in a sump of
thicker containing a magnetic or ferromag-
etic material. The advantages of such a
device are that it is reusable and may be
placed at the point in question. Also called
magnetic force. Webster 3d.
magnetic lock. A locking device which does
its lifting by means of an electromagnet.
Gripin.
magnetic induction. 3. In a magnetic me-
dium the vector sum of the inducing field
H and the corresponding intensity of magnetization I, according to the relation-
ship B=H+4-irI. A.G.I.
magnetic intensity. A vector quantity per-
taining to the condition at any point un-
der magnetic influence (as of an electromag-
etric current, or an electromagnetic wave) measured by the force exerted in a
vacuum upon a free unit north pole placed at the point in question. Also
called magnetic force. Webster 3d.
magnetic iron ores. See magnetic Nelson.
magnetic iron oxide. See black iron oxide
Benett 2d, 1962.
magnetic level coil. A device for measuring
the magnetic field as it existed at the time
magnetic permeability. Ratio of magnetic
induction to the inducing field of mag-
etic intensity. With magnetic intensity
lines of force per square centimeter in air, B/H is the magnetic
permeability. This is less than 1.0 in air,
but is magnetic in substances such as
ferromagnetic materials. The advantages of such a device are that it is reusable and may be
placed at the point in question. Also
called magnetic force. Webster 3d.
magnetic pole. A. Black, hard ore that is mag-
magnetic-particle inspection. A nondestruc-
tive method of inspection for determining the existence and extent of possible de-
fects in ferromagnetic materials. Finely
divided magnetic particles, suspended to the magnetized part, are attracted to and out-
lined by the pattern of any magnetic-leakage
fields created by discontinuities. ASM
magnetic separator. a. A machine for bring-
ing together magnetic minerals found in
nonmagnetic material. Minerals of weak
magnetism are now separated by using
b. A device used to separate magnetic
from less magnetic or nonmagnetic ma-
terials. The crushed material is conveyed
on a belt past a magnet. ASM Gloss.
c. For medium solids recovery. A device in
which the solids are caused to ad-
here, by magnetic means, to a conveying
belt or drum, while a current of water
removes nonmagnetic particles which con-
taminate the medium. B.S. 3522, 1962.
magnetic shaking. magnetite, S. Afr. Mag-
etic is a form of mechanical tool used to
separate magnetic materials from nonmagnetic
materials. Minerals of weak
magnetism are now separated by using
devices such as magnetic separators. The
use of a magnetic separator is that of heating iron
ore in the presence of air in order to
oxidize the iron content, present in what-
ever form, to the oxide. In a subsequent op-
eration it may be separated from the
other minerals through a magnetic com-
magnet roll feeder. One which utilizes
magnetized, power-operated rolls for sep-
ratation and delivering objects. A.S.A
magnetic. That branch of science which stud-
ies the laws of magnetic phenomena.
Obozor.
magnetic scale. A diagram of metal show-
ing their comparative magnetic qualities.
Fey.
magnetic separation. a. The separation of
magnetic and nonmagnetic materials, using a magnet. This is one of the
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tion of ores in which the magnetic mineral is separated from nonmagnetic
material; for example, magnetite from
other minerals, roasted pyrite from sphal-
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etic materials. Minerals of weak magnetism are now separated by using
magnetic separators. The crushed material is conveyed
on a belt past a magnet. ASM Gloss.
c. For medium solids recovery. A device in
which the solids are caused to ad-
here, by magnetic means, to a conveying
belt or drum, while a current of water
removes nonmagnetic particles which con-
taminate the medium. B.S. 3522, 1962.
magnetism

which they exert forces of attraction and repulsion according to fixed laws. Crispin. b. The science that is concerned with the conditions and laws of magnetic forces. Crispin.

magnetite; magnetic iron ore. Natural black orivinite. A dunite high in content of tuffiferous magnetite and containing shreds of biotite. Holmes, 1928.

magnetite. An igneous rock consisting essentially of magnetite and having an iron content of 65 to 70 percent or more. Apatite may accompany the magnetite. Johnathan, p. 4, 1938, p. 466.

magnetized. A body is said to be magnetized when it possesses a certain property whereby under certain circumstances it will naturally attract or repel a similar body, in accordance with magnetic laws; for example, drill rods become magnetized in use and will strongly attract other iron or steel objects. L. Long.

magnetizing coil. A winding which surrounds core of electromagnet. Pryor, S.

magnetometer. a. An instrument for measuring the magnetic intensity at a point. Theoretically, measured by the magnetic force produced in an evacuated tunnel along the direction of the magnetic flux; the magnetometer force replaces the force of attraction or repulsion by which the needle of a magnetometer is deflected. C.T.D. b. A force field, resulting from the flow of electric currents or from magnetized bodies, that produces magnetic induction. ASM Gloss.

magnetizing roast. A process in which an ore containing pyrite is heated and the magnetic iron oxide so formed is removed by a magnetic separator. In many cases the iron oxide is extracted as gangue.


magnetometer, a. An instrument for measuring magnetic intensity. In ground magnetic prospecting, an instrument for measuring the vertical magnetic intensity; in airborne magnetic prospecting, an instrument for measuring the total magnetic intensity. Also, an instrument used in magnetic observatories for measuring various components of the magnetic field of the earth. A.G.I. b. A sensitive instrument for detecting and measuring changes in the earth's magnetic field, used in prospecting to detect magnetic anomalies and magnetic gradients in rock formations. Pryor. See also nuclear resonance magnetometer: airborne magnetometer.

magnetostatic force. Flux strength flowing between magnetic poles in accordance with Lowland's law. Emmm.

Magnetic flux = reluctance

magnetophosphite. A black double oxide of ferrous phosphate and manganese and some titanium, etc., 2(Fe, Mn)O.3Fe2O3.


magnetoresistance. A form of transmission based on the principle that a magnetic field of force is produced whose strength is varied so as to transmit a torque of corresponding magnitude. With a system of this kind, control of any particular operation is effected through the agency of the magnetoresistance, thus varying at constant speed. Institution of Mining and Metallurgy, Symposium on Applications of Magnetism. London, 16-19 November 1964. Paper 13, p. 18.

magnetostriiction. The characteristic of a material that is manifest by strain when it is subjected to a magnetic field; or the inverse, S. Specimen must be expanded; pure nickel contracts. ASM Gloss.

magnetotelluric method. This electrical prospecting technique was first produced in 1950 and has been developed on an entirely new application of telluric currents in which the magnetic fields induced by the alternations in each core would be measured simultaneously with the voltage fluctuations between electrodes at the surface. The ratio between the amplitudes of these alternating voltages and then associated magnetic fields would then be plotted as a function of frequency. Dobrin, p. 355.

magnetron. A thermionic vacuum tube in which the movement of the electrons is controlled by a combination of crossed electric and magnetic fields. NCB.

magnet steel. A steel from which permanent magnetism can be obtained. It must have a high remanence and coercive force. C.T.D.

magnet thickness gauge. A non-destructive device for determining the thickness of a coating of vitreous enamel; it depends upon the principle that the force required to pull a permanent magnet off the surface of enamelled metal is inversely proportional to the thickness of the nonmagnetic enamel layer on the magnetic base metal. Dodd.

magnetizer; magnetizer. See dolomite brick.

magnifying power. Ratio of apparent size of optically magnified object to that seen by the naked eye. Pirsson, and Washington for a coarsely microphyric texture; a porphyritic texture. C.T.D.

magnetite. A number related to the total energy released by an earthquake. Combe.


magnoctochormite. Black scicular and tabular orthochromic crystals, (Mg, Fe, Mn)(Ni, Co)O2, the magnesium analogue of clumbite. From Kugi-Lyul, southwest Pa-

magnolia metal. A lead-base alloy containing tin, occasionally antimony, but small amounts of iron and tin are present. It is used for bearings. C.T.D.

magnus. Trade name of the Nevada Magne-

magnesite; used as construction material. Nelson.

magnesite brick. See dolomite brick. Hess.

Mahler bomb calorimeter. An instrument which is used for determining the heat of combustion in which the fuel is placed together with the oxygen required for its combustion. It is immersed in a weighted jar of water and the temperature rise after ignition makes it possible to compute the amount of heat in the fuel. Schaller.

Mahogany ore. Compress mixture of oxides of iron and copper. Schaller.

mahogany soap. Complex soap formed during the washing of coal and ores. Nelson.

main arch

main arch

magnesite; magnetic iron ore. Natural black ore. At black sand, magnetite occurs in placer deposits, and also as lenticular bands. Magnetite is used widely as a suspension pigment in dense-medium washing of coal and ores. Nelson.

magnetite olivinites. A dunite high in content of tuffiferous magnetite and consisting of magnetite (in part titaniferous), spinel, and smaller amounts of olivine, pyrrhotite, and pyrite. The ore contains about 14 percent titanite oxide. Fay.

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furnace roof, particularly used as a synonym of the crown of a glass tank furnace.

Main arch

Main board gate. York. The heading which is driven slightly to the rise from the shaft. Fay.

Main bottom. Hard rock below alluvial deposits. Fay.

Main break. In mine subsidence, the break that occurs over the seam at an angle from the vertical equal to half the dip. Lewis, p. 619.

Main broach. Eng. See gate. SMRE, Paper No. 61.

Main canal. The main conduit beginning at the source of water supply, from which the lateral system receives its supply. Syley, 1.

Main channel. A master cleat; bord cleat. In a canal, a cleavage plane at right angles to the bedding plane on which it was laid. The clearances and miners give it names according to their locality. Mason, v. 1, p. 8.

Main conveyors. Underground mine conveyors. ASA MH4-1.1938.

Main crossection. The crossection that traverses the entire mining field and penetrates all deposits. There must be a main crossection at each level and it is the main one for the level in question. It serves the same purpose as the shaft of the mine having the largest cross section, and be particularly well constructed, as repairs to its support would hold up the entire system of the entire level. Stove, v. 1, p. 223.

Main drain. A sewer or drainage channel leading off the floor of its point of discharge. See also outfall. Ham.

Main drive; main reef drive. A main tunnel driven in the rock underlying a lead and about 50 feet below the wash dirt. It is used as a drainage tunnel for carrying the water from the shafting holes to the shaft pump and also for the transport of cars from the raises. Engineering and Mining Journal, v. 139, No. 4, April 1938, p. 35.

Main endings. Pairs of narrow coal headings with crosscuts at intervals, driven to form large pillars of coal in panel working. Nelson.


Main entry. a. The principal entry or set of entries driven through the coalbed from which cross entries, room entries, or rooms are turned. U.S. BuMineral State Safety Code—Bituminous Coal and Lignite Mines, Pt. 1 Underground Mines, October 8, 1953. b. A term used in the United States for the principal horizontal gallery giving access to a coal seam and used for haulage, ventilation, etc. Where two entries are driven in parallel the term double entry is used. When three parallel entries, the term triple entry is used. See also entry. Nelson. c. An entry driven at right angles with the face slips of the coal. See also entry. Fay. d. A main haulage road. See also main road. Fay.

Main sampler. A drive-type, split-tube soil-sampling device, usually equipped with a flap or clack valve near the cutting shoe. Used in sizes having diameters ranging from 4 to 6½ inches long. Light.

Main-type sampler. A soil-sampling device that works essentially on the same principle as a Maine sampler. Long.

Main facets. a. The bezel and pavilion facets. Shipley. b. Any other facets extending from the girdle to the table or from the girdle to the culet. Fay.

Main fans. Main fans produce the general ventilating current of the mine, and are of large size. They are usually permanently installed. They are assisted by natural ventilation, if present, and, if necessary, by booster fans. They are driven in a certain duty and great attention is paid to their efficiency since this governs the cost of performing the duty. Roberts, 1, pp. 200, 224.

Main firing. The firing of a round of shots by means of current supplied by a transformer fed from a main power supply. B.S. 3618, 1964, sec. 6.

Main gate. The principal or central heading along which the coal is conveyed from two or more conveyors panels. Normal, the main gate also acts as an intake airway to the face. See also double unit; mother gate. Nelson.

Main headwall. That portion 20 to 30 feet above the roof body. Hess.

Main haulage conveyor. Generally 500 to 3,000 feet in length. It is used to transport material between the intermediate haulage conveyor and a loading point or the outside. NEMA MB1-1961.

Main haulage system. The principal transportation road. B.C.I.

Main hole. The first or primary borehole from which secondary or branch holes are drilled. Also called original hole; parent hole. Compare branch, c. Long.

Main intake. The trunk or principal intake airway of a mine. The main intake air current is usually split into two or more air currents before reaching the workings. Nelson.

Main levels; main roads. The first and leading excavations in mines which are made for the purpose of opening out or winning the coal, and which are intended to be the principal roadways of the mine. Pecl.


Main-line locomotive. A large, high-powered locomotive which hauls trains of cars over the main haulage track. D.O.T. 1.

Main-line motor car. In bituminous coal mining, one who operates a mine locomotive. Fay.

Main lining. In bituminous coal mining, one who has charge of and rides trips (trains) of cars hauled in and out of the mine along the main cable haulageway. D.O.T. 1.

Main roadway. A system of underground haulage in which the weight of the empty cars is sufficient to draw the rope inby. Fay.

Main section door. A wooden or steel door erected near the pit bottom to prevent the intake air leaking into the main return airway or outcast shaft; a door to direct the main intake air to the workings. It may be fitted with an appliance, or shutter, to ease the opening for traveling purposes. See also fan-drift doors. Nelson.

Mainline fume. Firing blasts from a mains supply. Mcdonald II, p. 78.

Main shaft. The line of shafting which receives its power directly from the engine or motor and transmits power to other parts. Crispin.

Main shafting. A system of underground mining in which the lamps are fed from the main electrical supply. It is used principally at the pit bottom, using filament lamps in either transparent or prismatic bulb fittings. After 1947, mains lighting became a compulsory requirement in British mines at the shaft bottom and in main intake workings. Nelson.

Main-slope engineer. In bituminous coal mining, one who operates the hoisting engine, usually of the Cornish type. Fay.

Main-slope engineer. In bituminous coal mining, one who operates the hoisting engine, usually of the Cornish type. Fay.

Main reef. See main drive. Engineer-
main suit. Brit. A heavy spring or feeder of water. Fay.


maintenance. Fr. The face of workings in inclined or vertical seams consisting of a series of steps each about 6 feet high, and forming the working place for one man.

maintenance. Proper care, repair, and keeping in good order. Crispin.

maintenance staff. The conveyer into which electricians, mechanics, and fitters kept at a mine for the maintenance and service of face machinery, haulages, locomotives, pumps, compressors, etc. It is reported that the maintenance staff at German coal mines forms about 10 percent of the total labor force, whereas in British coal mines, the number is between 4 and 3 percent. Nelson.

main tie. Tension member connecting the feet of a roof truss, usually at the level of beam on the wall plate or purlin. Ham.

main transport. The conveying or haulage of coal or mineral from the inby subsidiary transport to the shaft bottom or surface. For the main transport of coal, the tunnel or the conveyor belt is used. Motive haulage. A conveyer belt is capable of high-capacity continuous transportation. Nelson.

main way. A gangway or principal passage. Fay.

Majec mill. A mill for dry-grinding mica by means of fluid energy. It consists of a chamber containing two horizontal directly opposed jets. Mica is fed continuously from this mill and the conveying or haulage of coal or mineral is done through the conveyer belt. Crispin.

malachite. a. A pigment made of green, in making organic pigments, in in- dustrial and other applications. b. A term used in chemistry for an unnecessary length of time. ACM. 1.

malachite green. a. A pigment made of green malachite. Weller 3d. b. A tri- phenylmethane basic dye prepared from benzaldehyde and dimethylaniline and used commercially. Minerals are malleable when slices cut in a groundmass of the same minerals and in France. Fay.

malleable. Of a thread or screw. Crispin.

malcolm. A brown, vitreous variety of altered zircon in which the element hafnium was discovered in 1923. Found in Norway and France. Fay.

Malagui. Lava rock from Spanish mal pala. Hsei.


malkie. A fine-grained granular igneous rock, e.g., diorite, gabbro, composed of albite, hornblende, and biotite phenocrysts in a groundmass of the same minerals and some quartz. In most malchies, only one generation of femic minerals occurs and the rocks are classified as microdiorites, microgabbros, diorite, or gabbro aplites. If, however, two generations of femic minerals are present, the rock is classified as a melanocratic amphibolite. Fay.


Malacose. 2. Synonym for pin. Long.


malafera. A hand reverbatory furnace for roasting finely divided ore entirely without the aid of an external heat. Fay.

malachite. A group term for an igneous rock facies which includes granite, granodiorite, and gabbro. Fay.

malachite. A mafic nepheline syenite. Fifty percent of the rock is composed of aegirine-aegirine, and carbonatite is predominately nepheline and orthoclase in equal amounts. Accessory apatite, biotite, and hornblende are also present. Shorten, 1964.

maling. To feign illness; sham sickness in order to avoid duty; counterfeit disease. Fay.

malingger. a. A soldier or a sailor who feigns sickness to avoid doing his duty; hence, in general, one who shirks his duty by pretending illness or inability. Webster 2d. b. In industrial accident insurance, one who feigns disability or extends his period of disability, in order to collect accident insurance or compensation. Fay.

maling. Synonym for maling. Fay.

maling. Said of machinery when it is alleged that they are feigning sickness in order to avoid duty or to draw compensation for an unnecessary length of time. Fay.

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shaped by beating with a hammer, as gold, silver, etc. Compare brittle; flexible; sectile. maillable castings. Iron castings made from malleable pig iron and heated in scale.

malachite. 3d. a Synonym for marl in its original sense of a calcareous clay. Dodd, b. Eng. A light clayey soil containing chalk; malt; also an artificial mixture of clay and sand used in the manufacture of bricks. Webster 3d. c. A light clayey soil containing chalk; malt; also an artificial mixture of clay and sand used in the manufacture of bricks. Webster 3d.

Malan Upper Jurass.c. A.G.I. Supp. A Scandinavian term for an ore field; an area in which there is a group of ore deposits. Hess.

managing. The preparation of an artificial malm by mixing chalk and clay reduced to a pulp, and allowing the mixture to consolidate by evaporation. Fay.

malic acid. A light clayey soil containing chalk; malt; also an artificial mixture of clay and sand used in the manufacture of bricks. Webster 3d.

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managing, extraction of mineral. In anthracite coal mining, bituminous coal mining, metal mining, nonmetal mining, and the quarry industry, one who directs all operations in the extraction of minerals at such places as mines, quarries, gravel pits, and salt wells, either through subordinate foremen or supervisors, or by personally overseeing the individual phases of the work. Also called superintendent, extraction of mineral. D.O.T. 1.

manager's clerk. Generally, a young man who takes charge of a mine manager's clerical duties and office routine. Inter alia, he engages the dockage to devote more time to technical matters and underground inspections. Nelson.

managing, plan. A plan of the workings kept at the office of the mine in addition to the working plan, for everyday use by the manager. B.S. 3618, 1965, sec. 1.


manganese. A variety of andalusite, resembling chalciotite, showing a mottled cross of pure material separated by areas of impure material. From Finland. English.

malt. a. Various natural tars resulting from the oxidation and drying of petroleum. A.G.I. b. A black viscous substance intermediate between petroleum and asphalt. Also called malting. Webster 3d.

maltisite. A variety of andalusite, resembling chalciotite, showing a mottled cross of pure material separated by areas of impure material. From Finland. English.

mantle. See sal marm.

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malleable

Manganese twin. A monoclinic twin crystal in which the basal pinacoid was the twin-plane plane. See manganite. Fay.

Manganite tile. A clay roofing tile of the alabandite type made in the Mangalore district of India. Dodd.

manganate. A variety of andalusite containing 6.9 percent MnO. It differs from ordinary andalusite in its green-gray color and strong pleochroism. From Vastana, Sweden. English.

manganite. A variety of beryllite in which magnesium is largely replaced by manganese, typically (Ca,Na)Mn(AlO2). Originally called pyrrhotenite. From Langban, Sweden. English.

manganocalcite. See alabandite. Fay.

manganocalcite. See manganite. English.

manganocalcite. See manganese oxide. Also rhodochrosite.

manganocalcite. See manganite. English.

manganocalcite. See rhodochrosite. Webster 3d.

manganocalcite. Name applied to the manganese nodule from the ocean floors containing 35 percent manganese but not less than 35 percent manganese. Praktiches. 1963, p. 554.

manganocalcite. A term sometimes applied to any steel containing more manganese than is usually present in carbon steel (that is, 0.3 percent manganese). From Varutrask, near Boliden, Sweden. English.


manganocalcite. Also rhodochrosite. Webster 3d.

manganocalcite. Strongly colored yellowish, reddish, or brownish deposits of manganese oxides. Skow.

Manganese steel. A term sometimes applied to any steel containing more manganese than is usually present in carbon steel (that is, 0.3 percent manganese). From Varutrask, near Boliden, Sweden. English.

manganocalcite. A term used by the Bureau of Mines for ores containing 35 percent manganese but not less than 35 percent manganese. Manganese Bull. 630, 1965, p. 553.

manganocalcite. A term used by the Bureau of Mines for any ore of importance for its manganese content containing less than 35 percent manganese but not less than 35 percent manganese. Manganese Bull. 630, 1965, p. 553.

manganocalcite. An alloy in which manganese and nickel are compounded in somewhat small proportions with copper, the ratio of manganese to nickel being as 3 or 4 to 1. This alloy is used almost exclusively in the construction of a standard of electrical resistance, the temperature coefficient of which is practically zero.

manganocalcite. Gray manganese ore. Steel-gray to iron-black mineral, MnO.O.H2O, red-brown to black, massive or in radiating aggregates. Contains 62.4 percent manganese; 27.5 percent oxygen; 10.3 percent water. Formed in the same deposits as pyrolusite which is frequently an alteration product of manganese dioxide. See manganese nodule. Manganese Bull. 630, 1965, p. 553.
Manganese. Variety of manganese sulfates tetrahydrate; manganese dioxide; manganese oxide; mangastones oxide; manganese sulfate. Variety of columbite-manganese oxide; manganosite. A variety of steenstrupine. An amorphous manganosite. Manganous oxide, MnO. In manganolke. Wadsworth's name for rocks composed of manganese minerals, such as wad, pelomelane, etc. Fay.


Manganese dioxide. A chamber or tube having a multiple inlet and several outlets. L&L, p. 526. Also called MM diamond. Th. B. 19-50.

Manganese nitrate. A high grade of asphalt used largely as a catalyst. Pryor, 3.

Manganese metal. A mill used in the Mannesmann process. ASM Glow.

Manganese process. Contact method of catalyzing SO2 to SO3 in two stages, using first iron oxide and second platinized asbestos as catalysts. Pryor, 3.

Manganese steel. A metal used in the Mannesmann process. ASM Glow.

Manganese steel. A process used for piercing tube billets in making seamless tubes. The billet is rotated between two heavy rolls mounted at an angle and forced over a fixed mandrel. ASM Glow.

Manganese. A carbonate of manganese and lime; a glass. CCD 61, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. 206. Additionally, it can be used in the Mannesmann process. ASM Glow.

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manganese; gray manganese ore

sure obtained between a low-speed atmospheric wind-tunnel hole (static pressure) and the atmospheric static pressure is used to carry out the testing. The two limbs of the manometer and the low pressure side of the Chattock-Fry are connected by a radial-tip fan hole (reference variable pressure) while the other limb of the manometer is connected to the atmospheric outlet of the Chattock-Fry. Roberts, 1, pp. 35-37.

Manometric efficiency. The ratio of the actual head developed to the theoretical pressure of air moving at the fan-tip speed, equal to one-half the theoretical head of a radial-tip fan. Hartman, p. 182. b. An indication of the capability of the fan to produce pressure and is the ratio of the initial depression to the theoretical depression.

Manometric efficiency = 3.800 Total w.k.


manpower deployment. See deployment of manpower. Nelson.

manpower deployment chart. A chart or record on a board showing at a glance the position of every workman underground.

manriding exta. A car or carriage designed for the riding of miners to and from the workings. The car body has a low center of gravity and the risk of overturning, and is fitted with track brakes and an overspeed clutch. The train set is arranged to brake from the rear to avoid pileup and the overspeed clutch is activated. The train set is run with the train set to give convenient access to a stope. Also called mantripping." Nelson. b. A passageway or the use of miners only; an airshift; a chute. Standard, 1964, c. Eng. A manhole. Standard, 1964. d. A passage into or out of a mine used as a footpath for workers. Korson. e. A short heading between two chutes. Fay.

manna stone. See chima stone. Dodd.

manganese: a. A horizontal projection of surface plants, mine workings, or both, drawn to a definite scale, upon which is shown all the important features of the mine; a plan; a plat. Fay. b. The act of preparing such plans of a mine. Bureau of Mines Staff. c. A representation to a definite scale on a horizontal plane of the physical features of a portion of the earth's surface (natural or artificial or both) by means of symbols, which may emphasize, generalize, or omit certain features as conditions may warrant. May be derived from ground surveys made by transit, plane table, or camera, or from aerial photographic surveys, or both. See. 2.

map projection. A method of representing the curved surface of the earth on a flat surface map. As the only true shape of the earth's surface it may be required to preserve the chosen feature of the earth's surface without some distortion. Hem.


Marathonian orogeny. Post-Pennsylvanian diastrophism. Lab. 8.

marathon mill. A form of tube mill used in the cement industry, in which the pulverization is done by being hardened steel shafting. Ladd 2d, p. 357.

maraschino. A prospect or placer miner who works the red-berried bents and finds, regardless of its ownership. Poor, p. 496.

marble. A Spanish magnetite with a silicious gangue. Osborne.

marble. Obtained from a metamorphic rock composed essentially of calcite, dolomite, or a combination of the two, but long usage of the term by the quarry industry also includes serpentine, alabaster, onyx, travertines, and so on granites. Bukiniski Bull. 630, 1965, p. 878. This material is a limestone which has been crystalized by heat or pressure and is capable of taking a polish. Commercially, any limestone that is sufficiently hard and coherent to take a good polish is called a marble. For statutory and monumental work a fine even texture and uniform color are required, although colored marbles are used.

marble cleaner. In the stonework industry, one who removes stains from the finished surface of marble blocks or slabs with cleaning solutions, sometimes using a attack, end, too. Extreme care not to damage the stone where the finishing has been removed. D.O.T. 1.


marble dust. Crushed and pulverized limestone. Large quantities are used in making cement. Circ. 5, 1960.

marble. A toothless blade fitted at the back with a block handle, used with sand for cutting slabs of marble into pieces. Fay.

marbled. An enameled surface color graded to give the appearance of variegated marble. Fay. 1926.

marbled. In the stonework industry, one who makes imitations of marble from slate slabs of different colors. D.O.T. 1.


marble polisher. A block of sandstone used to polish a marble slab in the preliminary polishing. Also a linen cushion with which the polishing is completed by the operator. Very dusty. D.O.T. A machine for polishing marble. Fay. c. A marble rubber. Fay. d. One who polishes the faces of marble slabs or slabs to a high finish. Fay. e. A machine with sand for cutting marble slabs or slabs to a high finish. Fay. f. A machine with sand for cutting marble slabs or slabs to a high finish. Fay.

mark. The border or limit of a mineral area leased to, or owned by, a mining company. See also boundary. Nelson.


marble. A. A rubber for surfacing, D.O.T. 1.

marble. B. Crushed and pulverized limestone. Large quantities are used in making cement. Circ. 5, 1960.


marble. b. In the gem-stone trade, marcasite. A.G.I.; Dana 17.

marble. C. A granite containing large amounts of hornblende and augite. D.O.T. 1.

marble band. With a solution of copper sulfate. Fay.

marble. D. The cylindrical portion of the land that is not cut away to provide space for the plant. A.G.I.

marble assimilation. The solution and incorporation of country rock into the margins of an intruding igneous mass. Stokes and Varnes, 1955.

marble deposit. A magmatic segregation deposit at the boundary of an intrusive rock and the intrusive rock mother rock; for example, nickel-copper-sulfide deposits at Sudbury, Ontario, Canada.

marble fissure. A joint along the margin of an intrusive body that dips inward toward the intrusive. A.G.I.

marble mine. So. A mine which just manages to pay its way but may be unable to do so if the price of its product falls or if its production costs rise slightly.

marble ore deposit. A deposit near the lower limit of commercial workability. Bateman.

marble. a. A mineral used to make artificial marble, B. A true marble is a porcelain made from the same material.Nelson.

marble. a. A true marble is a rock consisting essentially of enstatite and diopside. Johansen, s. 4, 1928, p. 461.

marble. b. A heading driven up to or alongside the march, or boundary of a mining property. Fay.

marble. c. A marking putty. Crispin.


marble. e. A small percentage of water. Foy.

marble. f. A small percentage of water. Foy.

marble. g. A small percentage of water. Foy.

marble. h. A small percentage of water. Foy.

marble. i. A small percentage of water. Foy.

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marble. w. A small percentage of water. Foy.

marble. x. A small percentage of water. Foy.

marble. y. A small percentage of water. Foy.

marble. z. A small percentage of water. Foy.

marcasite. A. White iron pyrites, FeS2, the orthorhombic dimorph of pyrite, having a lower specific gravity, less stability, and a paler color. Often called white iron pyrite, cinnabar pyrites, and spey pyrites. A.G.I. b. A white iron pyrites, cinnabar pyrites, and spey pyrites. A.G.I. c. A white iron pyrites, cinnabar pyrites, and spey pyrites. A.G.I.

marble. a. A. A rubber for surfacing, D.O.T. 1.

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marble. y. A. A rubber for surfacing, D.O.T. 1.

marble. z. A. A rubber for surfacing, D.O.T. 1.
A page of text containing information on marine cycles, marine construction, and related geological processes, such as erosion by wave action and the formation of marine deposits. The text includes references to specific geological concepts and terms, and mentions the work of various authors and researchers in the field. The page also contains a section on the measurement of depth using a sounding line and the marking of claim boundaries in mining operations.
...
mass. A large body of rock, such as an igneous intrusion, a mineral deposit, or a variable mass body. Mason, b. See also massif.

massif. A. The dominant, central mass of a mountain range. B. A mass of rock, such as an igneous intrusion, a mineral deposit, or a variable mass body. C. A large body of rock, such as an igneous intrusion, a mineral deposit, or a variable mass body. D. A large body of rock, such as an igneous intrusion, a mineral deposit, or a variable mass body.
mass spectrometer. An apparatus similar to a mass spectrometer but usually with electrical measurement of the data. Used especially in determining abundance ratios of isotopes and in analyzing mixtures of gases.

mass spectrometer. The slow downslope movement of rock debris. A.G.I. b. A general term for a variety of processes by which large masses of earth material are moved by gravity under slowly a quaquarium form. See mass spectrometer and Figs. 4, 5, 6, 7, 8.

mass spectrometer. a. A small device is used to analyze mixtures of gases. b. A instrument which is used to determine the abundance of different isotopes of elements. c. A machine which is used to determine the abundance of different isotopes of elements in a sample. d. A instrument which is used to determine the abundance of different isotopes of elements in a sample.

mass spectrometer. A type of crude asphalt composed of suitably graded mineral matter and asphaltic cement in such proportions as to form a coherent, voidless, impermeable mass, solid or semisolid under conditions of adequate temperature and sufficient fluidity when brought to a suitable temperature to be spread by means of a hand float. Institute of Petroleum, 1931.

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matrix. a. The continuous phase of a polyphase eutectic mixture; the physically continuous metallic constituent in which separate particles of another metallic constituent are dispersed. ASM Gloss, 2d ed., p. 245.
b. A term used in powder metallurgy in reference to the metal phase of a product or ingot that has a lower melting point than the other added phases forming the ingot. ASM Gloss, 2d ed., p. 245.

matrice. A rounded glass mold in which separate metal ingots are cast. Seely, 1.

matric. a. Local Galena name for blower. Freeland, 1950.
b. A term used in pneumatic flotation machines which electromagnetically attracts the metal through which the air passed in the older types of machines.

matlockite. Overbruchite of lead, Pb2PO4Cl, which occurs in tabular tetragonal crystals of MD.

mat packs. Small packs of timber consisting of a number of timbers laid side by side to form a solid mass 2 or 2 1/2 feet square by 5 to 6 inches thick. Holes are drilled in the ends of the timber and wires are threaded through to hold it together. Masons are transported underground and built up to form very effective support.

matras. mattress. A rounded glass flask with a long neck. Formerly used for dissolving substances by the application of heat or for distilling. Webster 3d. matrice. See matrix. Fay.

matrix. a. The rock containing a mineral or metallic ore; the gangue. Sometimes called the groundmass. Fay, b. The material which forms a cushion, or binder, in the construction of pavements. Fay. c. The impression or mold of the exterior of a fossil, crystal, or mineral left in the containing rock when the crystal, crystal, or mineral is removed, or the mass in which a fossil, crystal, or mineral is embedded. Standard, 1964. d. The metal in which the diamonds inset in the crown of a bit are embedded. Long. e. A specially designed cavity, usually of platter, in which terracotta plastic clay is packed to produce forms. Also called mold. Mersereau, 4th, p. 260. f. The finer grained material between the larger particles of a rock or the material surrounding a mineral or mineral. B.S. 3616; 1954, sec. 5.9. The principal phase or aggregate in which another constituent is embedded. ASM Gloss, h. An involute forming, a form used as a cathode. ASM Gloss.

matrix jewelry. Jewelry cut from some stone, asopal or turquoise, and its surrounding matrix which are called opal matrix, turquoise matrix, etc. Fay.

matrix metal. a. The continuous phase of a polyphase eutectic mixture; the physically continuous metallic constituent in which separate particles of another metallic constituent are dispersed. ASM Gloss, 2d ed., p. 245.
b. A term used in powder
maximum, minimum, diameter

maximum, minimum, pressure

maximum, minimum, pressure. For any given point of a periodical is the maximum 
minimum, pressure, the maximum, minimum, pressure, and the minimum, pressure,
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McQuald-Ehn test. A test by means of which t.e came, the incoming come to the screen plate while the water in the washing bed, causing the water to dewatering screens. The removal of moisture is accomplished by passing hot air, or other hot gas, through the bed of coal as it travels. Two balanced eccentric shafts are used. They are suspended from the supporting structure by means of inclined flexible hangers and actuated inpendent from the supporting structure by means of inclined flexible hangers and actuated in

The removal of moisture is accomplished by passing hot furnace gases, tempered with carbon dioxide, upward through the bed of coal as it travels along the screen. An induced-draft fan at the exhaust end provides the motive force for the gases. Mitchell, p. 678-679.

McNamara clamp. A drill-rod safety clamp somewhat similar to a Wonner's safety clamp.

Mean barrel. Synonym for M-design core barrel. Long.

Mean curve; Mayer curve. A cumulative curve used in the first instance to express the washability of a coal, plotted on a vectorial diagram in which the projection of the vector on the abscissa represents the percentage of the product (coal) and the direction of the vector represents the percentage of a particular constituent of the product. Long.

McQuaid-Ehn test. A test by means of which it is possible to predict the reaction of plain carbon steels during cooling and forming steels during quenching. The interpretation of the test depends upon the examination of the pearlite and cementite in the hyperperitectic region.

Mean diameter. The average of two measurements on the diameter, taken at right angles to each other. Webster 3d, p. 124.

Mean diameter, geometric. The diameter equivalent to the arithmetic mean of the logarithmic frequency distribution. In the analysis of beach sands, it is taken as that grain diameter determined graphically by the intersection of a straight line through the selected boundary sizes (generally points on the distribution curve where 16 and 84 percent of the sample by weight is finer) and a vertical line through the median diameter of the sample. H.C.G.

Mean effective pressure. In an air compressor, the equivalent average pressure exerted by the piston throughout the stroke. Lewis, p. 458.

Mean error. The mean deviation of a distribution of accidental errors. Webster 3d.

Mean free path. The average distance between collisions for a particular molecule or molecule between successive collisions. L.B.L.

Mean higher high water. The average height of the higher high waters over a 19-year period. Can be calculated for shorter periods by applying corrections for a 19-year period. Abbreviation, m.h.h.

Mean high springs. The average height of high water during sympathy over a 19-year period. H.Y.

Mean high water. The average height of the high waters over a 19-year period. Abbreviation, m.h.w.

Mean horizontal candlepower. The mean horizontal candlepower of a light source having its axis of symmetry in the vertical plane is the mean candlepower in the horizontal plane through the luminous center of the source. Nelson, p. 200-201.

Mean low water. The average height of the lower low waters over a 19-year period. Can be calculated for shorter periods by applying corrections for a 19-year period. Abbreviation, m.l.w.

Mean lower low water. The mean lower low water over a 19-year period.
mechanical analysis

mechanical advantage. Ratio between the resistance or load raised by a machine, and the applied force. Mechanical advantage divided by velocity ratio gives the efficiency of the machine. Ham.

mechanical air machine. A flotation machine which utilizes pulp-body concentration by the agitation froth method and bubble column action by pneumatic and cascade means. Taggert, p. 628.

mechanical advantage. Ratio between the resistance or load raised by a machine, and the applied force. Mechanical advantage divided by velocity ratio gives the efficiency of the machine. Ham.

mechanical noise analysis. a. The relative proportions of the different sized mineral particles present in a soil or rock. It is determined by mechanical analysis, in which the particles are separated into a number of arbitrary fractions, each consisting of particles whose size lies between definite limits. For uniformity and convenience the International Society of Soil Science has fixed the following limits. Nelson.

Diameter of particles

<table>
<thead>
<tr>
<th>Designation</th>
<th>Coarse sand</th>
<th>Fine sand</th>
<th>Silt</th>
<th>Clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0 to 0.2 mm</td>
<td>0.2 to 0.02 mm</td>
<td>0.02 to 0.002 mm</td>
<td>less than 0.002 mm</td>
<td>clay</td>
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Nelson. b. An analysis of the particle-size distribu-
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mechanized heading development. A pillar mine headgear is operated for seams 4 feet and over in thickness. Three or more narrow headings are driven rapidly with machines at about 30-yard centers with a 60-ton load. The headings are driven in a series of small holes, each 4 feet long and about 6 feet in diameter, using a percussion drill. The headings are then loaded with dynamite, primed for the second blast by the heading loader, and driven forward for 4 feet back into open cut. The heading loader then drives a machine into the second blast, and the heading loader many blast by blast. The heading loader then drives a machine into the second blast, and the heading loader many blast by blast. The heading loader then drives a machine into the second blast, and the heading loader many blast by blast. The heading loader then drives a machine into the second blast, and the heading loader...
medium-stone bit

A bit with diamonds ranging from 0 to 40 carat in size. Long.

medium thickness seam

In general, a coal seam over 2 feet and up to 4 feet in thickness.

medium-volatile bituminous coal

Nonagglomerating bituminous coal having 69 percent or more, and less than 70 percent of fixed carbon (dry, mineral-matter-free), 31 percent or less, and more than 22 percent of volatile matter (dry, mineral-matter-free). ASTM D288-36.


medusa

See jellyfish. Hy.

mechanite

High-duty cast iron produced by ladle addition of calcium silicide. Pryor, 3.

meend

Forest of Dean. Old ironstone. Mende.

mein-. A prefix meaning dark-colored. See melan-.

meizoseismal curve

A curved line connecting the points of the maximum destructive energy of an earthquake shock around its epicenter. Standard, 1954.

megabar

A unit of pressure equal to 1 megabar, 6 bar.

megaparametric

Applied to observations of minerals and rocks to the characters observed by means of the naked eye or pocket lens but not with a microscope. Helmi, 1926.

megascopic region

The most disturbed earthquake area. Schieferdecker.

megaspores

Female spores; part of reproductive organs of many Coal Measures plants. See also spores. Nelson.

megastor


megawatt day per ton

A unit used for expressing the burnup of fuel in a reactor. Specifically, the number of megawatt days of heat output per metric ton of fuel.

megger

An electrical measuring instrument comprising a hand-operated generator equipped with a governor, a moving measuring system consisting of a voltage, and a current coil so disposed that the deflection of the measuring instrument is proportional to the voltage to current ratio. Used to measure insulation resistance and resistance to ground. It has been somewhat standardized.

megohm

A unit of electrical resistance that equals 1 million ohms. Abbreviation, meg. Crosby.

meigen's reaction

A test for distinguishing calcite and aragonite. A solution of cobalt nitrate is used as a combined stain and reagent. Aragonite is stained a lilac tint which remains visible in this section after boiling in the solution for about 20 minutes; calcite (and dolomite) may be stained pale blue but they appear unchanged in this section. Holmes, 1928.

melanite

A silicate of aluminum and calcium, together with calcium carbonate, (Ca,Na)Al (Al,Si)SiO3CaSiO3, which crystallizes in the tetragonal system. It is a species of the isomorphous series forming the scapolite group. C.M.D.

melanosilicate


meliolite

The most disturbed area within the innermost isoscelal line. Schieferdecker.

meliosilicic curve

A curved line connecting the points of the maximum destructive energy of an earthquake shock around its epicenter. Standard, 1954.

melanite

A prefix meaning dark-colored. See also melanite. A.G.I.

melanite

A black andradite variety of comptonite, isometric. Dana 17.

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A black andradite variety of comptonite, isometric. Dana 17.

melanophlogite

A colorless mineral crystallizing in cubic SiO3 with 3 to 7 percent SO4; possibly SiO3 with SiO2; Mohs' hardness, 6.5 to 7; specific gravity, 2.04; with sulfur crystals of Girgenti, Sicily. Lassen, p. 48.

melanosilicate

A black antimonite of manganese and iron. Massive; foliated; from Sjo mine, Orebro, Sweden. English.

melanotekite

A black mineral with 2 cleavages 3F2OxZrSiO3; crystobalite, 6.5; specific gravity, 3.73; Lassen, p. 144.

melanovanadinite

A vanadium ore, 2CaO2V2O52H2O. Osborne.

melaphyre

A porphyritic rock consisting of phenocrysts of feldspar in a dark groundmass; broad-based pyroclastic igneous rock with dark-colored aphanitic groundmass and phenocrysts of various kinds. Webster 3.

melaphyte

A general term for altered and amygdaled rocks of basaltic or andesitic types. McKinstry.

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opaque oxides. With an increase of plagioclase, the rock passes into melilitite (mellite tephrite) and with an increase of olivine, it passes into olivine melilitite. With the increase of both olivine and plagioclase, the rock becomes a melilitite-olivine basalt (mellite basanite). In olivine melilitites, biotite is a common constituent.

mellite. a. A high explosive similar to lydite, said to be chiefly NNO. Maller, 1908.

melinite. a. A high explosive similar to melilitite. See mellite. Tomkeieff, 1954.
melter. a. In metallurgy, the man in charge of melting. a. Batcha remelting process in steel making. a. To change a solid into a liquid. a. To change a solid into a liquid by the application of heat; or the liquid resulting from such action. ASTM C162-66.
melting area. The area of a furnace under which the glass is melted free from undissolved batch. ASTM C162-66.
melting. a. A vessel of fire clay holding molten glass. a. Batcha remelting process in steel making. a. To change a solid into a liquid. a. To change a solid into a liquid by the application of heat; or the liquid resulting from such action. ASTM C162-66.
melting point. That temperature at which a solid melts into a liquid or to a liquid plus another solid phase, upon the addition of heat at a specific pressure. Unless otherwise specified, melting point is usually stated in terms of 1 atmosphere pressure. The term can also be used for the isothermal melting of certain mixtures, such as eutectic mixtures. Eroneously and loosely used also to refer to the temperature at which some appreciable but unspecified amount of liquid phase develops in a complex solid mixture that possesses a melting range; for example, the melting points of granite. Abbreviations, mp or MP. A.G.I.
melting point of refractory. The temperature at which a small cone of the refractory bends so that the tip touches the base. The melting point is usually 50° to 100° C above the refractoriness under load temperature. The latter is a better guide to the behavior of a material as a refractory. Franci, 1965, v. 2, p. 563.
melting pot. a. A vessel of fire clay holding molten glass. a. Batcha remelting process in steel making. a. To change a solid into a liquid by the application of heat; or the liquid resulting from such action. ASTM C162-66.
melting snow jade. Descriptive term for a white to grayish color grade of jadeite with opaque inclusions traversed by translucent streaks. Shipley.
melting temperature. The range of temperature in which the process of melting takes place at a commercially desirable rate, and at which the resulting glass generally has the viscosity necessary for purposes of comparing glasses, it is assumed that the glass at melting temperature has a viscosity of 10^6 poises. ASTM C152-66.
mendozite. A massive, fibrous, white, hydrous, menilite. A concretionary, opaque, dull, grayish lead-gray, Dana 17.


Menophitis. A noxious exhalation caused by the mephitic gas. Same as mephitic air. Webster 3d.

Menolphoric. Involving, or containing mercury in the bivalent state; for example, mercuric chloride HgCl₂. Webster 3d.

Menophistic. Foul; noxious; poisonous; stifling. Webster 3d.


Menophite gas. Same as menophite air. Webster 3d.

Menophils. A noxious exhalation caused by the decomposition of organic remains; applied also to gases emanating from deep sources, as in mines, caves, and volcanic regions. Standard, 1964.

Menophite for maximum efficient rate. Also abbreviated MER. BuMin Style Guide, p. 60.


Menophite powder. A heavy, silvery-white metallic element that is liquid at ordinary temperatures. Occurs as native mercury but its principal source is cinnabar (HgS). A solvent for most metals; the products are used as amalgams. Its chief uses are in the manufacture of drugs and chemicals, fuel mixtures, and vermilion (mercurous sulfide). Symbol: Hg; valences, 1 and 2; specific gravity, 13.546 (at 20° C) or 13.399 (at 20° C, referred to water at 4° C); poisonous; rather poor conductor of heat, as compared with other metals; fair conductor of electricity; melting point, -38.87° C; boiling point, 556.38° C; insoluble in water, gasoline, pyrites. C.C.D.: Handbook of Chemistry and Physics, 45th ed., 1964, p. B-193.

Mercury, quicksilver. A heavy, silvery-white metallic element that is liquid at ordinary temperatures. Occurs as native mercury but its principal source is cinnabar (HgS). A solvent for most metals; the products are used as amalgams. Its chief uses are in the manufacture of drugs and chemicals, fuel mixtures, and vermilion (mercurous sulfide). Symbol: Hg; valences, 1 and 2; specific gravity, 13.546 (at 20° C) or 13.399 (at 20° C, referred to water at 4° C); poisonous; rather poor conductor of heat, as compared with other metals; fair conductor of electricity; melting point, -38.87° C; boiling point, 556.38° C; insoluble in water, gasoline, pyrites. C.C.D.: Handbook of Chemistry and Physics, 45th ed., 1964, p. B-193.

Mercury arc. An electric discharge through a low molecular weight, and may be a desirable feature in metalurgic processes. It decomposes at 500° C. Used as an oxidizing agent, in producing mercury salts, in desulfurizing organic compounds, in ceramics (pigments), in polishing compounds, and as an analytical reagent. C.C.D. handbook, 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-194.

Mercuration. Chronic poisoning with mercury, as from excessive medication or excessive use of mercury in the bivalent state; for example, mercuric chloride HgCl₂. Webster 3d.

Mercan tribunal. An instrument that measures atmospheric pressure. The height of a column of mercury in a vertical glass tube varies with changes to atmospheric pressure. Jones. See also barometer. Compare aneroid barometer.

Mercarz screw. See mercarz mill.


Mercury black. Mercury sulfide. Webster 3d.

Mercury bichloride; calomel. Hg₂Cl₂; occurs naturally in whitish or grayish masses; associated with cinnabar. From it can be obtained, by digesting in air with hydrochloric acid, mercury chloride (HgCl₂), the corrosive sublimate, which is used for intensification processes in photography. C.T.D.

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Mercanchrome; mercury chromite. Brick-red; needles. Hg₃CrO₆; molecular weight, 517.17; decomposes at 700° C; very slightly soluble in water; soluble in concentrated nitric acid and hydrochloric acid; and insoluble in alcohol. Used in ceramics for coloring green. Standard, 1964, pp. B-120, B-193.

Mercan chloride, red; mercury sulfide, red; vermilion; cinnabar. Red; molecular weight, 232.65; hexagonal; Hg₃; specific gravity, 11.00 to 11.29; Mohs' hardness, 2.0 to 2.5; sublimes at 503.5° C; used as a pigment for colored oil and water paintings. C.C.D.: Handbook of Chemistry and Physics, 45th ed., 1964, p. B-193.

Mercan sulfide, black; mercury sulfide, black; metacinnabar; Black; molecular weight, 232.65; isometric; Hg₃; soluble in water, in aqua regia; in sodium sulfide solutions; and in alkaline; insoluble in water, in alcohol, and in nitric acid; specific gravity, 7.73 and it sublimes at 503.5° C. Used as a pigment for colored oil and water paintings. C.C.D.: Handbook of Chemistry and Physics, 45th ed., 1964, p. B-194.

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mercury arc 

mercury vapor in a glass or a quartz tube emitting a blue-green light that is high in actinic and ultraviolet rays. Used for water sterilization, in photography, and in rectifiers. 

Webster 3d, 1963. 

mercury-arc rectifier. Any common alternating-current voltage may be converted to direct current at voltage above 120 volt by means of a mercury-arc rectifier and its associated equipment. The rectifier consists of innumerable anodes and a mercury-pool cathode sealed into an evacuated tube. Current can pass between the anodes and cathode in only one direction. Thus when an alternating-current voltage is applied to the rectifier, direct current is obtained. Pit and Quarry, 53rd, See D, p. 34. 

mercury. Barium iodide, HgI2BaI2; molecular weight, 945.65; yellow; poisonous; crystals; deliquescent; and soluble in water and ethyl alcohol. Used in mineralogy as a 1 in chemical analysis. Bennett 2d, 1962. 

mex. y chlorid; mercuric chloride; corrosive sublimate. Colorless, transparent; orthorhombic; HgCl2; poisonous; specific gravity, 5.44 (at 25° C); melting point, 276° C; and soluble in water and in alcohol. Usually made by heating mercury with gaseous chlorine or by subliming a mixture of mercury sulfate and common salt. Used in making other mercury compounds. Webster 3d; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-193. 

mercury chromate. See mercuric chromate. 

mercury gatherer. A stirring apparatus that is used to dissolve mercury for making an electric connection, as by dipping the ends of two wires in it. Standard, 1964. 

mercury fulminate; mercuric fulminate; mercuric fulminate. A mixture of mercury sulfate and common potassium cyanide. See mercurous chromate. 

mercury gatherer. A stirring apparatus that is used to dissolve mercury for making an electric connection, as by dipping the ends of two wires in it. Standard, 1964. 


mercury sulfide. See cinnabar; metacinnabar. C.M.D. 

mercury sulfide, black. See mercuric sulfide, black. CCD 6d, 1961. 

mercury switch. A glass tube employing mercury to establish electrical contact between circuits when the tube is tilted so that the mercury bridges the gap between contacts, and conversely. Strock, 10. 

mercury vapor rectifier. See mercury-arc rectifier. 

mercury vapor lamp. Consists essentially of a sealed glass tube provided with two electrodes and containing a gas. When an electrical potential difference is applied, a current passes and a suitable gas, light will be emitted. In the case of mercury vapor this light is of a bluish color and has proven effective in distinguishing dirt from coal. A special starting electrode close to one of the main electrodes initiates the discharge, and a choke coil in series with the lamp serves to limit the current passing, since the resistance tends to fall with increasing current. Mason, b. 1, p. 258. 

mercury-vapor rectifier. See mercury-arc rectifier. 


b. In Derbyshire peak a measure of land which was allowed to claim 2 meres. Fay. 


d. The discoverer of the lode was allowed to claim 2 meres. Fay. 

Merck. 

Mercury. A soft, silvery-white metal which is liquid at room temperature and has a high specific gravity of 13.5. The mercury vapor this light is of a bluish color and has proven effective in distinguishing dirt from coal. A special starting electrode close to one of the main electrodes initiates the discharge, and a choke coil in series with the lamp serves to limit the current passing, since the resistance tends to fall with increasing current. Mason, b. 1, p. 258. 

Mesa Grande tourmaline. Tourmaline from pegmatite ledge near Mesa Grande, San Diego County, Calif. Much of fine quality was formerly mined there together with pink beryl. Shipley. 

mesh. a. In vibration surveys, a closed path traversed through the network. Roberts, 1, p. 837. b. The size of diamonds as determined by sieves. Long, c. Engagement or working contact of teeth of gears or of a gear and a rack. Long, d. The hole in a sieve or gauge. Mass, e. The screen number of the finest screen of a specified standard screen size. Bureau of Mines Staff, f. The number of screen openings per square inch of a screen (sieve). In laboratory testing, the number of wires per linear inch, measured either along one diagonal or at the mid point of a screen opening. In the Institution of Mining and Metallurgy system, wire diameter is equal to mesh diameter.
mesh aperture. The dimension or dimensions of a mesh structure. A structure resembling netting or grating where openings of various sizes can be formed to retain particles of a specific size.

mesh fraction. That part of a material passing a specified mesh screen and retained by some stated finer mesh. In this context, the term is used to describe the size of particles that can be retained by a mesh screen.

mesh number. (grit number). The designation of a size of an abrasive grain, derived from the openings per linear inch in the mesh screen. In general, the finer the mesh, the smaller the particle size.

mesh of grind. Optimum particle size resulting from a specific grinding operation, stated in terms of percentage of ore passing through a specified mesh, or alternatively being retained on a given screening size. The mesh of grind is the liberation mesh determined for commercial treatment of the ore. Abbreviation, m.g.

mesh reinforcement. An arrangement of rods or wires normally in two directions at right angles, and tied or welded at their intersections or interwoven. Alternatively, it is a diamond mesh of expanded metal. Taylor.

mesh structure. A structure resembling a network of work that is found in certain alteration products of minerals. Standard, 1964. Also called net structure; lattice structure.

mesh texture. A texture resembling a network, caused by the alteration of certain minerals, for example, by the serpentinization of olivine. Synonym for reticulate texture. Schönsleben.

mesלית spar. Idiosal; a carbonate of magnesium and iron, 2MgCO₃·FeCO₃. Fay.

mesilit. A white magnesium iron carbonate, 2MgCO₃·FeCO₃, intermediate between magnesite and siderite. See also mesinit.

mesinit spar. Fay. Idiosal; a mineral that is found in cements of various rocks. It is often intergrown with other minerals such as dolomite and siderite.

mesinit spar. Fay. Idiosal; a rock that is found in cements of various rocks. It is often intergrown with other minerals such as dolomite and siderite.

mesomorph. An arrangement of minerals that is found in certain alteration products of minerals. Schönsleben.


mesosiderite. A meteorite composed of iron and nickel. It is one of the most common types of meteorites and is often found in areas where there has been an impact.

mesostasis. a. The interstitial material between the larger mineral grains in a microcrystalline rock or in a microcrystalline groundmass. Synonymous with base or groundmass. A.G.I. b. Synonymous with matrix or groundmass as applied to igneous rocks. A.G.I.

mesothermal. Applied to hydrothermal deposits formed at intermediate temperatures and moderate pressure. Betan.

mesothermal deposit. A mineral deposit formed at moderate temperatures and moderate pressures, in and along fissures or other openings in rocks, by deposition at intermediate depth. These deposits are often formed from hydrothermal fluids derived from intrusive intrusives. A.G.I.

mesothorium. Isotope of radium, chemically identical with it, but having a much shorter half-life; mesothorium decomposes into radiothorium, chemically identical with thorium. Bennett 2d, 1962.

mesothorium I a. A name for radium 228; half-life, 6.7 years; a member of the thorium disintegration series; and symbol, Th₂₂₈. Instead of 1,622 years. Bennett 2d, 1962; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-83. c. As a member of the thorium disintegration series, mesothorium I is the immediate product of the disintegration of thorium 228. Gleason and preceding the Cenozoic era. It includes the Triassic, Jurassic, and Cretaceous periods. Also the rocks formed during that era. Fay.

mesothorium II a. A name for actinium 228; half-life, 6.13 hours; a member of the thorium disintegration series; and symbol, Am₂₂₈. Instead of 1,622 years. Bennett 2d, 1962; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-83. b. This isotope of actinium has a much shorter half-life than that of actinium 228, which is the most stable, or longest-lived, isotope of actinium, and has a half-life of 216 years. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-83. c. As a member of the thorium disintegration series, mesothorium II is the immediate product of the disintegration of mesothorium I (radium 228), and it disintegrates into radiothorium (thorium 228), which is chemically identical with thorium and has a half-life of 1.91 years. Bennett 2d, 1962; Glaseione 2d, p. 134; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-83; meta-mesotropic peat. Variety of peat moderately supplied with nutrients. Tomkeief, 1954.

mesotop. a. Proposed by Shand in place of mesocratic to indicate igneous rocks containing between 30 and 60 percent dark minerals. Compare metatropic. Schönsleben.

mesotop. A variety of natrolite. Fay.

mesozooic. One of the great divisions or eras of geologic time, following the Paleozoic and preceding the Cenozoic era. It includes the Triassic, Jurassic, and Cretaceous periods. Also the rocks formed during that era. Fay.

mesozone. The middle zone of metamorphism in Granberg's system for the classification of metamorphic rocks and in Niggli's extension of that system. See also epizone; catazone; Schiefendecker.

mesquite. Sp. Am. A spiny, deep-rooted tree or shrub of the southwestern United States and Mexico that bears pods which are rich in protein and important as a livestock feed, and that is often the only woody vegetation on large areas. Also spelled mesquit; messquit; mesquitus. Webster.

mesquite. A colorless to brownish trichlinae with one good cleavage, Ca₂₃₃(Mg)₂₃₃(PO₄)₃·H₂O; from Bosnia, Czechoslovakia; Kazakhstan, U. S. R. Larsen, p. 118; American Mineralogist, v. 44, No. 3-4, March-April 1959, p. 429. mess kit. The cooking and table utensils of a mess together with the receptacle in which they are packed for transportation. Webster 3d.


mét. A convenient and approximate unit of human heat production equivalent to the average metabolic heat produced by resting man, about 15.50 British thermal units per square foot per hour. Struck, 1964.

mét. a prefix which when added to the name of a rock, signifies that the rock has undergone a degree of change in mineral or in chemical composition through metamorphism. Fay. b. A prefix to denote (1) resemblance, (2) that an oxygen acid has reformed from an oxygen acid by dehydration, or (3) that the two radicals are identical with thorium. Fay. c. As a member of the thorium disintegration series, mesothorium I is the immediate product of the disintegration of thorium 228. Gleason.

mesothorium. Nonagglomerating anthracite coal containing 98 percent or more of fixed carbon (dry, mineral-matter-free) and 9 percent or more of volatile matter (dry, mineral-matter-free). ASTM D 388-38.

met-aargillite. A rock having weak metamorphic restructuring, no recrystallization,
and no slaty cleavage or foliation. A.G.I. Supp.

meta-arkose. Arkose that has been metamorphosed so that it resembles granite. Composed of reconstituted granite. A.G.I. Supp.

meta-autunite I. A yellow, common secondary mineral. Composed of (PO₄)₅O·6H₂O, that is not found in nature; contains 33.0 to 60.4 percent uranium. Meta-autunite I passes into this orthorhombic phase upon heating to about 80°C. Frenkel, p. 184; Dana 7, v. 2, p. 901, 985.

meta-autunite II. Another alteration product, Ca(UO₃)(PO₄)·6H₂O, that is not found in nature; contains 33.0 to 60.4 percent uranium. Meta-autunite I passes into this orthorhombic phase upon heating to about 80°C. Frenkel, p. 184; Dana 7, v. 2, p. 901, 985.

meta-basite. A metamorphosed, basic igneous rock. See also basic schist; eclogite; greenstone; greenstone; metavolcanic rock; metavolcanic rock; metagabbro; diabase, diorite; gneiss; greenstone; greenstone; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; metabasite; 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metal deactivator

result of refining or handling operations. Institute of Petroleum, 1961.

metal-distribution ratio. The ratio of the thickness of metal deposited on a near portion of the cathode to that deposited on a far portion of the cathode. ASM Gloss.

metal drift. A drift or heading driven in barren and hard rock. Nelson.


metal electrode. A filler or nonfiller metal electrode, used in arc welding, consisting of a metal wire, with or without a covering or coating. Coal Age, v. 66, No. 3, March 1964, p. 52.

metal-electrode arc welding. A group of arc-welding processes wherein metal electrodes are used. Coal Age, v. 66, No. 3, March 1964, p. 52.

teleolate. A dimorphic form of leucite of higher symmetry, met with at ordinary temperatures, whereas the name leucite is properly restricted to the isometric, optically isotropic, modification of the same substance, which is stable only above 600° C. English.


metaliferous coal. Coal containing from 80 to 84 percent carbon (ashless, dry basis). Tomkeieff, 1954.


metaline. a. A substance of variable composition as metallic oxides, wax, fats, etc., used as a substitute for ordinary lubricants. Webster 2d. b. An alloy of 35 parts cobalt, 30 copper, 25 aluminum, and 10 iron. Webster 2d.

metalizer. One who works in, or has special knowledge of, metals. Standard, 1964. A metallogenic province. See mineralogic epoch. A.O.I.

metalized slurry blasting. The breaking of rocks, etc., using slurred explosive medium containing a powdered metal, as powdered aluminum. Bureau of Mines Staff.

metallic brick. Basic brick provided with thin steel casings. HW.

metal leaf. Thin metal sheet, usually thinner than foil, and traditionally produced by beating rather than by rolling. ASM Gloss.

metallic. a. Of or belonging to metals; containing metals, more particularly, the valuable metals that are the object of mining. Fay. b. Applied to minerals having the luster of a metal, as gold, copper, etc. Fay. c. Used to indicate the condition of a metal in which it exists by itself, and is not exacerbated nor combined with those substances which take away its metallic character and convert it into an ore. Ricketts.

metallic-arc welding. Welding in which one or more metal electrodes are used, the metal being the electrode providing the filler metal. Ham, p. 249.


metallic asbestor yarn. Metallic asbestos yarn is made from fibers of plain asbestos yarn twisted with brass, copper, or other fine wire. See also asbestor yarn. Hess.

metallic bond. The chemical bond typical of the metallic state and characterized by mobile valence electrons that hold the atoms together usually in crystal lattices and are responsible for the good electrical and heat conductivity of metals. Webster 3d.

metallic colors. Metal particles, gold, silver, or platinum, suspended in oils, to decorate mainly the edges of dinnerware. ACSG, 1963.

metallic crystals. The crystals of which metals and alloys are composed. Three main types are recognized; namely, pure metal crystals, primary solid-solution crystals, and intermediate solid-solution crystals. C.T.D.

metallic elements. Elements that are generally distinguishable from other elements (nonmetallic elements) by their luster, malleability, electrical conductivity, and their usual ability to form positive ions.

metallic iron. Metal iron, as distinguished from iron ore. Fay.

metallic luster. The ordinary luster of metals. When freshly displayed, it is termed submetallic. Gold, iron pyrites and galena have a metallic luster; chalcopyrite and cuprite a submetallic luster. Nelson.

metallic materials. Materials which contain elements that readily release their electrons, as contrasted to ceramic materials and nonmetallic materials; for example, aluminum, magnesium, steel, CuAl, MoSi, etc. PPV.

metallic minerals. Minerals with a high specific gravity and metallic luster, such as titanium, uranium, tin, lead, iron, etc. In general, the metallic minerals are good conductors of heat and electricity. See also nonmetallic minerals. Nelson.

metallic ore. From a strictly scientific point of view the terms metallic ore and ore deposits have no clear significance. They are purely conventional expressions, used to describe those metalliciferous minerals or bodies of mineral having economic value, from which the useful metals can be advantageously extracted. In one sense rock salt is ope of sodium, and limestones an ore of calcium, but to term beds of those substances ore deposits would be quite outside of current usage. Ricketts.

metallic overglaze. A solution of mineral pigments in a molten metal or by vacuum deposition. Bondley process. Dodd.

metallogenic element. An element usually recognized; namely, pure metal crystals, including certain oxides of certain base metals. Furnkin process. Single stage metallizing is possible if the hydride of titanium or zirconium are used, together with a hard solder; this is sometimes known as the Bowie process. Dodd.

metallogenic province. See mineralogic province. A.O.I.

metallogenetic epoch. A min-rogenochic epoch. The time interval favorable for the genesis or deposition of certain useful metals or minerals. Hess.

metallogenetic province. See mineralogic province. A.O.I.

metallogenic province. See mineralogic province. A.O.I.

metallogeny. The branch of geology that deals with minerals and their deposits; especially with the formation and evolution of minerals and rocks through geologic time. Ricketts, p. 56.

metallogeny. The branch of geology that deals with minerals and their deposits; especially with the formation and evolution of minerals and rocks through geologic time. Ricketts, p. 57.

metallogenic material. A large area of the earth's surface characterized by an unusual abundance of specific minerals, rocks, or deposits of a particular type. Hauke, p. 24, 47.

metallogeny. The branch of geology that deals with minerals and their deposits; especially with the formation and evolution of minerals and rocks through geologic time. Ricketts, p. 56.
metallography. An optical instrument designed for both visual observation and photomicrography of prepared surfaces of opaque materials at magnifications ranging from about 25 to about 1,000 diameters. The instrument consists of a high-intensity, illuminating source, a microscope, and a camera bellow. Some of these instruments, provisions are made for examination of specimen surfaces with polarized light, phase contrast, oblique illumination, dark-field illumination, and complementary bright-field illumination. ASM Gloss.

metallography. The science dealing with the constitution and structure of metals and alloys as revealed by the unaided eye or by such tools as low-powered magnification, optical microscope, electron microscope, and diffraction or X-ray techniques. ASM Gloss.

metalloid. a. archaic. An alkali metal, as sodium or an alkali-earth metal, as calcium. Webster 3d. b. Nonmetal. Webster 3d. c. A nonmetal, as carbon or nitrogen, that can combine with a metal to form an alloy. Webster 3d. d. An element, as boron, silicon, arsenic, or tellurium, intermediate in properties between the typical metals and the nonmetals. Compare semiconductor. Webster 3d. e. Resembling a metal. Webster 3d. f. Of, relating to, or being a metalloid. Display.

metalometric surveying. Geochemical prospecting term used by Russian authors for soil surveys or for the chemical analysis of systematically collected samples of soil and weathered rock. Hawkes, 2, p. 3.


metallo-organic compound. A compound in which a metal combines with naturally occurring organic compounds to form metal-organic complexes such as porphyrins and salts of various organic acids. Some metallo-organic compounds are soluble in water, others are not. Hawkes, 2, p. 125.

metallophytan. Old name for stone coal. Tomlinski, 1924.


metallurgical cement. See superheated cement. Ham.

metallurgical coke. A coke with very high compressive strength at elevated temperatures, used in metallurgical furnaces, not only as a fuel, but also to support the weight of the charge. ASM Gloss.

metallurgical coke base carbon refractory. A manufactured refractory composed substantially of metallurgical coke. ASTM C71-64.

metallurgical engineer. One who applies engineering principles to the science and technology of metallurgy. Bureau of Mines Staff.

metallurgical fume. A mixture of fine particles of elements and metal and nonmetallic oxides so finely subdivided or condensed from the vapor state. Fay.

metallurgical smoke. A term applied to the gases and vapors, and fine dust entrained by them, that issue from the throat furnaces and consists of three distinct substances, gases, (including air) the flue dust, and the fume. Fay.

metallurgist. One who is skilled in, or who practices metallurgy. Compare metallurgical engineer. Fay.

metallurgy. The science and technology of metals. Process (chemical). Metallurgy is concerned with the extraction of metals from their ores and with the refining of metals; physical metallurgy, with the physical and mechanical properties of metals as affected by composition, mechanical working and heat treatment. ASM Gloss.

metal marking. See silver marking of glazes. Dodd.

metal mine inspector. In metal mining, one who examines the safety conditions of a mine in regard to composition, ventilation, mining, and density to the raw material, that is, the ore body, is depleted it is not replenishable. Nelson.

metal notch. See taphole, a. Fay.

metal physical examination to determine the whole range of subjects associated with the structure, physical properties, and theories of metals and alloys. Osborne.

metal pickling. The immersion of metal objects in a hot acid bath to remove scale, oxide, tarnish, etc., leaving a chemically clean surface for galvanizing or painting. Nelson.

metal powder. a. A general term applied by drillers, bit makers, and manufacturing to very finely ground metal, which when mixed are commonly used to produce sintered-metal and bit crowns. Also called powdered metal; powder metal. Long. b. Metallic elements or alloys in finely divided or powder form. Hensel.

metal protection. Metals can be protected from oxidation at high temperature by various types of ceramic coating, the common being flame-sprayed alumina and refractory enamels. Such coatings have found particular use on the exhaust systems of aircraft. Fay.

metal ridge. a. N. of Eng. A pillar or pillars of certain minerals into lenses and bands. Ferguson.

metal mine. A mineral which has become virtually amorphous due to the breakdown of the original crystal structure by internal bombardment with alpha particles (helium nuclei) emitted by radioactive atoms within the mineral. Many green zircons, especially those from Ceylon, which are Precambrian in age, and have thus had over 800 million years of this internal bombardment, owe their low refractive index and density to this cause, and may be termed metamict zircons. Anderson.

metalumbling. The process of disruption of the structure of a metal, such as that from cooling radioactive atoms, rendering the material partly or wholly amorphous. A.G.I.

metameric. A mineral, the crystal structure of which has been disrupted by radiation from contained radioactive material. A.G.I. Supp.

metamorphic. Characteristic of, pertaining to, produced by, or occurring during the metamorphism of certain rocks. Fay.

metamorphic facies. See rocks, contact metamorphism.


metamorphic facies. A group of metamorphic rocks characterized by present particular assemblage of minerals produced during contact metamorphism. Fay.

metamorphic facies. A group of rocks in which the molecular proportion of aluminas exceeds that of soda and potash, and lime combined. A.G.I.

metamorphic facies. A group of rocks, which have been subjected to great pressure, high temperature, and chemical alteration by solutions. They have become warped, twisted, and folded, and the original minerals are rearranged and recrystallized. Lewis, p. 276.

metamorphic grade: metamorphic rank. The grade or rank of metamorphism depends upon the extent to which the metamorphic rock differs from the original siliceous rock which it derived. If a shale is converted to a slate or a phyllite, the metamorphism is low grade; if it is converted to a mica schist containing garnet and sillimanite, the metamorphism is high grade. A.G.I. Supp.


metamorphic rock. Any rock which has been altered by heat or intense pressure, causing new minerals to be formed and new structures in the rock. Thus clays have been changed into slates, and limestones into marble. Water driven out of metamorphic grade; metamorphic rank. The meivepyls. Proposed by Kinahan for regional metamorphous. Same as metamorphic. Yay.


metamorphous. Same as metamorphic. Fay.

metastable. Produced by, or occurring during metamorphosis (replacement). The term is especially used in connection with the origin of ore deposits. Fay.

metasomatic ore. See metasomatism. Nelson.

metasomatic. Characteristic of, pertaining to, produced by, or occurring during metamorphosis (replacement). The term is especially used in connection with the origin of ore deposits. Fay.

metasomatic. See metasomatism. Nelson.

metasomatism; metasomatosis. a. The process of practically simultaneous capillary solution and deposition by which a new mineral of partly or wholly differing chemical composition may grow in the body of an old mineral or mineral aggregate. A.G.I. b. The processes by which one mineral is replaced by another of different chemical composition owing to reaction set up by the introduction of material from external sources. Holmen, 1920. Practically simultaneous solution and deposition, through small openings, usually submicroscopic, and mainly by hypogene water solutions, by which a new mineral of partly or entirely different composition may grow in an old mineral or in an old mineral aggregate. A.G.I.

metastasomatosis. A rock in which one mineral has completely replaced another, or certain minerals have completely replaced others, producing an entirely new composition. A.G.I.

metasome. A mineral developed within another mineral. Fay; Webster Ed.

metasomatism. See metasomatism.

metastable. A state of pseudoequilibrium which has a higher free energy than the true equilibrium state, yet does not change spontaneously. ASM Gloss.

metastable phase. The existence of a substance as a solid, liquid, or vapor under conditions in which it is normally unstable in that state. Hacky's Chem. Dict.

metaterraeophile. Monoclinic FeO(PO4)3,5H2O, a morphophase, called orthorhombic; synonymous with phospha-teraeophile; clisomagite. Spencer 19, M.M., 1953.

metathesis. The name given to a group of chemical reactions: (1) single replacement, (2) double decomposition (or double replacement), and (3) neutralization. Gas.

metatorbernite. A strongly radioactive, tetragonal, pale green to dark green mineral, Cu(UO2)2(PO4)2.8H2O, one of the most common supergene uranium minerals; a secondary mineral, or perhaps a low-temperature hydrothermal mineral. Crosby, pp. 28-29.


metawater. Water under great pressure. Also called nontamorphism due to steam or boiling water under reat pressure. Also called metamorphism; thermal metamorphism.
meteoric water

meteoric water is the only class of impor-
tance. Lewis, p. 630. See also ground-
water.

methane. A naturally occurring mass of mat-
ter that has fallen to the earth's surface
from outer space. A.G.I. Supp.

meter: meter. a. An instrument, an apparatus,
or a machine for measuring fluids, gases, elec-
tric currents, etc., and recording the results
obtained; for example, a gasimeter, a
diameter, a wattmeter, or an air meter. Standard,
1964. b. The fundamental unit of length
in the metric system. Originally defined
as ten millionths of the distance on the
earth's surface from the pole to the equa-
tor. Now defined as the distance between
two lines on a certain metallic rod
preserved in the archives of the Inter-
tional Metric Commission at Paris. Standard,
1964. Its value is equal to 39.37079 inches or
3.2808 feet.

metering pin. A valve plunger that controls
the rate of flow of a liquid or a gas. Nice.

metering pump. A portable, high-precision
pump developed by U.S. Bureau of Mines
engineers for use in studies of rock and gas
pressure changes. Small enough to be car-
ried in a coat pocket, the hand-operated
pump also meters, without leakage, the
fluid—usually mercury, glycerin, or oil—
that must be added to or withdrawn from
a cell to obtain a desired pressure. Bureau
of Mines Staff.

meter oil. An oil of low cold-test, like the
light lubricating oil from Texas crude oil.
Fay.

methanal. See formaldehyde. CCD 64, 1961.

methane. CH,. Carburated hydrogen or marsh
methane. CH,, carbureted hydrogen or marsh

methane drainage. Three main systems of

methane indicator. A portable instrument to
monitor the methane content in a given area. The
indicator is so devised that its direct-reading scale. The compact
methane indicator is carried in a leather case with
shoulder straps. Used in mines, manholes,
and similar areas subject to methane gases.
Nelson, p. 587.

methane monitoring system. A system where-
by the methane content of the mine air is
indicated automatically at all times, and
when the content reaches a predetermined
concentration the electric power is cut off
automatically from each machine in the
affected area. The mechanism is so devised
that its setting cannot be altered. The
system is used, mainly, in conjunction with the
operation of continuous miners and
power loaders Nelson.

methaneophane. An instrument for detecting
methane in mine air. It contains an electric
battery that sustains a small electric glow
light. As soon as a certain percentage of
methane in a given area, the incandescent
light filament is melted and starts a bell
ringing continuously. Fay.

methane recorder. An instrument which gives
a continuous record of the methane con-
centration over a period of time. Roberts,
I, p. 63.

methane removal. See water infusion method.

methane tester. A fireproof detector. See also

methane tester type S.3. A nonautomatic fire-
damp detector approved under: the Regula-
tions for use of these mines. The instrument
is normally calibrated at 1 percent meth-
an, and this provides an accuracy of plus
or minus 0.05 percent. Calibration of the
most important part of the scale, that is, 0.75 to
1.5 percent, it weights 3/4 pounds and the
source of power is an Edison cell lamp
battery. Developed by Mines Safety Appli-
cances. Nelson.

methanol. A mixture of methyl acetate and
acetone. Used as a fuel, as a solvent, and
also known as methanol, which is the
lowest member of the alcohol series. Also
known as wood alcohol, since its principal
source is the destructive distillation of
wood. API Glossary.

methanol. A straule-colored liquid,
CH3OH, with a specific gravity of 3.52
at 16° C, a melting point between 6°
and 7° C, a decomposition point of 180° C,
and a refractive index of 1.756. Used as
a component of refractive index liquids
and as a specific-gravity mineral separa-
tions. A.G.I.

methanol lode. CH3. OD. See coal. CCD 64, 1961.

methane. CH,. Carburated hydrogen or marsh
methane. CH,, carbureted hydrogen or marsh

methane. CH,. Carburated hydrogen or marsh
methane. CH,, carbureted hydrogen or marsh

methane. CH,. Carburated hydrogen or marsh
methane. CH,, carbureted hydrogen or marsh
Mettlach tile

Mettlach tile. A vitreous floor tile (especially of the multicolored type) as first made at Mettlach, in the Saar. The term (often misspelled Metlach) is now commonly used on the Continent and in Russia for any vitreous floor tile. Dodd.


Mexican agate. Banded calcite or aragonite. Shipley.

Mexican amber. Fossil resin from Mexico, related to San Domingo amber. See also amber. Shipley.

Mexican amethyst. Amethyst of a distinctive reddish-purple color from Guanajuato, Mexico. Shipley.

Mexican diamond. Rock crystal. Shipley.


Mexican onyx. A variety of aragonite, chiefly from Toccall, Mex., used for interior decorations. Standard, 1964. See also onyx marble. Fay.

Mexican opal. a. Any opal from Mexico. Shipley. b. An almost transparent, whitish, very pale red or yellow precious opal, often with a bluish cast. Specific gravity, 1.98 to 2.03. Also see fire opal. Shipley.

Mexican tile. A term sometimes applied to roofing tile of semicircular cross section. Shipley.

Mexican turquoise. a. A light-blue to green-blue, translucent and bluish-green turquoise from New Mexico. Shipley. b. A correct but little-used name for genuine turquoise from the central part of Lower California. Shipley.

Mexican water opal. A term applied to translucent to almost transparent opal variety from Mexico with vivid play of color. Shipley.

BuMin Style Guide, p. 60.


mi Abbreviation for mile. Zimmerman, p. 69.


miargyrite. A sulfide of antimony and silver, AgSbS. Skow.

micaceous iron ore. Hematite in which the rock constituents sometimes project into cavities. Also, characteristic of, pertaining to, or occurring in such cavities. Fay.

micaceous. Composed of, resembling, or pertaining to mica. Mica is a mineral with a characteristic shape and texture. The percentage of mica generally appears highest in rocks and minerals that were once occupied by sulfides. The true composition may be judged correctly by looking at the square broken edges. See also schist. Fay.

mica slate. A slate composed chiefly of fine mica. Fay.

mica schist. A foliated, crystalline metamorphic rock composed of alternating layers of quartz and mica in various proportions. micaschist is characterized by an abundance of mica sheets or plates which are relatively thin and often transparent.

mica trap. a. An English field name for a dark dike rock high in mica content. Fay. b. The development, in a rock, of mica as a secondary mineral. A.G.I.

mica trap. b. The development, in a rock, of mica as a secondary mineral. A.G.I.

mica. A group of phyllosilicate minerals having similar chemical compositions and highly perfect basal cleavage; monoclinic. Mica is one of the best electrical insulators. Biotite, lepidolite, muscovite, and phlogopite are the most important varieties of mica.

micaramic. A material consisting of finely divided natural mica bonded with water-soluble aluminum phosphate. Skow.

micaccelarinite. A material consisting of finely divided natural mica bonded with water-soluble aluminum phosphate. Skow.

micelle. A group of phyllosilicate minerals having similar chemical compositions and highly perfect basal cleavage; monoclinic. Mica is one of the best electrical insulators. Biotite, lepidolite, muscovite, and phlogopite are the most important varieties of mica.

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michenerite. A palladium bismuthide, cubic
michigan. A highly altered ferruginous rock, usually consisting of very fine silt or clay matrix.

michigan cut. a. In the United States a cut
michigan tripod. A drill structure consisting of three barked timber poles of pine or fir, with the sheave aligned over the hoisting clevis, and the poles are placed in a raised position.

michigan jasper. A highly altered ferruginous rock, usually consisting of very fine silt or clay matrix.

michigan cut. b. A sedimentary rock consisting of relatively coarse, sharply angular fragments of rock, with pyrite structure, probably PdBi₂, occurring in the United States.

michigan tripod. A drill structure consisting of three barked timber poles of pine or fir, with the sheave aligned over the hoisting clevis, and the poles are placed in a raised position. The tripod is high enough to provide a clear view of the ground.

micellar or molecular (Lumiere and Staudinger), optimum concentration. Colloids are either microbubbles or agglomerates of microbubbles as small as possible. Micelle structure which contains amphipathic ions. The boundary between micellar and molecular colloids is indistinct.

michigan jasper. A highly altered ferruginous rock, usually consisting of very fine silt or clay matrix.

michigan tripod. A drill structure consisting of three barked timber poles of pine or fir, with the sheave aligned over the hoisting clevis, and the poles are placed in a raised position. The tripod is high enough to provide a clear view of the ground.

micelle. Limestone consisting of microcrystalline calcite with less than 1 percent allochems. A.G.I. Supp.

micrite. Limestone consisting of microcrystalline calcite with less than 1 percent allochems. A.G.I. Supp.

mich相同的活性可能对化学反应的进行有影响。

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microfractional coal. Coal composed of compact macerated mass of vegetable debris, such as durain, cannel, algal cannel, and boghead. Tombokie, 1954.

microgas survey. A prospecting method which seeks to locate oil by the detection, in soil samples, of gases such as ethane, propane, and butane as evidence of leakage in the vicinity of oil pools. Methane is not significant as it is also formed by the decomposition of vegetable matter. Compare geochemistry. Nelson.


micrograph. a. A photograph of a microscopic object; a photomicrograph. b. The magnified object as seen through a microscope. Dodd.

microgram. One-millionth of a gram; abbrev. mg. ASM Gloss.


microgranitic. See microgranular; microcrystalline. Fay.

micrographic. Having the composition and microscopic texture. A distinctive rock texture in which the simultaneous crystallization of quartz and alkali feldspars in the vicinity of oil pools. Methane soot is abundant and occurs in large quantities in Gondwana. It is most wana coals and in

microinch. One-millionth of an inch; abbrev. mil. ASM Gloss.

microhm. One microhm equals 10^(-6) ohms. ASM Gloss.


microiog. a. A mineral which is essentially a pyrocalcite which contains CaCO₃, but which frequently contains niobium, fluoride, and a variety of bases. It crystallizes in the cubic system C.T.D. Dana 17. Also, it is a member of the pyrochlore-microbite series; its radioactivity ranges from weak to moderately strong. It may be distinguished from crystals by being transparent, light- or dark-colored, and by the fact that one can determine some of the optical properties, such as anisotropism, refractive index, etc. Schieferdecker.

microlith. One of the microscopic isolated needle- and red-shaped bodies found in vitrophyic rocks. Standard, 1964.


microlithotype. A term introduced by C. A. Seyler in 1954. It designates in the microcosm of humic coals a band which is generally glasy, hyalopilitic, or ulvöphyric, and in which the simultaneous crystallization of quartz and alkali feldspar have occurred in the vicinity of oil pools. Methane soot is abundant and occurs in large quantities in Gondwana. It is most wana coals and in Carboniferous coals of the U.S.S.R. It is most abundant in coals with red- or yellow-colored or of high rank in which exinite cannot be recognized, and may occur in very pure, microconchic or alginite, but which frequently contains niobium, fluoride, and a variety of bases. It crystallizes in the cubic system C.T.D. Dana 17. Also, it is a member of the pyrochlore-microbite series; its radioactivity ranges from weak to moderately strong. It may be distinguished from crystals by being transparent, light- or dark-colored, and by the fact that one can determine some of the optical properties, such as anisotropism, refractive index, etc. Schieferdecker.

microlite. A term frequently applied to minerals which are small or primary. The microlites consist of an aggregate of differently sized grains which are generally glasy, hyalopilitic, or vitrifiable; they are often distinguished by optical properties, such as anisotropism, refractive index, etc. Schieferdecker.


micromeritics. Study of crystalline structures on a microscopic scale. Pryor, 3rd.

micrometer theodolites. See vernier-reading manometer. Roberts, I., p. 35.

micrometer theodolites. Optical microscopes which measure accurately and use micrometer to measure very small dimensions or angles. Used in connection with a microscope or a telescope. There are a great variety of forms, but in nearly all cases, the measurement is made by turning a very fine screw, which gives motion to a scale, a vernier, or a graduated glass plate. Standard, 1964. A term introduced by C. A. Seyler in 1954. It designates in the microcosm of humic coals a band which is generally glasy, hyalopilitic, or ulvöphyric, and in which the simultaneous crystallization of quartz and alkali feldspar have occurred in the vicinity of oil pools. Methane soot is abundant and occurs in large quantities in Gondwana. It is most wana coals and in Carboniferous coals of the U.S.S.R. It is most abundant in coals with red- or yellow-colored or of high rank in which exinite cannot be recognized, and may occur in very pure, microconchic or alginite, but which frequently contains niobium, fluoride, and a variety of bases. It crystallizes in the cubic system C.T.D. Dana 17. Also, it is a member of the pyrochlore-microbite series; its radioactivity ranges from weak to moderately strong. It may be distinguished from crystals by being transparent, light- or dark-colored, and by the fact that one can determine some of the optical properties, such as anisotropism, refractive index, etc. Schieferdecker.

micrometer theodolite. A term introduced by C. A. Seyler in 1954. It designates in the microcosm of humic coals a band which is generally glasy, hyalopilitic, or ulvöphyric, and in which the simultaneous crystallization of quartz and alkali feldspar have occurred in the vicinity of oil pools. Methane soot is abundant and occurs in large quantities in Gondwana. It is most wana coals and in Carboniferous coals of the U.S.S.R. It is most abundant in coals with red- or yellow-colored or of high rank in which exinite cannot be recognized, and may occur in very pure, microconchic or alginite, but which frequently contains niobium, fluoride, and a variety of bases. It crystallizes in the cubic system C.T.D. Dana 17. Also, it is a member of the pyrochlore-microbite series; its radioactivity ranges from weak to moderately strong. It may be distinguished from crystals by being transparent, light- or dark-colored, and by the fact that one can determine some of the optical properties, such as anisotropism, refractive index, etc. Schieferdecker.


micromerodermous, micromeritic. See microcrystalline.
micrometers. The study of very fine particles.

micrometrical. The micropetrological

micron. A unit of length, equal to one-

micron or 10^-6 millimeter; abbreviation, µ. Bennett 2d, 1964.

cron = about 1/25,000 inch. Nelson.

micron or millimeter; abbreviation, µ. A.G.I.

micron or 10^-6 millimeter; abbreviation, µ. Bennett 2d.

micronmeter. A special type of dry-grinding machine in which micronized mica is produced. It consists of a disintegrator that has no moving parts but depends on jets of high pressure superheated steam to reduce the mica to micron sizes. Micronized mica is produced in particle size ranges of 10 to 20 microns and 5 to 10 microns. BuMines Bull. 630, 1965, p. 397.

micronizer. A special type of dry-grinding machine in which micronized mica is produced. It consists of a disintegrator that has no moving parts but depends on jets of high pressure superheated steam for reducing the mica to micron sizes. BuMines Bull. 630, 1965, p. 387.

micronizer mill. Disintegrator, in which feed particles are entrained in a pressure jet (steam or air) and whirled through a cylindrical chamber with sufficient force to break them. Pryor, 3.

micro-organisms. In geological prospecting, may be taken to include bacteria, algae, fungi, protozoa, the relatively small forms of plant and animal life that inhabit soils and natural waters. Haukk, 1964.

micropegmatite. A microscopic intergrowth of two minerals, especially quartz and feldspar, that are mutually interpenetrating and may be cut by a fine quartz vein. Pigeon, 1964.


micropipette. A type of pipette somewhat resembling an injection syringe from which fractions of a milliliter of liquid can be accurately dispensed. Pryor, 3.

microprojector. A portable instrument which projects an enlarged image of the microscopic field. Magnification of 1,000 diameters enables dust samples to be examined with relative ease.

microscope. Optical instrument, the main parts of which are the stand on which is fixed a stage that holds the material under examination; a condenser through which light is transmitted from its source through a hole in the stage for the purpose of viewing transparent matter; a vertical illuminator in the metallurgical or petrological microscope which directs a beam of light down upon an opaque object on the stage, the beam then being reflected up through the system of lenses; a polarizer below the stage or in the incident light beam of the vertical illuminator; an analyzer in the ocular system, which results in objective and ocular or eyepiece, these being carried in a tube which can be focused on the object viewed. The electron microscope views by means of a stream of electrons which are focused by means of a circular magnetic field and acted upon by a magnet acting as an objective under examination. A second magnetic lens acts as the objective and projects an enlarged image of the object upon a photographic plate or upon a cathode-ray tube or upon a photoelectric cell. Standard, 1964.

micropores. Male spores; part of the reproductive organs of many Coal measuring devices. Also called coring.

micropsych. A. a transparently thin section of rock so mounted on a microscope slide that is used for examination, these rays emanate from the microscopic system and record photographs preparatory to examination of the microscope. Gemology, 1964.

microprojector. A thin section of rock so mounted for petrographic examination. Fay.


microscope. An instrument, among other things, for observing the behavior of roof strata and supports. The device is inserted in 4 feet of diameter holes, drilled at selected points, for listening to subaudible vibrations which are known to precede rock failure. Isaacson, p. 172.

microthermometer. A device for indicating the direction, duration, and intensity of microseisms. Also called microthermometric apparatus.

microthermographic. A method of producing a record photographically of the behavior of roof strata and supports. The device is inserted in 4 feet of diameter holes, drilled at selected points, for observing the behavior of roof strata and supports. The device is inserted in 4 feet of diameter holes, drilled at selected points, for listening to subaudible vibrations which are known to precede rock failure. Isaacson, p. 172.

microthermometer. An apparatus for indicating the direction, duration, and intensity of microseisms. Also called microthermometric apparatus.

microthorax. A caving defect, not detectable at magnifications lower than ten diameters, consisting of interdendritic voids. This defect results from contraction during solidification where there is not an adequate opportunity to supply filler material to compensate for shrinkage. Alloys with a wide range in solidification temperature are particularly susceptible. ASTM Gloss.


microspectroscopy. A method of identifying metallic constituents; it consists of drifting off the minute portion to be analyzed, flowing collection over the resulting chips, and transferring the collection together with the chips to a standard carbon electrode for analysis in a standard spectrographic arc. Gaynor.

mikrospores. A. From, relating to, or conducted on the polished surfaces of rocks or minerals. A.G.I. Supp.

microstructure. (presumably approximating the size of the metal or mineral) that is small compared to the stage length in ordinary strain measurements. Hence, not detectable by detection methods; they can sometimes be seen by scraping a slice with a knife under high magnification by a magnifier acting as an eyepiece. Pryor, 3.

microstructure. A. From, relating to, or conducted on the polished surfaces of rocks or minerals. A.G.I. Supp.

microstructure. A. From, relating to, or conducted on the polished surfaces of rocks or minerals. A.G.I. Supp.


microseismic instrument. An instrument, among other things, for observing the behavior of roof strata and supports. The device is inserted in 4 feet of diameter holes, drilled at selected points, for listening to subaudible vibrations which are known to precede rock failure. Isaacson, p. 172.

microseismic movement. A movement characterized by small, faint vibrations of the earth’s crust (usually not exceeding 25 microns) caused, for example by breakers on the coast or by storms far out at sea (up to 3,000 kilometers from the shore). Seyfferdecker.

microseismic rate. The number of microseisms per unit of time. Standard, 1964.

microseismicity. Area in which the earthquake is registered by instruments only. Seyfferdecker.

micromegameter. An apparatus for indicating the direction, duration, and intensity of microseisms. Also called microseismometric apparatus.

micromanometer. A device for indicating the direction, duration, and intensity of microseisms. Also called microseismometric apparatus.


microspectroscopy. A method of identifying metallic constituents; it consists of drifting off the minute portion to be analyzed, flowing collection over the resulting chips, and transferring the collection together with the chips to a standard carbon electrode for analysis in a standard spectrographic arc. Gaynor.

mikrospores. A. From, relating to, or conducted on the polished surfaces of rocks or minerals. A.G.I. Supp.
microstructure

at a magnification greater than ten diameters. A.S.M. Gloss.

microthrowing power. A qualitative measure of the ability of an intraplate solution to deposit metal in a small hole, pore, or crevice having dimensions not exceeding a few thousandths of an inch and with its depth usually greater than one of the other two dimensions. A.S.M. Gloss.

mikromineral. A size of the order of 0.001 micron. Hess.


microsyenite. Intrusive igneous rocks which are the medium-grained equivalents of the syenite or nepheline syenite. Hess.

midAtlantic Ridge. A great mountain range extending the entire length of the Atlantic Ocean, curve around the Indian Ocean, curve around Africa, extend well up into the Pacific Ocean. Mero, p. 103.

Middle Atlantic Ridge. A great mountain range extending the entire length of the Atlantic Ocean, curve around the Indian Ocean, curve around Africa, extend well up into the Pacific Ocean. Mero, p. 103.

mid-Rim. A dividing wall or arch of which the width is one-third of the total thickness, and is central in position. Fay.

mid-bid. Scot. mid-value. A term indicating that the top is one of an inferior product. Schieferdecker.

mid-door. Scot. The middle one of three layers or zones. Fay.

middle cut. A cut on a shaft, or usually a roofcut, which is made not far from the middle of a seam. Fay.

middle cut. A cut on a shaft, or usually a roofcut, which is made not far from the middle of a seam. Fay.

middle cut. A stratum of rock, or more usually soft dirt, near the middle of a coal seam. Fay.

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middle cut. A stratum of rock, or more usually soft dirt, near the middle of a coal seam. Fay.

middles. a. That part of the product which is neither clean coal nor mineral nor reject (tailings). It consists of fragments of coal, and shale or slate, as large as millet seeds at the most; the material is often sent back for crushing and retreatment. Nelson. b. In two-component ores, particles incompletely liberated by comminution into concentrate or gangue. In complex ores, in addition to incomplete liberation, there may be multiphase particles of middling or intermediate species which react too feebly to treatment to remain in concentrate or tailing. Fay. m. middlings elevator. An elevator which removes material for further treatment or for an inferior product. B.S. 3552, 1962.

midge. A stratum of rock dividing or separating two seams or beds of coal. Fay.

midge. A stratum of rock dividing or separating two seams or beds of coal. Fay.


mland. The part of the thickness of a wall or arch of which the width is one-third of the total thickness, and is central in position. Fay.

milkiness. A property of glass that with which ions migrate. The movement or seepage of ions. Change of position. Migration.

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milkiness. A property of glass that with which ions migrate. The movement or seepage of ions. Change of position. Migration.
milk-of-lime. A dilute lime hydrate in aqueous suspension and is the consistency of milk. Boynton.
millstone. a. Any of various white stones, as flint, jasper, or dolomite, used for grinding as if by fire, found among prehistoric remains. Standard, 1964.
milky quartz. A quartz in which the color is due to the presence of a small amount of iron and/or metals recovered. Hoffman.
mill. a. An excavation made in the floor or bottom of a stope for further transportation. An opening in the flooding of a stope through which the ore or mineral is passed or thrown downward along the footwall. Fay. To fill a winze, or inferior incline, with broken ore, to be drawn out at the bottom. Fay. b. A passage connecting a stope or mill-head grade. The grade of ore as it comes from the mine and goes to the mill. In calculating it one must make appropriate allowance for dilution. McKinstry, p. 463.
c. To fill a winze, or projection such as waste removal. Pryor, 4.
d. By common usage, any establishment preparatory to smelting and refining. Also called floorwalker; mill shifter. D.O.T. Supp.
mill furnace. An iron furnace for reheating iron that is to be rolled, or welded, under the hammer. Standard, 1964.
mill head. a. Ore accepted for treatment in a concentrator, after any preliminary rejection such as waste removal. Pryor, 4.
b. Assay value, or units of value per ton, in ore accepted for treatment in a concentrator. Pryor, 3.
mill head grade. The grade of ore as it comes from the mine and goes to the mill. In calculating it one must make appropriate allowance for dilution. McKinstry, p. 463.
mill head ore. See mill-head.
mill house. An auxiliary shaft connecting a stope or other excavation with the level below. See also mill, b; glory hole, a.
milliangstrom. One-thousandth of an angstrom; abbreviation, mA. Webster 3d.
milliampere. One-thousandth of an amper; abbreviation, ma. Webster 3d.
millgram. One-thousandth of a gram; abbreviation, mg. Webster 3d.
millipound. One-thousandth of a pound; abbreviation, mp. Webster 3d.
milligram. A unit employed in the gravitational method of geophysical prospecting. It is about one millihenry of the average value of the permeability due to gravity at the earth's surface, that is, 1 gallon = 1 centimeter per second per second. Nelson.
milligram. One unit of mass; abbreviation, mg. Webster 3d.
milligram-hour. A measure of gamma-ray exposure expressed as the product of the equivalent radium content of the source, in milligrams, and the time of exposure in hours. NCB.
millihenry. One-thousandth of a henry; abbreviation, mh. Webster 3d.
millimass unit. The customary unit of measurement for permeability equal to one-thousandth of a darcy. See also permeability. A.G.I. Abbreviation, md. Webster 3d.
milliampere and milliammeter. A milliampere is a milliampere of current, multiplied by the standard time in seconds. The symbol for milliampere is mA.
millimeter. A metric unit of length that equals one-thousandth of a meter; abbreviation, mm. Webster 3d.

millimeter screw micrometer. A precision caliper gage which measures the overall dimensions of unmounted fashioned gems more accurately but less conveniently than dial gages. Shipley.

millimicron. One-thousandth of a micron, usually symbolized as 1 μm. Formerly much used as a measure for the wavelength of visible light. Easily translated into angstroms merely by the shift of a decimal point, since 1 μm equals 10 angstroms. Anderson.

milling. a. In the Lake Superior district, a milling cutter. A rotary cutting tool provided with one or more cutting elements, called teeth, which intermittently engage the work as it is fed past the cutter. ASM Gloss.

b. Removing metal with a milling cutter. ASM Gloss.
c. The act or process of cutting or grinding away a metal object lost in a borehole with a mill or milling bit. Long.
d. Removing metal with a milling cutter. ASM Gloss.

e. In intermittent treatment of ore, as in the amalgamating mill between two cleanups. Fay. v. 3, p. 1523. d. In or to a mill or milling process. Fay.

millisecond. A. In nuclear science; equals one-thousandth of a second; usually symbolized as msec and ms. Webster 3d.


millilitre. A hydrous phosphate of aluminum, calcium, and sodium, CaOAl₂(PO₄)₂·H₂O; mohs; white; fibrous bands resembling chalcedony. Found near Fairfield, Utah. English.

millimeter. A metric unit of length that equals one-thousandth of a meter; abbreviation, mm. Webster 3d.

millisecond. A type of delay cap with a definite but extremely short interval between passing of current and explosion. Nichols.

millisecond-delay cap. A detonating cap that fires from 20 to 500 milliseconds of a second after the firing current passes through it. Nichols.


millimeter. A metric unit of length that equals one-thousandth of a meter; abbreviation, mm. Webster 3d.

Supp. a. An opening or excavation in the earth for the purpose of extracting minerals; a pit or excavation in the earth from which metallic ore or other mineral substances are taken by digging; an opening in the earth made for the purpose of taking out minerals, and in case of coal mines, commonly a worked vein; an excavation properly underground for digging substantial material for suitable excavation and working as a placer mine; the underground passage and workings by which the minerals are gotten together with themselves. Ricketts, i. b. A work for the excavation of minerals by means of pits, shafts, levels, tunnels, etc., as opposed to a quarry, where the material is removed from a coalbed before the taking out of coal.

A mine may be any large source of supply—a learned person becomes a mine of information, a source of wealth is a gold mine, a mine of knowledge is a mine of application. It may be defined as a system of excavations made for the purpose of getting mineral substances (components of the natural state or in solution or suspension). A mine usually involves the employment of persons below ground. It covers the getting of mineral such as coal in solid form and also the getting of a mineral such as salt by the pumping of the mine. The term mine also includes opencast pits, mine buildings, land, structures, and works. In South Wales, mine also applies to ironstone beds and nodules. See also coal mine. Nelson, g. In general, any excavation for gaining, subterranean workings, as distinguished from quarries, placers, and hydraulic mines, and see also. Hess. The distinction between the French terms mine and miniere results entirely from the law, and depends upon the method of working the mine. The former is the more general term, and, ordinarily speaking, includes the latter which signifies the underground workings and surface workings. The word mine in statutes prescribing safety appliances and protection for the miners has been held as including not only a place where pay ore has been discovered, but one where an excavation alone exists, and the cross-measure, heading, an incline communicating with the ore, rock, or coal therefrom. In a military sense, a mine is a subterranean gallery run under an enemy's works, to be subsequently exploded. Compare quarry. Fay. h. Any deposit of mineral or ore suitable for extraction, as an ore deposit. The Federal and State courts have held that the word mine, in statutes reserving mineral lands, included only those containing valuable mineral deposits. In England, the term mine is applied to any seam of coal, as well as to a deposit of ironstone either in thin bands, or in one bed of considerable thickness. Fay. i. The term mine is not intended to signify any and all parts of the property of a mining plant, either on the surface or underground, that contribute directly or indirectly to the mining or handling of coal. Fay, j. i.e., term mine, as applied by quarrymen, is applied to underground workings having a roof of undisturbed rock. It is used in contrast with the open pit quarry. Fay, k. To dig a mine; to get ore, metals, coal, precious stones out of the earth; to dig into as the ground for ore or metal; to work in a mine. Webster 3d. mine is the property of a mining plant, either on the surface or underground, that contribute directly or indirectly to the mining or handling of coal. In statutes relating to mines the word mine is used; (1) in the sense of uncovering the bank of sand, gravel, or talus; (2) included in the meaning of which is the surface designated by a modifying word or phrase as: (1) opencut mine—an excavation for removing minerals which is open to the weather; (2) steam shovel mine—an opencut mine in which steam shovels or other power shovels are used for loading cars; (3) strip mine—a stripping; an opencut mine in which the pit is opened so wide from a coalbed before the coal is taken out; (4) placer mine—a deposit of sand, gravel, or talus from which some metallic ore is extracted; and (5) hydraulic mine—a placer mine worked by means of a stream of water directed against a bank of sand, gravel, or talus; soft rock similarly worked. A quarry from which rock is extracted is taken as a mine even when carried under cover. Mines are commonly known by the metallic or mineral extracted as bauxite mines, copper mines, silver mines, etc. Hess, l. Loosely, the word mine is used to mean any place from which minerals are taken, and which it is hoped may be mineral bearing. Hess, e. By metaphor.
mine cars

requires a rotary dump at the unloading terminal; (2) the rocker dump type, which has a hinged body opened at the bottom; (3) the gable-bottom car, which is shaped like a capital W in cross section; (4) the straight-body type, a special form of a side-dumping car; (5) bottom-dump cars; and (6) end-dump cars, which are commonly used for hand tramming in small mines. See also drop-bottom car; endgate car; solid car. B.C.I.; Kentucky, pp. 211-212; Lewis, p. 88.

mine characteristic. The relation between pressure, p, and volume, V, in the ventilation of a mine of resistance, R, is given by the curve of the equation for a particular mine may thus be plotted on the same axes as the characteristic of a fan. The point of intersection of this curve, termed the mine characteristic, with the pressure characteristic of the fan indicates the pressure and volume at which the fan would work in ventilating that mine. Knowing the volume and pressure, the power and efficiency are obtained. The suitability or otherwise of any fan to any duty can be studied under the effect of pressure drop; the fact in the resistance may be predicted. Roberts, 1, pp. 185-190.

mine characteristic curve. As a graphical aid to the solution of problems in mine ventilation, the mine head (static and/or total) is often plotted against the quantity. This is called the mine characteristic curve, or simply the mine characteristic. Hartman, p. 123.

mine circulating fan. Mines create special problems in proper ventilation. By their isolation from fresh air sources and the presence of dangerous gases and dusts. Large fans are used for the stationary systems, while small portable types provide fresh air in dead-ends and other inaccessible locations. These fans may be driven by electricity or compressed air, and in addition to mine-ground operations, are useful for work in manholes, pipe galleries, etc. As the U.S. Bureau of Mines can furnish specific recommendations concerning special problems. Bests, p. 605.

mine committee. Representatives chosen by the union employees to confer with the company regarding the mine resistance. Also called pit committee. B.C.I.


mine cooling load. The total amount of heat, sensible and latent, in British thermal units of air that must be removed by the air in the working places. Hartman, p. 32.

mine cut. The area from which mineral has been removed. Briggs, p. 23.

mine development. The term employed to denote the ventilation installations in preparing a mine for ore extraction. These operations include tunneling, sinking, ventilating, drafting and raising. BuMines Bull. 419, 1959, p. 76.

mine dial. See miner's dial. Fay.


mine door, air power operated. Mine doors help to keep the air flow in shafts and mine workings. A device that is held "give" to relieve the pressure then close automatically. The doors are mobile and can be set up in any location. They are hinged and closed by a compressed cylinder and are designed to be used when haulage equipment operates on a trolley wire. Bests, p. 79.

mine drainage. See drainage; drain tunnels; water hoists.

mined strata. In mine subidence, the strata lying vertically over the excavated area. Briggs, p. 61.

mine dust. a. Dust from rock drills, blasting, or handling rock. Fay. b. In the quantity inhaled by workers, dust may be classified as swine, harmless, and harmful, though the classification is purely arbitrary. Silica is a dangerous dust; vitreous silica is relatively harmless, and aluminum hydroxide is borderline. Lewis, p. 735. c. Scott. Collected ironstone screenings. Standard, 1964. d. See coal dust. Fay.

mined volume. In mine subidence, the mined area multiplied by the mean thickness of the bed, or of that part of the bed which has been extracted. Briggs, pp. 23-24.


mine fan. a. The main fan for the mine, normally situated at B.S. 3618, 1963, see 2. b. A radial- or axial-flow ventilator. See also fan; ventilation. Nelson.

mine fan signal system. A system which indicates by electric light or audible signal, or both, the slowing down or stopping of a mine ventilating fan. ASA C42:75:1956.

mine feeder circuit. A conductor or group of conductors, including fuses and sectionalizing switches or circuit breakers, installed in mine entries or gangways and extending to the limits set for permanent mine wiring beyond which limits portable cables are used. ASA C42:75:1956.

mine filling. See hydraulic fill. Prior, p. 3.


mine fires. These very dangerous occurrences may arise from spontaneous combustion, the ignition of timbers by gob fires, electric cable defects, or the heating effect of conveyor belts due to friction. Nelson.

mine fire truck. Design to light underground fires in mining operations, this low slung railcar is equipped with water supply and pressure equipment for its fire hoses. When a fire occurs, the car can be sped to the scene along existing rails. The truck is capable of delivering hundreds of gallons of water, depending on the type and model used. Bests, p. 375.

mine foreman. a. The person charged with the responsibility of the general supervision of the underground workings of a mine and the personnel employed therein. In certain states, the mine foreman is designated as the mine manager. U.S. BuMines Fed. Mine Safety Code—Bituminous Coal and Lignite Mines. Pt. 1, Underground Mines, Oct. 8, 1953. b. Generally used to designate that company representative in complete charge of underground operations and legally held responsible for the safety and welfare of all underground employees. He is usually a state certified inspector. B.C.I. See also foreman; bank boss. c. A deputy in metal mines. Nelson. d. An official in charge of plant and associated labor on the surface, for example, screen foreman. Nelson.


minehead. Fitzhead. Webster 3d.

mine heads. In a mine ventilation system, the cumulative energy consumptions are called the mine heads. These heads are in reality pressure differences, determined in accordance with Bernoulli's principle. Hartman, p. 78.

mine hoist. A device for raising or lowering for coal or coke from a mine and for lowering and raising men and supplies. ASA C42:75:1956.

mine inspector. a. The person in charge of the safety department of the mine to determine the safety condition of working areas, equipment, ventilation, and electrical hazards. Westminster Jr. b. Generally used as denoting the state mine inspector as contrasted to the federal mine inspector. B.C.I. See also inspector. c. See metal mine inspector; coal mine inspector. D.O.T. 1.

mine mouth generation. The method is designed to prevent accidents in mine cages caused by overspeeding in hoisting and lowering, ventilation failures, and to increase fire and dust control. May regulate brake speed in the event of an emergency stop. Bests, p. 373.

mine locomotive. A low, heavy, haulage engine, propelled by electricity, gasoline, or steam. Includes steam, oil, and electric locomotive; battery locomotive; trolley locomotive.


mine measures. Forest of Dean. See mine ground. Fay.

mine motorman. In bituminous coal mining, see motorman. D.O.T. 1.

mine opening

mine opening. See opening, c.

mineowner. A whole or part owner of a mine.

Webster 3d.

miner. In metal mining, one who goes through all parts of a mine at regular intervals, looking for fire hazards, loose rock, collapsed headings, and other dangers, and reports conditions to superintendents. Also called firebug; fire inspector; fire patrolman; mine fire patrolman; safety man. D.O.T. 1.

mine pig. Eng. Pig iron made wholly from ore, in distinction from cinder pig. Web-

mine patrolman. In metal mining, one who goes through all parts of a mine at regular
intervals, looking for fire hazards, loose rock, collapsed headings, and other dangers, and
reports conditions to superintendents. Also called firebug; fire inspector; fire patrolman;
mine fire patrolman; safety man. D.O.T. 1.

mine planning. See planning. Nelson.

mine power center. A mine power center is a group of machines and their accessories,
unit complete within a metal enclosure, usually of explosion-proof design, from which low-voltage electrical circuits are taken. I.C. 7962, 1960, p. 22.

mine props. Sections of wood generally small trees that are used for holding up

miner. a. One who mines; a digger for metals and skilled worker of a
trade in mining. b. Any member of the union that is involved in the recovery of a
metal.

mine radio telephone system. A means to provide communication between the dis-
catcher and the operators on the locomo-
tives where the radio impulses pass along the wire and down the telephone pole to the

mineralogy. The microscopic study of min-
erals in general. Synonym for mineralograph,
A.G.I.

mineral. a. An inorganic substance occurring in nature, thought to have an inorganic
origin, which has (1) a definite chemical composition or, more commonly, a characteristic chemical composition, and (2) distinctive physical properties or molecular structure. With few exceptions, such as amorphous (amorphous) and mercury (liquid), minerals are crys-
talline solids. No definition of a mineral
is yet widely accepted; the divergence of views is mainly in regard to applying the term to a group of related substances, such as slagglacie, or reserving it for individual members of such a series or isomorphic group. In a broad nontechni-
cal sense, the term embraces all inorganic and organic substances that are extracted from the earth for use by man, for example, the mineral fuels. Stokes and
Varney, 1955. b. In flotation, the terms
mineral or metallic particles refer back to
the French (mineral, ore), and Spanish (metal, ore) meanings. Both terms refer
to those valuable constituents in the ore
that it is the object of the process to
separate from the nonvaluable constitu-
ents, or gangue. Fay. c. Lake Superior.

mineral dressing. The microscopic study of min-
erals in general. Synonym for mineralograph,
A.G.I.

mineral deposit. a. Any valuable mass of ore. Like ore deposit, it may be used with
reference to any mode of occurrence of
ore, whether having the characters of a
true, segregated, or gash vein, or any other
form. See also ore deposit. Fay. b. A body of minerals matter in ore, on
the earth's surface which may be utilized for its industrial mineral or metal content.
Baten.

mineral dresser. A machine for trimming or
dressing mineralogical specimens. Stand-
ard, 1964.

mineral dressing. a. Physical and chemical concentration of raw ore into a product from
which a metal or other economic material
is segregated, or gash vein, or gash vein.
b. Treatment of natural ores or partly processed products derived from such ores in order to segre-
gate or upgrade some or all of their
valuable constituents, and/or remove those
not desired by the industrial user. Mineral
dressing processes are applied to indus-
trial wastes to retrieve useful by-products.
Fay. e. See also mineral processing.

mineral economics. Study and application of the technical and administrative processes
used in the extraction, control, and finance
connected with the discovery, development,
exploitation, and marketing of mineral
deposits. Fay.

mineral engineering. Term covers a wide field in which many resources of modern sci-
ence find expression. These include: explo-
ration, development, exploitation, and use

mineral entry. The filing of a claim for pub-
lic land to obtain the right to any mineral
it may contain. Craigie, v. 3, p. 3.

mineral facies. Mineral facies comprises all
rocks that have originated under tempera-
ture and pressure conditions so similar
that a definite chemical composition has
resulted in the same set of minerals re-

usually containing considerable extender,
such as alumina. CCD 6d, 1961.

mineralized. Eng. Pig iron made wholly from
ore, in distinction from cinder pig. Web-

mineral blazing. Eng. Pig iron made wholly from
ore, in distinction from cinder pig. Web-

mineral blush. Black pigments made by
grinding and/or heating black slate, shale, coal, or carbon. Fay. Em. Pig for
many inks, coalcoats, surface coatings, etc. CCD 6d, 1961.

mineral blossom. Drusy quartz. Fay.

mineral bluing. A pigment that changes to any of a
number of varieties of iron blue pigments,
resulting in the same set of minerals re-

usually containing considerable extender,
such as alumina. CCD 6d, 1961.
mineral facies

gardless of the manner of crystallization or recrystallization. Synonym for metamorphic facies. A.G.I.

mineral, Synonym for oxide. Tom.

mineral field. Sot. A tract of country in which workable minerals are found; a mineral deposit. A.G.I.


mineral filter. A finely ground, generally inert, cheap mineral substance that is added to such manufactured products as paint, paper, rubber, linoleum, and other materials to give body, weight, opacity, wear, toughness, or other useful properties. See also filter. A.G.I.


mineral granules. Granular inorganic mineral material more than 50 percent of which is naturally included in the No. 35 (300-mesh) sieve. ASTM D1079-54.

mineral inclusions in coal. This term is applied to such minerals as inorganic chemical constituents of the original plant material (that is, plant ash), discrete bands of dirt within the seam, etc. Factors from strata above and below the seam are not included in the term. IHCP, 1963.

mineral interests. Mineral interests in land means all the minerals beneath the surface. Such interests are a part of the realty and the estate in them is subject to the ordinary rules of law governing the title to real property. Ricketty, 1.


mineralization. a. The process of replacing the organic constituents of a body by inorganic fossilization. Standard, 1964. b. The addition of organic substances to a body. Standard, 1964. c. The action of mineralizing; the state of being mineralized. Webster 3d. See also mineralizer. Fay. d. The process of converting or being converted into a mineral, as a metal into an oxide, sulfide, etc. Fay. e. The processes taking place in the earth's crust resulting in the formation of valuable minerals. See also mineralization, ore deposits, secondary, epigenetic ore deposit; epithermal deposit; hydrometasomatism; magnetic segregation deposit; metamorphic aureole; metasomatism; pneumatolysis. Nelson.

mineralizer. a. To change from a metal into a mineral, as iron when exposed to the air. Standard, 1964. b. To impregnate or supply with minerals or any organic compound. Webster 3d. c. To petrify; to promote the formation of minerals. Webster.

mineralized bubbles. Mineralized froth. In flotation, the bubbles which rise from the pulp loaded with particles of desired mineral. They are said to be adherent or matrix-like with the adherent film of particles. Pryor, 3.

mineralized matter. Crushed and loose rock material containing minerals irregularly deposited, from solution. It may be in key or base.

mineralized zone. A mineral-bearing belt or area extending across or through a district. It may be either distinguished from a host or looked at as being wide, the mineralization extending in some cases hundreds of feet from a fissure of contact plane. Compare contact deposit. See also zone, b. E. mineralizer. a. A substance, especially water or other gas, which, when present in solution in magma, lowers the liquidus temperature and the viscosity, aids crystallization, and permits the formation of minerals containing it. A hydrothermal fluid is presumed to be formed by the concentration of such a mineralizer. Also called a mineralizing agent. A.G.I. b. The dissolved vapor in an igneous magma, such as steam, hydrofluoric acid, boric acid, mineralizer. geologic. See geologic mineralizer. Bennett, 2d, 1962.

mineralizing agents. See mineralizer. A.G.I.

mineralizing fluids. Liquids and gases that give rise to mineralization. Bateman.

mineral jelly. A semisolid substance from petroleum that is similar to but cruder than petroleum and that is used as a stabilizer in explosives. Webster 3d.


mineral land. Land more for mining than for agriculture. The fact that the land contains some gold or silver would not constitute it mineral land if the gold and silver did not exist in sufficient quantities to pay to work. Land not mineral in character is subject to entry and patent as a homestead however limited its value for agricultural purposes. Ricketty, 1.

mineral lease. See mining lease. Webster 3d.

mineral line. Eng. A line that carries only mineral, especially coal. Webster 2d.

mineral matter (in coal). The inorganic material in coal. B.S. 1016, 1961, Pt. 16.

mineral monument. A permanent monument related to the processes of deposition. These are very practical guides to the location of ore. The concentration of minerals, ore gangue, or alteration products, may constitute targets for ore search. Lewis, p. 1964.

mineralogical guide. Minerals which are present near that volcano and which are related to the processes of deposition. These are very practical guides to the location of ore. The concentration of minerals, ore gangue, or alteration products, may constitute targets for ore search. Lewis, p. 1964.

mineralogical phase rule. See Goldschmidt's mineralogical phase rule. A.G.I.

mineralogist. One who examines, analyzes, and classifies minerals, and precious stones; isolates specimen from ore, rocks, or matrices; performs physical and chemical tests and makes X-ray examinations to determine composition of specimen and type of crystalline structure; and develops data in mode of origin, occurrence, and possible uses of minerals. D.O.T. 1.


mineralography. The study under the microscope by reflected light of the structure of opaque minerals and ores. A.G.I.

mineraloids. The science of the study of minerals. A.G.I.

mineraloids. Mineral-like constituents of rocks which do not develop enough in chemical composition or in physical properties to be considered a mineral. Hydrocarbons, volcanic glass, and feldspar are classed as mineraloids. Hess.

mineral oil. Oils derived from any mineral source and used in medicine, as a lubricant, and as fuel. Institute of Petroleum, 1961.

mineral paint. Minerals used as pigment, mica, talc, graphite, talc, etc. See also ochers; sienna, a; umber. Fay.

mineral pigments. Mineral materials used to give color, opacity, or body to a paint, stucco, plaster, or similar material. AIME, p. 380.


mineral processing; ore dressing; mineral dressing. The dry and wet crushing and grinding of ore or other mineral-bearing products for purposes of raising concentrate grade; removal of waste and unwanted or deleterious substances from an otherwise useful product; separation into distinct species of mixed chemical and mineralogical attack and dissolution of selected values. Among the methods used are hand sorting, radioactivity, and honeymoon perhaps being added; dense media separation; screening and classification; gravity treatment with jigs, shaking tables, sluices, etc. See also ochers; sienna, a; umber.

mineral province. A region in which the source, age, and regional distribution of a complex of minerals in a sediment are unified. Kesler.


mineral reserves. See reserves. Nelson.


mineral resources. See reserves. Nelson.

mineral rock. Any of a group of resinous or fatty substances deposited in various rocks, such as bitumen and asphalt. Webster 3d.

mineral rights. The ownership of the minerals under a given surface, with the right to enter thereon, mine, and remove them. It may be separated from the surface ownership, but, if not so separated by district conveyance, the latter includes it. Fay.


mineral salt. Mined salt rock, as found in nature. Kaufmann.

minerals. A term used in the classification of ore under the tariff act of 1897. Such minerals are crude or not advanced in value or condition by refining or grinding, or by other processes not especially provided for in the act; or advanced in value or condition by such processes or by other processes not especially provided for in the act. Cf. metal. Minerals in the mineral sequence. The order of deposition
mineral sequence

during formation. A normal sequence is needed to be oxides followed by sulfides and ending with elements, such as gold. Ideal conditions for normal deposits are those which are not subjected to crowding, telescoping, stretching, etc., during the deposition or rejuvenation of mineralizing solutions, effective changes of wall rock along the vein, or any of the similar changes common in ore deposition.

mineral species. a. A homogeneous substance produced by the processes of nature, having a chemical composition, crystal structure, and physical properties which are constant within narrow limits. Anderson. b. Any mineral that can be distinguished from all other minerals by current determinative methods. Stokes and Hines, 1955.

mineral sperm oil. See mineral seal oil.

mineral spring. A spring whose water contains crystallizable paraffins, is easily reduced, brown, or green when viewed by transmitted light. Skow.

mineral streaking. An aggregate of grains of sand or silt, which join the oil-coated particles. These sands are formed when oil has migrated through the fractures of the rock. Minnow.

mineral syntheds. The production of artificial minerals is accelerated by means of addition to the air after this treatment quantities of wall rock along the vein, or any of the similar changes common in ore deposition.


mineral zoning. The phenomenon of a zonal arrangement of mineral deposits outward from an igneous center, with the high-temperature minerals farther from an igneous center, with the high-temperature minerals nearest the source and the low-temperature minerals farther out. Schiederer.

miner. a. A person who takes a contract from the company or owner of the property to produce coal at a certain price per ton. He may employ other workers to do the actual mining under his supervision, or frequently work with a partner. Also called miner, efficiency. D.O.T. 1.

miner’s anemia. Hookworm disease. See also anaemias. Websier 3d.

miner’s asthma. See pneumoconiosis. Webster 3d.

miner’s bar. An iron bar pointed at one end,

miners’ bar. A crew consisting usually of human beings who are thoroughly trained in the use of mine rescue apparatus, and are capable of wearing it in rescue or recovery work in a mine following an explosion, or to combat a mine fire.

miner’s lamp. A name given to a particular type of electric safety hand lamp used in rescue operations. It is equipped with a lens, and the light beam as occasion may require.

mine rock. Any mine track used for general haulage. Fay.

mineral water. A substance outwardly resembling water, presenting a mass of fine interlaced filaments. It is made by subjecting furnace slag, or certain rocks, while molten to a strong blast. Being both fusible and soluble in carbon dioxide, it is easily crackable packing for walls, a covering for steam boilers, etc. Standard, 1964. Compare rock salt. Also called mineral confection, caked salt, and slag wool. Fay.

mine royal. Derb. A gold or silver mine that contains crystallizable paraffins, is easily reduced, brown, or green when viewed by transmitted light. Skow.

mine rescue crew. A crew consisting usually of human men who are thoroughly trained in the use of mine rescue apparatus, and are capable of wearing it in rescue or recovery work in a mine following an explosion, or to combat a mine fire.

mine resistance. a. The resistance offered by a mine to the passage of an air current, or the mine resistance is due to the friction of the air flowing through the top and bottom of the air passages. To overcome this friction, the total ventilating air pressure must be applied against the mine face. Mine resistance is caused by the drag of the air against the mine surfaces and other obstructions. The rougher the mine surfaces and the more the obstructions, the greater the resistance to the flow of air. Kentucky, p. 81. b. Includes any natural ventilation effect present and is calculated from air volume and total pressure. The standard practice in the United Kingdom is to express the resistance of a mine in square feet of equivalent office. Roberts, I, p. 207.

mines. A number of railway cars specially equipped with mine rescue apparatus, safety lamps, first-aid supplies, and other materials, usually maintained by the U.S. Bureau of Mines in various sections of the United States. These cars serve: as movable stations for the training of miners in the use of mine rescue apparatus, and in first aid to the injured; as centers for the promotion of mine safety; as emergency stations for assisting at mine fires, explosions, or other disasters. Similar cars are maintained by a number of mining companies. Fay.

mineral wool. A substance outwardly resembling water, presenting a mass of fine interlaced filaments. It is made by subjecting furnace slag, or certain rocks, while molten to a strong blast. Being both fusible and soluble in carbon dioxide, it is easily crackable packing for walls, a covering for steam boilers, etc. Standard, 1964. Compare rock salt. Also called mineral confection, caked salt, and slag wool. Fay.

mineral white. a. Blanc fixe. Webster 3d. b. Gypsum ground and used in pigments. Webster 3d.

mineral wool. A substance outwardly resembling water, presenting a mass of fine interlaced filaments. It is made by subjecting furnace slag, or certain rocks, while molten to a strong blast. Being both fusible and soluble in carbon dioxide, it is easily crackable packing for walls, a covering for steam boilers, etc. Standard, 1964. Compare rock salt. Also called mineral confection, caked salt, and slag wool. Fay.

mineral wedging. A form of chemical weathering resulting in the formation of new minerals that have much the same aggregate volume as the old ones. These expanding minerals then act as wedges to split adjacent minerals apart. A.G.I.

mineral well. A substance outwardly resembling water, presenting a mass of fine interlaced filaments. It is made by subjecting furnace slag, or certain rocks, while molten to a strong blast. Being both fusible and soluble in carbon dioxide, it is easily crackable packing for walls, a covering for steam boilers, etc. Standard, 1964. Compare rock salt. Also called mineral confection, caked salt, and slag wool. Fay.

mine zoning. The phenomenon of a zonal arrangement of mineral deposits outward from an igneous center, with the high-temperature minerals nearest the source and the low-temperature minerals farther out. Schiederer.

miners. A number of railway cars specially equipped with mine rescue apparatus, safety lamps, first-aid supplies, and other materials, usually maintained by the U.S. Bureau of Mines in various sections of the United States. These cars serve: as movable stations for the training of miners in the use of mine rescue apparatus, and in first aid to the injured; as centers for the promotion of mine safety; as emergency stations for assisting at mine fires, explosions, or other disasters. Similar cars are maintained by a number of mining companies. Fay.

miners’ bar. An iron bar pointed at one end,
miners' bar

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miners' rules

chisel-edged at the other, used in coal mining. Standard, 1964.

miners' bond. Prior to the middle of the 19th century, mines were operated by a miner's bond, which was a guarantee by the miner in the presence of witnesses, and under its provisions he undertook to serve his master faithfully for a year in consideration of fortnightly payments of wages in accordance with the terms specified. This was known as the Bond or Bondage system. Nelson.

miners' box. A wood or iron box located in or near the working place of the miner in which he keeps his tools, supplies, etc. Required by law in some states. Fay.

miners' coat. A coat of 500 to 1000 pounds of wool or flannel. Fay.

miners' consumption. See pneumoconiosis. Webster 3d.

miners' cramps. Heat cramps. Webster 3d.

miners' devices. Miners use various devices to protect the posted notice from construction. The miner's hood, such as covering it with glass, or folding it in a box and placing the box in a conspicuous place, or putting the notice upon a mound of rocks, folding it and partially covering it with a rock or putting the notice in a tin can. A substantial compliance with the law is sufficient. Ricketts, I.


miners' dip needle. A portable form of dip needle used for indicating the presence of magnetic ores. Also called dipping compass. C.T.D.


miners' hammer. A self-contained mine lamp designed for fixing to the miner's headpiece, of plastic or aluminum alloy, with a 12 volt 0.46 ampere bulb with a light output of about 47.43 lumens. The lamp bulb of 38 lumens output. The headpiece is equipped with an auxiliary bulb rating 4 volt 0.46 ampere. Nelson. b. A lamp for mounting on the miner's cap and receiving electric energy through a cord which connects the lamp with a small battery. ASA C42.85:1956.

miners' inch. a. The miner's inch of water is not a fixed and definite quantity, being measured generally by the arbitrary standard of various ditch companies. It is, however, it is accepted to mean the quantity of water that will escape from an aperture 1-inch square through a 1-inch plank, with a steady flow of water standing 6 inches above the top of the escape aperture; the quantity so determined amounting to 2.74 cubic feet in 24 hours. Fay. b. Inasmuch as the miner's inch is a local term, the flow of the water expressed in cubic feet per second, and where it is desirable, for local reasons, to use the term miner's inch, it shall represent a flow of 1/2 cubic foot per minute. Fay. Compare sluice head. Fay. c. The term is not defined in the law, but is of use in connexion with mineral measurement in another locality. It has been defined as the amount of water that will pass in 24 hours through an opening 1-inch square under a pressure of 6 inches. Ricketts, I. d. The discharge from an orifice 1-inch square under a definite head is a rate of flow. The value of a miner's inch has been fixed by statute in various states as follows: Idaho, Montana, and Oregon, 40 miner's inches are the equivalent of 1 cubic foot per second; in Colorado, the accepted equivalent is 38.4, and, in British Columbia, 35.7. In some parts of California 40 miner's inches to 1 cubic foot per second is used, whereas in the southern part quite generally 50 miner's inches to 1 cubic foot per second is used, regardless of the legal definition. Seeley, I, e. N.Z. A stream of water capable of discharging a fixed and definite quantity of water, etc. Nelson. f. In miner's wick-fed open lamps. Fay. g. An ocular term. See also rescue team. Macy.

miners' key. A lamp. Nelson. a. A Davy safety lamp. Standard, 1964. b. Name given by Captain Savery, in 1702, to his invention of the first practical steam engine, which was used to pump water from underground. Pryor, 3.

miners' lamp. A self-contained mine lamp with handle for convenience in carrying. ASA C42.85:1956, sec. 2.

miners' lamp body. Capsule of rigid, strong materials such as aluminum, vulcanized fiber, glass fiber or plastic, protecting the lens from injury caused by striking objects, large chips, or by striking the head against projecting materials. The caps have a central cushioning shock of blows and a sweat band to absorb perspiration. They are water resistant and may be non-conductive. A front visor shields the face and eyes from overhead glare, and makes the cap suitable for wear in close, confined spaces where a full brim might interfere. Betts, pp. 83, 84.

miners' helmet. Head hat. A hat designed for miners to provide head protection and for holding the cap lamp. Texolex helmets are made of layers of Lancashire cotton fabric, impregnated with phenol-formaldehyde hyrde resin, and molded into shape under high pressure. Headbands are of soft leather or plastic-coated fabric with webbing harness. See also face shield; protective clothing. Nelson.

miners' horn. A horn or metal spoon, used to collect the ore particles in gold washing. Standard, 1964.

miners' right. a. An annual permit from the state, required by law in some states, authorizing the holder to enter and work on certain crown lands. Nelson. b. In California, the right of a miner to dig for precious metals on public lands, occupied by another for agricultural purposes. In Australia, a written or printed license to dig for gold. Fay. c. N.S.W. A document showing that the holder has permission to enter upon certain classes of Crown land to search for gold and minerals and to take possession of such land under certain conditions. It is not a title deed showing that he is the owner of the land, but is a document showing that he has the right to avail himself of the mining laws. New South Wales, p. 95.

miners' rules. Rules and regulations proclaimed by the miners of any district relating to the location, recording and the washing of claims, and the conditions governing a mining claim. It was the miners' rules of the early days of the mining industry that applied. The local mining laws and regulations of 1849 and later are given in vol. 14, 10th
miners' rules

Census of the United States, 1880, compiled by Clarence King. Fay.

mine's safety lamp. See Davy safety lamp. Crispin.

miners salt. An infrequent, local designation for sodium rock salt. Kauzman.

miners' self-rescuer. A small pocket form of gas mask for protection against carbon monoxide, contained in a case, measuring 13 1/2 by 3 3/4 by 7 inches and weighing 15 ounces or itself or 21 ounces including the case. May be used as a small canister with a mouthpiece directly attached to it. The wearer breathes through the mouth, the nose being closed by a clip. The canister contains a layer of fused calcium chloride to absorb the water vapor in the air which decreases the efficiency of the other chemical called hopcalite. The self-rescuer affords protection for 30 minutes, so that when surviving an explosion may be used. A through a mine atmosphere that contains sufficient oxygen but also a fatal percent of carbon monoxide. Lewis, p. 761.

mine's squib. A small tube filled with fine-grained black powder. May vary in burning time from 10 to 20 seconds, depending upon the grade used. In use, the stemming is tamped around a copper needle reaching back into the powder charge. After stemming the hole the needle is removed and the remaining hole acts as a passageway for the squib. Upon lighting and the burning of the ignition match the squib assumes a rocket effect and dart into the air to ignite the face of the powder, Lewis, p. 156.

miners' sunshine. A soft grade of paraffin wax used by miners for burning in lamps. See also sunshine. Fay.

mine's tent. Usually a triangular tent that is suspended from a tree or set up with one center pole. Webster, 3rd.

miners' wax. A refined paraffin wax with a melting point of 116° to 120° F. Compare sunshine. Fay.

miners' wedge. A metallic wedge or plug for stemming or stemming charges. Fay.

mine signal system. Designed especially for use in mines, these signal lights installed at individuals' switches immediately indicate to the operator whether or not he can safely proceed. Green and amber lights work automatically with the movement of the switches. May be used with locally controlled switches, or with those operated by a central dispatcher. Betts, p. 272.

mine skips. Skips, used to bring mined ore to the surface of a mine shaft, can be obtained in various sizes and designs for both vertical and incline shafts. Tip-over models and bottom door dump models are available. Betts, p. 273.

mine static head. The energy consumed in the ventilation system to overcome all flow head losses. It includes all the decreases in total head (supplied from static head) which occur between the entrance and discharge of the system. Hartman, p. 78.

mine superintendent. A colliery manager or group manager. See also superintendent. Nelson.

mine surveyor. The official at a mine who periodically surveys the mine workings and prepares plans for the manager. In Great Britain, the surveyor must possess a Mine Surveyor's certificate of the Ministry of Power. Formerly the mine surveyor carried out all of the duties now performed by the planning department. Nelson. See surveyor for the mine. B.S. 0618, 1966.

mineta. A rock composed chiefly offeldspar and biotite mica, and sometimes with chlorite, quartz, and hornblende. A mica syenite. Fay.

mine teamster. In mining, one who drives horses or mules to haul wagons or cars loaded with coal, ore, rock, or slate under ground or at the surface of a mine. D.O.T. 3rd.

mine timmer chopper. In bituminous coal mining, one who works in the forest, felling, chopping, and sawing trees to be loaded with coal, ore, rock, or slate underground or at the surface of a mine. D.O.T. 1.

mine tins. Tin obtained from veins or lodes, as distinguished from stream tin. Fay.

mine tons. Gross tonnage of ore including waste and unpayable material. Berman.

mine total head. The sum of all energy losses in the ventilation system. Numerically, it is the total of the mine static and velocity heads. Hartman, p. 78.

mine track devices. A variety of track devices to provide adequate safety for haulage trains in mines. Designed to be used in conjunction with switch signals, these devices include electric switch throwers operated by hand contractors on a copper plate, overhead hand controllers, remote control, or switch operators. Other safety equipment includes mechanical switches for gaseous or hot mines, derailing switches forshalv coal mined, and automatic mine-door opening devices. Betts, p. 372.

mine tractor. A trackless, self-propelled vehicle used to transport equipment and supplies and for general service work. ASA C42.85:1956.

minette. An orthoclasite biotite lamprophyre that consists of hornblende, diopside, and pyroxene. Fay.

mines. See mining. Nelson.

mine ventiliation fan. A motor-driven disk, propeller, or wheel for blowing (or sucking) air to provide ventilation of a mine. ASA C42.85:1956. See also ventilation.

mine ventilation system. An arrangement of connecting airways in a mine together with the pressure sources and control devices which produce and govern airflow. Hartman, p. 158.


mine water. Water pumped from mines usually contains impurities, some of which are in suspension, but the majority being soluble cause the water to be hard. The water often contains corrosive agents such as acids or alkalis. Cooper, p. 362.


mine works. Eng. An ironstone mine or workings. Fay.

mine worker. A workman in a mine. Webster 3rd.


minge; mingy coal. Coal of a tender or friable nature. Fay.

mingled ground. Mixed clay and sand or rock. Arkell, p. 53.

mingle. Scot. The vertical timbers of the upper part of a pulley frame, on the top of which the pulleys are fixed. See maidens. Fay.


mink coal; mingo coal; mosh. Coal of a soft or friable nature. Nelson.


miniature current meter. The passage of current through a coil such that a probe on each blade of a propeller type, or each cup of a price-type meter can be detected by the change of electromagnetic resistance between that probe and a distant electrode. A voltage pulse is produced as each blade crosses the electrode, the rate which depends on the velocity of the current is indicated
minimum deviation. The position of a prism in relation to a beam of light where the beam is passing through symmetrically, and, as a corollary, with minimum deviation. By measuring the prism angle (A) and the angle of minimum deviation (D), refractive index may be determined from the formula:

\[ \sin \frac{\Delta}{2} = \frac{A - D}{2} \]

minimum firing current. As applied to electric blasting caps, the limit below which firing will not occur. Franketi, v. 3, Art. 161/10, p. 5.

minimum ignition energy. The minimum ignition energy required for the initiation of a particular flammable mixture at a specified temperature and pressure. I.C. Ricketts, 1967, p. 16.

minimum interfacial energy, law of. The tendency of seed crystals to assume a position on previously formed crystals that is the most stable position as far as forces of crystallization are concerned. This law explains a parallel grouping of crystals and the symmetrical or the parallel arrangement of inclusions in large single host crystals. Hess.

minimum oxygen content. The U.S. Bureau of Mines and other recognized safety and health agencies recommend 19.5 percent as the minimum oxygen content allowable. Hartman, p. 17.

minimum rent. A mine owner acquires the right to work coal by the payment of an annual (or minimum) rent and a royalty to the landowner (the coal or mineral owner). There is no rule regulating the terms of the lease. Fay. c. Includes placer mines in which a claimant has acquired the right to the land according to law or to certain established rules. Rickets, I. c. Title issued by the government for mining purposes will constitute a mining claim. Mining claim and location is the act of appropriating such lands to which the right of exclusive possession and enjoyment by a private person or persons, has been asserted by actual occupation, or by a compliance with the local mining laws, or district rules. Fay.

minimum claim. a. That portion of the public mineral lands which a miner, for mining purposes, takes and holds in accordance with mining laws. Schweikert, v. 3, p. 1525.

mining engineer. a. A man qualified by education, training, and experience in mining engineering. Nelson. b. If qualified and of standing in his profession, a trained engineer with knowledge of the science, economics, and arts of mineral location, extraction, concentration and sale, and the administrative and financial problems of practical importance in connection with the profitable conduct of mining. Usually he is a specialist in one or more branches of his work. He may be in, or one who follows, as a calling or profession, the business of mining engineering. Graduates of technical mining schools are given the degree of engineer of mines and authority to sign the letters E.M. after their names. The letters E.M. stand for mechanical engineer, when given by a school, but are often used by men engaged in mining who have not been graduated in such an institution, as an abbreviation for mining engineer, or mining expert. Fay.


mining compass. An instrument that gives qualitative indications of anomalies of the magnetic field. Schieferdecker.

mining debris. The tailings from hydraulic mining. Also called debris. Fay.

mining dial. See dial. C.T.D.

mining district. a. A section of country usually designated by name, having described or known structural or lithologic boundaries within which mineral is found and which is worked under rules and regulations prescribed by the district mining laws. Fay.

mining engineer. a. A man qualified by education, training, and experience in mining engineering. Nelson. b. If qualified and of standing in his profession, a trained engineer with knowledge of the science, economics, and arts of mineral location, extraction, concentration and sale, and the administrative and financial problems of practical importance in connection with the profitable conduct of mining. Usually he is a specialist in one or more branches of his work. He may be in, or one who follows, as a calling or profession, the business of mining engineering. Graduates of technical mining schools are given the degree of engineer of mines and authority to sign the letters E.M. after their names. The letters E.M. stand for mechanical engineer, when given by a school, but are often used by men engaged in mining who have not been graduated in such an institution, as an abbreviation for mining engineer, or mining expert. Fay.

mining fluids. The water in which the workings are open, and therefore the question whether an enterprise is mining or not is commonly determined by an inquiry as to whether the workings are open or underground. Ricketts, I. d. The indeterminate condition of the project, which permits the entrepreneur to continue mining without an act of incorporation or other like proceeding. Fay.

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mining engineer

mining engineer. That branch of engineer-
ing that is concerned with the discovery, develop-
ment, and exploitation of coal, oil, and minerals. 

mining explosives. High explosives used for 
mining purposes, such as blasting. The term also 
embraces the cleaning, sizing, and dressing of the 
product. Nelson.

mining geologist. The study of geologic 
structures and their occurrence in the form of 
mineral deposits and their discovery. Nelson. 

mining ground. Land on which mining is 
performed. Nelson. See also Mining title.

mining hazards. The dangers peculiar to the 
mining industry, both to the miner and to the 
public. Nelson.

mining head. The mechanism on a continuous 
mining locomotive. A small locomotive for 
mining machine operator. See machine miner. 

mining machine. A coal-cutting 
machine. A device for cutting coal, such as a 
Congress for Mining Qua-
ifications. A board set up in 1936 to 
act as a central agency to sections employing 
track. 

mining machine operator. See machine miner. 

mining machine operator-helper. See machine 

mining machine truck. A truck used for 
transporting shortwall mining machines. 
Track-mounted trucks are necessarily limit-
ated to use in sections employing truck. 

mining machine truck. 

mining operator. A person 
selected to keep a record of all mining 

mining right. Upon a specific piece of ground, 
a right to enter upon and occupy the ground 
for the purpose of working it, either by underground excavations or open 
workings, to obtain from it the mineral 
resources which may be deposited therein. 

mining road. A divining rod. Craigie, v. 3, 
p. 1525.

mining rush. A rush or stampede to an area 
where gold was, or was thought to be, 

mining site. A claim of mining stock. 

mining shield. A cover or canopy for the 
protection of men and machines at the 
face of a mechanized coal heading. Hy-
draulic rams telescope and steer the shield 
forward as the face advances. It enables 
continuous miners to operate with greater 
safety. Developed by the U.S. Bureau of 

mining sluices. An artificial channel or 
passage for water used in mining. Compare 

mining stock. Stock issued by a mining com-

mining stream. A stream made use of in 

mining town. A town that has grown up 
adjacent to a mine or mines. Craigie, v. 3, p. 1525.

mining title. A claim, exclusive prospecting 
license, concession, right, or lease. A grant 
derived under mining laws and regulations to a 
person or group of approved persons 
right to develop and exploit a properly 
delineated area for its mineral wealth. 

mining engineers. Also called mine analy-
sting, all appointed by the Minister for 
more than five years. Nelson.

mining engineer. A person 
selected to keep a record of all mining 

mining retreat. A process of mining by 
which the ore, or coal, is untouched until 
after all the gangways, etc., are opened, 
when the work of extraction begins at the 
boundary and progresses toward the shaft. 

mining title. A claim, exclusive prospecting 
license, concession, right, or lease. A grant 
derived under mining laws and regulations to a 
person or group of approved persons 
right to develop and exploit a properly 
delineated area for its mineral wealth. 

mining width. The minimum width necessary 
for the extraction of coal regardless of the 
actual width of ore-bearing rock. A.G.I. See also Stopping width.
mining with self-filling


minium. The siftings of iron ore after calcination with self-filling. See controlled caving.


minus minerals. Minerals (such as garnets) minus mesh. Portion of a powder sample minus sieve. In powder metallurgy, the portion minus didion. Stakes or points on the far side of the zero point from which a job was originally laid out. Nichols.

minute of arc. A unit of angular measure equal to the 60th part of a degree and containing 60 seconds of arc. Webster 3d.

minierville. A basic intrusive rock, in essence a dolerite, brown, soda-rich hornblende; named from St. Minver, Cornwall, England. C.M.D.

minyullite. A white, basic, hydrous fluophorite. 

Miracle. Explosive, used in naval mines. Explosive, used in naval mines.

minus didion. Stakes or points on the far side of the zero point from which a job was originally laid out. Nichols.

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plus sieve. In powder metallurgy, the portion plus sieve. In powder metallurgy, the portion
Mississippian

vancement to period rank, and that is now recognized by the U.S. Geological Survey. In the United States, the Mississip- pian is fifth of seven periods in the Paleozoic era, the system of rocks found during this period. A.G.I.

Missourian. Upper middle Pennsylvanian. A.G.I.

mist. Plutonic equivalent of olivine- leucite basalt or olivine-leucite basalt. Mts., a. Plutonic or hypabyssal, and olivine with minor anastole and biotite, accessory apatite, and opaque oxides. A.G.I.


Mistox. Laryl pentachlorphenol in a mist projector. A hose that is not rubber-lined may be proofed against mildew attack by immersion in a 1-per-cent solution of Mistox. Sinclair, 1, p. 282.


mixture. a. The proportion as specified by volume or by weight of the materials, including water, making a batch of concrete, mortar, or plaster. Harwood. A batch after it has been mixed. Dodd.

mixed. Drill diamonds ranging from 23 to 80 per carat. Mixed blast process. A modification of the basic Bessemer process in which all the nitrogen is removed from the blast, the blast being made up of a mixture of oxygen and carbon dioxide or oxygen and superheated steam and especially adapted to smelting high-phosphorus steel. Champion.

mixed chlorates, and perchlorates. Most impor- tant among these are the mixed cements. A product obtained by mixing, or blending, either portland, natural, or pozzolana cement with one another or with other inert substances. Zern, p. 145.

mixed dust. Dust prepared for testing in the mine by mixing coal dust and inert dust in predetermined proportions. The mixture may also contain water, or by weight of the materials, including water, making a batch of concrete, mortar, or plaster. Harwood. A batch after it has been mixed. Dodd.

mixed-explosion. One in which each ingredi- ent, firedamp and coal dust, are present below their lower limits, but in combina- tion proportional to smelting. Also called mixer operator. A.G.I. Supp.

mixed explosives. Such explosives consist of an intimate mechanical mixture of sub- stances which consume and generate oxy- gen but are not in themselves explosive. To this group belong inorganic nitrates, chlorates, and perchlorates. Most impor- tant is ammonium nitrate. Faenkel, v. 3, Art. 16:01, p. 29.

mixed-feed kils. Upright lime kilns in which the fuel (char) is mixed and burned with the limestone charge. Menzer, 4th, p. 235.

mixed-flow fan. A mine fan in which the flow is both radial and axial. The Schicht fan is of this type and has the advantage that it can provide water gage with a single stage. This fan, however, is not well suited to mines where a large change in water pressure is likely to occur. See also axial-flow fan; radial-flow fan. Nelson.

mixed-flow turbine. An inward flow, reaction- type water turbine, in which the runner

vanes are so shaped that they are acted on by the water pressure both radially and axially.


mixed ores. Ores containing both oxidized and unoxidized minerals. See also oxidized ores; sulfide ore. Nelson.

mixed past. Fust consisting of alternating layers of material of distinct origin. Tomskiy, 1959.

mixed-in-place method. One in which the presence of a diurnal wave produced a large inequality in either the high or low water heights, with two high waters and two low of the cutting shoe. Long. A.G.I. Supp.

mixed meat. See Feating and dressing.

mixed-in-place. A method of alternation by which a diurnal wave produced a large inequality in either the high or low water heights, with two high and two low. Nelson.


mixed-in-place mixing. A funnel-shaped hopper attached to the body of a mud mixer and by means of which the dry, powdered, drill-mud ingredients are fed into the mud mixer. See also mud mixer. D.O.T. Sun.

mixer. a. An apparatus used to thoroughly mix water with drilling-mud ingredients. Also called atomizer; mud mixer. Long. b. In the clay industries, the usual types of mixer of are: (1) batch-type mixer, operates by rotating arms; (2) shaft mixer, a continuous mixer for wet or plastic ma- terial which is fed into an open trough along which it is propelled and mixed by one or two two-bladed carrying blades; and (3) pug mill, a shaft mixer with a closed barrel instead of an open trough; the term pug mill should not be confused with pug. See also pug. Dodd. c. See agitator. Nelson.

mixer cona. A funnel-shaped hopper attached to the body of a mud mixer and by means of which the dry, powdered, drill-mud ingredients are fed into the mud mixer. See also mud mixer. D.O.T. Sun.


mix-house man. One who mixes sintered lead or iron ore with such materials as pul- versed coal, coke, salt, skimmings, water, and chemical solutions preparatory to smelting. Also called mixer operator. D.O.T. Supp.

mixing. a. In powder metallurgy, the thor- ough intertwining of powders of different materials (not blending). A.S.M. Gloss. b. An instrumentation tech- nique used in seisnomgraph recording in which a certain portion of the energy from each amplifier channel is fed to the adjacent channels giving results somewhat analogous to those obtained from the use of multiple geophones. A.G.I.

mixing chamber. The port of a torch in which the gases are mixed with the fuel. A.S.M. Gloss.


mixing pit. A pit in which drill mud is mixed and stored until the mud is cured and needed for use as a drill circulation fluid. D.O.T. Sun.

mix-in-place. A common soil stabilization method in which soil on the site is first pulverized, then mixed with an ad- minstration or stabilizing agent, compacted
mix-in-place

and, if necessary, surfaced. All the work is carried out on the site. Nelson. Compare plant mix.

mix-in-place. An emerald-green to blue-green acicu-mizzonite. One of the series of minerals from the munnite- miyashiroite. The hypothetical mix-metal; misch metal. Cerium alloy (55 to 57 percent silica, and occurs in clear crystals in the ejected masses on Mount Somma, Vesuvius, Italy. Also called di- pyre; dipryite. C.M.D.

mixt. The chief tool used in certain systems of mining the cylinders of small shafts through water-bearing strata, to remove the ground from beneath them. See also mobile belt.
mizzonite. One of the series of minerals forming the scapolite group, consisting of a mixture of the normal and manotite molecules. It includes those minerals with 54 to 57 percent silica, and occurs in clear crystals in the masses on Mount Somma, Vesuvius, Italy. Also called di- pyre; dipryite. C.M.D.
mixed Abbreviation for minimum lethal dose. Zimmerman, p. 70.
Mmcf One million (one thousand thousand) cubic feet. Williams.
Mm diammonds. Synonym for manmade diamonds. Long.
Mm Abbreviation for micromicrofarad (one millionth of a microfarad). Also abbreviated mmfd, or µuf. Also abbreviation for magnetomotive force. Zimmerman, p. 69; Webster 3d; BuMin Style Guide, p. 60.
Mn Abbreviation for magnetic north. Zimmerman, p. 65.
mo. A term of Swedish origin applied to gla- cial till. MacKay, p. 89. Also referred to as "cat meat." MacKay, p. 89. Also known as "cat meat." MacKay, p. 89.
mobile Abbreviation for statistic. See also milled.
mobile Abbreviation for statistic. See also milled.
mobile Abbreviation for model. A facsimile in three dimensions—a reproduction in miniature of the under- ground structure. See also milled.
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mo. A term of Swedish origin applied to gla- cial till. MacKay, p. 89. Also referred to as "cat meat." MacKay, p. 89. Also known as "cat meat." MacKay, p. 89.

modified. A treatment in the molten state of aluminum-silicon alloys containing 8 to 13 percent silicon with a small percent per cent of some other elements. By this process the eutectic temperature, structure, and composition are apparently altered. See mechanical properties. ASM Gloss. b. Now also the production of fine graphite in gray cast iron by vacuum treatment. C. D. T.

modified Atkinson formula. As a result of further research, the original Atkinson formula, that is, \( P = K S V A \), has been simplified by grouping together the physical components \( K \) \( S \) \( V \) \( A \) and substituting the term resistance. Therefore, a unit of resistance, known as the Atkinson has been introduced and the modified Atkinson formula may be written as \( P = R Q \), where \( R \) is pressure in pounds per square foot. \( Q \) is the quantity in thousands of cubic feet per second. Therefore, with constant resistance, \( Q = \frac{P}{R} \). Also, if the pressure is constant, then \( Q = \frac{P}{R} \). The modified Atkinson formula is now used in ventilation calculations.

modified California sampler. A California-type soil sampler modified by the addition of a mechanically retractable piston within the barrel, making it possible to recover four consecutive 4-inch samples instead of three to five 12-inch samples. See also California sampler. L. E. P. 

modified longwall. A method used in room-and-pillar mining where the lease requires at least 50 percent of recovery. Basically it consists of turning the rooms on 70-foot centers then working the room up 30 feet wide. See Young's modulus. See also modified Atkinson formula. 

module. a. A device for delivering a definite quantity or discharge of water, or for measuring and controlling the flow. Seeley, l. b. A common unit particularly specified for dimensional coordination. Taylor, c. See module standard.

module factor. Used in conversion of units from one system to another. Formula or constant which defines properties (for example, density, elasticity) of materials. See modular coordination. Dodd.

module of deformation. See modulus of elasticity, ASCE P1826.

module of elasticity. a. A measure of the rigidity of metal; ratio of stress, within proportional limit, to corresponding strain. Specifically, the modulus obtained in tension or compression tests. Also called modulus of rupture or modulus of elasticity of a material in the torsion test. Usually the tangent or secant modulus of elasticity is recommended for materials that deform otherwise. Also called modulus of strain hardening. See rate of modulus change. See also module of elasticity in shear; torsional modulus of elasticity. b. The ratio of stress to strain in a material under given loading conditions; numerically equal to the slope of the stress-strain curve at a specified point; the latter is the slope of a line from the origin to a specified point on the stress-strain curve. Modulus of elasticity is recommended for materials that deform in accordance with Hooke's law, and modulus of deformation for materials that deform otherwise. Also called modulus of deformation. ASCE P1826.

module of elasticity in shear. See modulus of rigidity. Ro.

module of incompressibility. The ratio between the change in the mass of a soil and the change of volume caused by such pressure. Ham, Compares Poisson's ratio.

module of moisture. A brick of such size that, combined with the mortar joint, lays up to fill a 4-inch modular unit. ASCE, T. L. D. 

module of moisture control. A system for the standardization of the dimensions of building components on the basis of multiples of two or more modules, that is, basic units of length. The British Standard

module of plasticity. The stress at which the plastic zone begins.

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Mog eago

which estimates to within a few hundredths the weights of brilliant-cut diamonds only, by simple measurements of width and depth of both set or unset diamonds. 

mofette. A vent from which carbon dioxide and some rare gases and oxides issue from the earth in a last stage of volcanic activity. Webster 3d. See also fumarole; solfataras; solfatara.

moffet ore hearth. Ore hearth; used in smelting.


Mohammedan moonstone. native tavorite; almandite. 

Mohorovicic discontinuity. The sharp discontinuity believed to separate the earth's crust under the ocean in order to explain the earthquakes caused by the sudden release of stress conditions. 

Moho. Short name for the Mohorovicic discontinuity in composition between the outer mantle and the inner mantle. Hy.

Mohorovicic dome. In the so-called "dome theory" of crust formation, the dome is an elastic flattening with radial symmetrical expansion of the earth along the lines of the fault planes beneath the dome. This theory predicts that failure of materials is due to failure of the bonds and the shearing of the material at the Mohorovicic discontinuity. Webster 3d.

Mohorovicic rupture hypothesis. A rupture envelope representing stress conditions at the surface of the earth in a last stage of volcanic activity. Webster 3d. See also fumarole; solfataras; solfatara.

Mohr balance. See Westphal balance.

Mohr's salt. A ferrous-ammonium sulfate, FeSO₄·(NH₄)₂SO₄·6H₂O; a light green crystalline salt. Webster 3d.

Mohr's theory. Mohr's theory of failure utilizes the well-known stress circle and the envelope to a family of circles as criteria of failure of materials subject to biaxial or triaxial stress. Thus, Mohr's theory predicts that failure of materials is due to failure in shear, whereas Griffith's theory postulates that it is due to failure at crack tips. Lewis, pp. 607, 611.

moils. Native titanic iron; ilmenite. Fay.

mole. A unit of amount used in the stoichiometry of chemical reactions. 

mole fraction. 

mole point. A solid bar of casehardened steel, used for hitting against rock or concrete, produces full contact with the rock. The effect is that of wedging, similar to plug-and-expose. A.G.I. Supp.

moist. Early term for moisture.

moisture. The quantity of moisture (not removable by mechanical means) or as sensible dampness, 

moisture (not removable by mechanical means). a. The percentage moisture content of a given material. 

moisture allowance. A deduction from the initial weight of washed coal to allow for the expected loss of weight by drainage. B.S. 3372, 1950.

moisture, bed. The total moisture (percent) in a bed of coal before working. B.S. 3552, 1962.

moisture content. a. The percentage moisture content of a solid is the ratio of the weight of moisture divided by the weight of dry soil multiplied by 100. The moisture content of a liquid or mineral sample consists of two portions, namely, the free or surface moisture which can be removed by exposure to air, and the inherent moisture which is entrapped in the fuel, and is removed by heating at 220° F. Nelson. b. Of soils, the ratio, expressed as a percentage, of the weight of water in a soil sample to the weight of the soil when dry. The moisture content of a soil or mineral sample consists of two portions, namely, the free or surface moisture which can be removed by exposure to air, and the inherent moisture which is entrapped in the fuel, and is removed by heating at 220° F. Nelson. 

moisture density test. See compaction test.

moisture density curve. See compaction curve.

moisture equivalent (of soils). The ratio of the weight of water which the soil, after saturation with water, will hold against an effective force of gravity equal to the weight of the soil when dry. The moisture equivalent is stated as a percentage of the weight of water. 

moisture expansion. An increase in dimension or bulk volume of a manufactured ceramic article caused by the retention of water or water vapor. This reaction may occur in service at atmospheric temperature and pressure, but may be accelerated by the exposure of the articles to water or water vapor at elevated temperatures and pressures. A.G.I. 1956.

moisture-holding capacity. The quantity of moisture (not removable by mechanical means) or as sensible dampness, 

moisture-holding capacity but not including visible surface moisture. Bennett 24, 1962.

moisture. a. Essentially water. b. Quantity determined by dry-er in weightless instruments which may vary according to the nature of the material. In the case of coal and coke, the methods shall be those prescribed in the Standard Methods of Laboratory Sampling and Analysis of Coal and Coke, ASTM Designation: D 271 of the American Society for Testing Materials. ASTM D 121-62. b. Agreed percentage of water to be allowed for in sale of mineral products. Deduction for loss of weight of coal in transit, which arises from drainage between colliery and consumer. Pryor, 3. c. A liquid (for example, water) diffused or condensed in relatively small quantity and dispersed through a gas, as either invisible vapor or as visible fog, or in or on a solid body in insensible form or as sensible dampness, or condensed on a cool surface as visible dew; specifically, atmospheric water vapor. Webster 3d.

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moils. Native titanic iron; ilmenite. Fay.

Mohorovicic dome. In the so-called "dome theory" of crust formation, the dome is an elastic flattening with radial symmetrical expansion of the earth along the lines of the fault planes beneath the dome. This theory predicts that failure of materials is due to failure of the bonds and the shearing of the material at the Mohorovicic discontinuity. Webster 3d.

Mohorovicic rupture hypotheses. A rupture envelope representing stress conditions at the surface of the earth in a last stage of volcanic activity. Webster 3d. See also fumarole; solfataras; solfatara.

Mohr balance. See Westphal balance.

Mohr's salt. A ferrous-ammonium sulfate, FeSO₄·(NH₄)₂SO₄·6H₂O; a light green crystalline salt. Webster 3d.
moisture-holding capacity

means] contained by a coal in equilibrium with an atmosphere saturated with water vapor. This is employed in some systems of classification, as a criterion of rank. B.S. 3223, 1960.


moisture in the air-dried sample; inherent moisture. The moisture retained by a coal after it has attained approximate equilibrium with the atmosphere to which it is exposed. B.S. 3223, 1960.

moisture in the analysis sample. The moisture which is retained by the "through 72-mesh B.S. sieve" sample of coal after it has been exposed to the standard atmosphere and has attained approximate equilibrium with it. B.S. 3223, 1960.

mortality. One who determines the moisture content of ores or concentrates by removing a sample from pile or conveyor, using moisture sample. It may be taken before and after drying. D.O.T. Supp.

moisture meter. See atomic moisture meter.

moisture movement. The difference between moisture meter. See atomic moisture meter.

moisture in the analysis sample. The moisture contained in the air-dried sample; inherent moisture, inherent. Moisture not normally removable from coal in air-dried C.O.W. Moisture retained after air-drying under standard conditions. B.S. 3323, 1960.


molar. A strength of solution involving molality. Moles of solute in a solution containing 1 gram-molecular weight of a substance per liter. ASM Gloss.


mold runner. A mold, as distinct from cast, rolled, drawn, or offhand ware. ASTM C162-66.

moldable refractory. A graded refractory material, moistened ready for use and intended for ramming into position in a furnace lining; such a material may be air-hardening. Also known as plastic refractory. D.O.T. Gloss.

moldavite. A specific name for ozocerite or moldavite. Also called moldovite. English. b. A transparent, green, vitreous stone regarded by some petrologists as of meteoric origin and by others as a form of obsidian. Also called moldovite. See also bouteilstein; moldovite.

moldboard. A. A board on which to ram a pattern; a forming board. Standard, 1964. b. A curved surface of a plow, dozer, or grader blade, or other dirt mover, which moves dirt normally composed of iron, spiral, or twisting movement. Nickels, 2.


molded cameo. A cameo produced by casting in a mold such materials as glass, cast iron, or faceted clay. Standard, 1964.


molded clay. A mixture of materials, such as clays and sand, prepared for use in shaping plastic objects. D.O.T. 1.


molding sand. A dry mixture usually of plaster, into which plastic material is poured and pressed. ACSG. b. A form, usually metal, in which glass is shaped. ASTM C 395-66.

molded glass. Glass material which sets in the bottom of an ingot mold after air-drying under standard conditions. B.S. 3323, 1960, p. 2.

molding clay. A complex mixture of materials, such as clays and sand, which are mixed to form a mold or a casting. Standard, 1964.

molding sand. A sand containing sufficient refractory clay substance to bond strongly without destroying the permeability to air and gases when rammed to the degree required. Freeman, b. Sands used in the foundry for making molds are divided into two classes: (1) facing sand, specially prepared mixture used to form the face of the mold, where it will be in direct contact with the cast metal; and (2) backing sand, which fills up the body of the molding box or flask and supports the facing sand. The backing sand consists of f.00r black sand, sand, or black sand, that is, sand that has been in previous use. Osborne, See also foundry sand.


mold lubricant. A substance applied on or into molds to reduce friction or prevent adhesion. ASTM C162-66.

mold mark. Mark or seam on glassware resulting from a mold joint. ASTM C162-66.

mold oil. Liquids, such as oil, soft soap, or worthless paint, which are not absorbed by formwork and are applied over its surface to prevent the adhesion of concrete and thus to facilitate its removal after the concrete has set. See also releasing agent, mold oil.


mold runner. A man or machine who, in old pottery factories, carried filled molds from the making department to the drying room and then returned them to the molding room. Mould runner. A. A person who makes molds for castings. Standard, 1964.
mole

A massive, solid-fill nearshore structure of earth, masonry, or large stone which may be either a breakwater or a pier. Hy. b. An egg-shaped device pulled behind the tooth of a subsoil plow to open drainage passages. Also mole ball. Nichols. c. Colom. Galena. Fay. d. Colom. Sulidates or concentrates consisting principally of galena. g. e. The molecular weight expressed in grams (gram-molecular weight). Critijn. f. Weight in grams of a compound in terms of its molecular weight. A molar solution of sulfuric acid, for example, contains 2 (grams) H2SO4 (sulfuric acid), and 98 (grams) water. Mond. mole ball. Nichols. c. Colom. Galena. Fay. d. Colom. Sulidates or concentrates consisting principally of galena. g. e. The molecular weight expressed in grams (gram-molecular weight). Critijn. f. Weight in grams of a compound in terms of its molecular weight. A molar solution of sulfuric acid, for example, contains 2 (grams) H2SO4 (sulfuric acid), and 98 (grams) water. Mond.

mole mining. A method of working coal seams about 30 inches thick, using a small continuous miner type of machine, which is remote controlled from the roadway and powered by compressed air or diesel. The machine is used to cut and extract sections of coal about 6 feet wide for a distance of 100 yards or so from pillars alongside the roadway. Small ribs of coal, 3 to 6 feet wide, are left between the sections extracted by the machine. The accurate steering of the machine is a critical factor in the new system of mining. See also coal auger; Collins miner. Nelson. mole-pect Abbreviation for mole-percent. Bu. Mol. 60. molbdenum. A silvery-white, very hard, metallic element in the chromium group or group VI of the periodic system. Its physical properties are closely resembling those of iron and its chemical properties are similar to those of a nonmetal. Used for electrodes of metal-evaporation lamps, as wire for winding electric-resistance furnaces, and in steels alloys. Symbol: Mo; isometric; valence, 2, 3, 4, and 6; atomic number, 42; atomic weight, 95.94; specific gravity, 10.27 (at 20° C); melting point, 2,692° C, specific gravity, 6.31 (at 20.5° C) insoluble in water, in hydrofluoric acid, and in hot concentrated nitric acid, in hot concentrated sulfuric acid, and in aqua regia; slightly soluble in hydrochloric acid. As an alloying agent, it increases the hardness and toughness of quenched and tempered steel and it raises the strength of steel at high temperatures. Used in nickel-based alloys that are heat-resistant and corrosion-resistant; in electrodes in electrically heated glass furnaces and foramenthearts; in nuclear-energy applications; for missile and aircraft parts; and as a wire for filaments for metal-evaporation processes and for filaments, grids, and screens in electronic tubes. C.T.B.; Handbook of Chemistry and Physics, 1955 ed., pp. B-2, B-121, B-125. molbdenum borides. MoAl; melting point, 2,150° C. Although its oxidation resistance is poor compared to other aluminum and silicides, it is good compared to molbdenum metal. It is a refractory crucible material for melting certain metals. Lea.

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molbdenum carbides. MoAl, melting point, 2,150° C. It has good oxidation resistance at elevated temperatures; has high melting point, 2720° C; specific gravity, 8.8; and basic MoB, melting point, 2,250° C; specific gravity, 8.4. Lea; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-2, B-121, B-125.

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Molybdenum disulfide. A mineral resembling graphite, both in appearance and to the touch. When highly refined and free from inclusions, it has properties that make it a dry lubricant and may be applied in powder form to metal surfaces or used in cutting tools. It has been incorporated in plastics and powdered metal compacts. It is effective at temperatures up to about 1100°C and under high pressure. Osborn.

Molybdenum enamel; molybdenum compound. Molybdenum disulfide. A vitreous enamel of a color ranging from white to pale yellow, according to the proportion of molybdenum disulfide; molybdicoxide; molybdenum trioxide; molybdite. See molybdite. Dodd.

Monel metal. A high-strength, high-temperature alloy containing nickel and copper. It is used in special applications, such as the manufacture of turbine blades and jet engine nozzles. It is resistant to a wide range of corrosive environments, including high-temperature oxidizing and reducing atmospheres. The alloy is known for its combination of high strength, toughness, and resistance to various forms of corrosion. Moreau.

Molybdite. A mineral that occurs as a primary ore of molybdenum. It is a common constituent of molybdenite veins and is often associated with other molybdenum minerals such as wulfenite. It is typically a bluish-gray to greenish-gray color and has a metallic luster. Proctor.

Monel metal. Copper-nickel alloy of high tensile strength, with great resistance to chemical corrosion. Consists of 70 percent copper, 2 to 3 percent iron, 18 to 20 percent nickel, and a small amount of manganese. A little tellurium may be added to improve machinability. Pryor.

Monetite. A pale yellowish mineral with a vitreous luster. It is a secondary mineral, often replacing other minerals in sedimentary rocks. Monetite is known for its use as a gemstone and in decorative and ornamental applications. Moreau.

Mond process. A process for extracting and purifying nickel. It involves the use of a proprietary niobium oxide, with deposition of nickel in the form of a powder or a metal. Mond.

Mond producer, a furnace used for the manufacture of producer gas. Mond.

Moncerite. A mineral that occurs as a primary ore of molybdenum. It is a grayish-white mineral with a submetallic luster. Moncerite is typically found in veins associated with molybdenite and wulfenite. It is often used as a source of molybdenum in metallurgical processes. Proctor.

Monohydric. Having one hydroxyl group. A term used in chemistry to describe substances that contain a single hydroxyl group. Lyon.

Monolith. A single, large piece of rock or other material used as a monument or for other decorative purposes. Monoliths are often used in public and private settings as symbols of strength and durability. Moreau.

Monolithic. Of or relating to a single, solid piece of material. A term used in various fields, such as architecture, engineering, and construction, to describe structures or components that are made from a single material. Moreau.

Monoelement. A mineral that contains only one chemical element. Monoelement minerals are often used as raw materials in various industries, such as jewelry, electronics, and medicine. Moreau.

Monofluoroborate. A compound containing one fluorine atom. Monofluoroborate salts are used as fluxes in welding and soldering processes. Monocarp.

Monomorphic. Having the same form or structure. Monomorphic minerals are those that exhibit a single crystal form or habit. Moreau.

Monopodium. A single-stemmed plant. Monopodium plants are often used in horticulture and landscaping due to their attractive and distinctive appearance. Moreau.

Monoxide. A compound containing one type of element. Monoxide compounds are common in various fields, including chemistry, physics, and materials science. Moreau.

Monosodium glutamate. A white, crystalline compound used as a flavor enhancer in the food industry. Monosodium glutamate is also known as MSG and is often used to enhance the umami flavor of food. Moreau.

Monostich. A term used in poetry to describe a poetic form that has a single meter and a single rhyme scheme. Monostich poetry is often used for its simplicity and directness. Moreau.

Monounsaturated. Containing one double bond. Monounsaturated fats are found in various foods, such as nuts, seeds, and oils, and are known for their potential health benefits. Moreau.

Monotone. Having a single pitch or frequency. Monotone sounds are often used in music and other forms of art to create a sense of unity or focus. Moreau.

Monophonic. Having a single voice or instrument. Monophonic music is often used in various genres, such as classical and folk music, for its simplicity and emotional impact. Moreau.

Monophyletic. Having a common ancestry. Monophyletic groups are often used in biology to describe the evolutionary relationships among species. Moreau.

Monotype. A single type of font or letter. Monotype fonts are often used in various fields, such as graphic design and printing, for their distinctive and elegant appearance. Moreau.

Monotonic. Having a single, consistent trend or pattern. Monotonic functions are important in mathematics and are often used to describe relationships between variables. Moreau.

Monotonicity. The property of being monotonic. Monotonicity is a fundamental concept in mathematics and is used in various fields, such as economics and computer science. Moreau.

Monotonic function. A function that is either always increasing or always decreasing. Monotonic functions are important in various fields, such as economics and computer science. Moreau.

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monitor operator

monitor. a. An appliance for mechanically gripping or letting go the rope in rope haulage. Fay. b. block, used on an incline to prevent the cars from running back. Standard, 1964. c. The word monkey prefixed to a technical term means small, thus monkey chute, a small chute; monkey drift, a small drift, usually driven in for prospecting purposes. Fay. d. See casing drive hammer. B.S. 3618, 1963, sec. 3. e. A small, water-cooled, bronze casting in the cinder-notch cooler through which cinder runs from the cinder notch when the bot is withdrawn. Fay. f. A small glass-meltng crucible. Standard, 1964.

monkey board. A single, unrailed, heavy plank, mounted above the drill platform in the derrick or tripod and serving as a walkway or work platform. Long.

monkey cool. See bobbin, a. Fay.

monkey hair. Caoutchouc, or rubber, derived from a milk juice of plants and which fills the cavities of its fibers with water. Also called water monkey. Standard, 1964.

monkey face. A term applied to a chain in which the predominant size of the debris is carried. These skips in which the debris is carried. These supports and haul along the overturning plane. Fay.

monkey gas. 1. An air course driven parallel with a gangway and heading at a higher level. Used where a seam has considerable pitch or dip. Fay. b. A small gangway parallel to a main gangway. L. E. Jones.

monkey glass. A blast furnace, a ster-cooled casting, usually of copper, that is installed inside of the intermediate cooler, and in which is inserted a hand-operating, hooking-hole closure or bot. Henderson.

monkey hair. See dog hole. Zern.

monkey head. A narrow and low passage driven in the coal where miners take refuge while coal is being blasted. Chiefly in northern Pennsylvania. See dog hole. Zern.

monkey heel. A ladder made of saplings in which the partially separated steps rest in the coal. Used by miners in going to and from their breasts in steeply pitching seams. Standard, 1964.

monkey pot. See jockey pot. C.T.D.

monkey roll. The smaller rolls in an array of three. Webster 3d.

monkey shaft. A small shaft raised extending from a lower to a higher level. Fay.


monochlorite. A variety of urtite consisting mainly of nepheline (three-fourths rock) and hastingsite, with minor carnsite, albite, calcite, and accessory apatite and opaque oxides. A.G.I.

Monoller kiln. A tunnel kiln designed for the firing of building bricks; it is mechanically fired from the top with coal, which burns among the bricks as in a Hoffmann kiln. See also Hoffmann process.

Monoller process. The treatment of copper sulphide ores by roasting with sodium sulphate and a strong inorganic oxidant. Fay.

twenty 95.5° C and 120° C and is prepared by crystallizing from a hot 95.5° C, melting point 202° C; specific gravity, 1.96; soluble in carbon disulphide; insoluble in water; unstable, slowly changes to rhomboic form on standing. It may be obtained by simply melting sulfur and allowing it to solidify at 120° C, if pure, or just less than this temperature and it is not pure. Cooper, pp. 277, 278.

monoclinic symmetry. In structural petrology, it may refer to either the movement of a salt, or the direction of tectonic transport. In monoclinic symmetry of fabric there is one plane of symmetry parallel to a, the direction of tectonic transport. A.G.I.

monoclinic system. That system of crystals whose forms are referred to three unequal axes, two intersecting obliquely and the third perpendicular to both the others. Fay.


monogene. Proposed by Naumann and applied to rocks composed of a single crystal, or of several species, for example, dunite. Synonymous with monomineralic. A.G.I.

monogenetic. One in genesis; resulting from one process of formation; said of a mountain range. Webster 2d.

monogenetic gravel. A loose detrital reddish gravelly deposit. Usually contains one or both of the particles is 2 to 10 millimeters; it consists of one type of constituent. C.T.D.

monolith. A free-standing rock of large dimensions, usually used for charging bulled holes and large-diameter (well drill) holes. Nelson.

monobasic. Containing one hydrogen atom replaceable by a metal with the formation of a salt. C.T.D.

monobasic acid. Acid which yields one hydrogen on neutralization, for example, nitric acid, HNO3. Bennett 2d, 1962.


monochromatic. A form of aerial ropeway in which the same rope is used both to support and haul along the overturning slip in which the debris is carried. These rest upon the rope and obtain a sufficient frictional grip on it to be carried up moderate gradients and over pulleys by means of a rope-shaped, saddled, lined wooden, rubber, or composition. The rope is driven by a surge wheel in a similar manner to an endless-roped haulage. See also fixed clip monocable; normal monocable. Sinclair, V, p. 339.

monochromator. A device for producing monochromatic light. Usually applied to a form of spectroscopic which can be adjusted to transmit light from any desired region of the spectrum, but may also be applied to any source of monochromatic light (for example, to a sodium vapor lamp). Pryor, 3.

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monoclinal coast. Coast formed by a monoclinal fold. Schirrheider.

monocline. A monocline fold. Fay. See also monoclines.

monocline. A crystal system in which crystals have one twofold axis, a symmetry plane, or both. Hurlbut.

monocline block. A quarry term, applied to the block of the cliff face by 3 pairs of parallel faces, B of the 12 interfacial angles being right angles, 2 obtuse angles, 3 acute angles, the third perpendicular to both. Fay.

monocline sulfur; prismatic sulfur. Artificial; forms needle-shaped crystals; stable be-
Monometer furnace

lining is used, generally similar to that in a cypula. D.G.S.

monomineralic rocks. A rock consisting essentially of one mineral, for example, dunite or anorthosite. C.T.D.

monomolecular film. See monolayer. Pryor, J.

mononuclear. See unimolecular layer.

Monograna series. The Upper Productive Coal Measures of the Pennsylvania, of which they constitute the highest member. C.T.D.

Monopump. This pump consists essentially of a rubber stator in the form of a double internal helix and a single helix, which roll against each other with a slightly eccentric motion. The rotor maintains a constant seal across the stator area of the pump, giving a positive uniform displacement. The Mono pump is manufactured to two basic conditions. The rotor is made of special abrasion-resistant or non-corroding steel. It is self-priming, the pressure required to start it being eliminated. The length of the stator and rotor provides for a twist of slightly more than 360° with the pump running. Since the gaps between the heads of the rotor and stator are increased so as to provide two or more complete seals in series and the head is then developed in stages. Mason, V. 2., p. 626.

monopyroxene. Any of several pyroxene minerals that crystallize in the monoclinic system. They usually have considerable calcium and may or may not contain aluminum and the alkalis. Preferably called clino.pyroxene. Stokes and Barnes, 1955.

monorail. A relatively new underground transport system in which the cars, or buckets, are suspended from, and run alongside, a single continuous overhead rail or taut wire rope. The monorail is used in coal mines to transport workings. In the past, the gate conveyor and worked-out man ropes. See also overhead monorail transport system. Nelson.

monorail crane. A traveling crane which is suspended from a single rail. Crispin.

monoschematic. Applied to a body of rock or a mineral deposit, the fabric of which is identical throughout. Opposite of macropolyschematic. See also chorismite. A.G.I.

monotonous. An isothermal, reversible reaction in a binary system, in which a liquid on cooling decomposes into a solid and liquid or solid and vapor. It differs from a eutectic in that only one of the two products of the reaction is a liquid. ASM Gloss.

monower. A tower crane which rotates through a full circle and is erected on a fixed base. Ham.

monochrome. An identification hardness testing machine by which measurements are obtained by the use of a single magno-lum with a diamond of five-eighths millimeter in diameter, the degree of indentation remaining constant. Hur-der.

monochromatic hardness test. A method of determining the indentation hardness of materials by measuring the load required to force a spherical penetrator into the metal to a specified depth. ASM Gloss.

monotone. A variant of the French word “monochrome.” A man giving feature to this is the use of two shades of velvet beneath the screen plate. Used extensively in washing talcaceous, tannin, copper and insulating colors and glazed bricks. Mitchell, p. 427.

Monat. Middle or lower Paleocene. A.G.I. Supp.

montebrasite. The name given to montasite, a registered trade name for ozokerite. Shipley.

montebasite. A pyroxene mineral, the chemical composition of a pyroxene consisting of major titanagite and titankanthonblende, olivine, and plagioclase. It may contain biotite and nepheline, with accessory calcite, apatite, sphene, zircon, and opaque oxides. A.G.I.


montebrayite. A melanocratic-olivine essexite consisting of major titanaugite and titanomontasite, olivine, and plagioclase. It may contain biotite and nepheline, with accessory calcite, apatite, sphene, zircon, and opaque oxides. A.G.I.

moche. Characterized by or having little knobs or mounds. Standard, 1964.

montific. Mountainlike; having the shape of a mountain. Fay.


montmorillonite. A. Clay minerals, lacking any theoretical composition of essentially AlSiO(OH)-nH2O. Montmorillonite always differs from the substitutions within the lattice, for example, magnesium, nickel, zinc, iron, phosphorus, or some of the substitutions in the Smurf Mine Staff; Pryor, J. b. A hydrated silicate of magnesium, one of the important minerals of the bentonite group. The chief constituent of bentonite and fuller's earth, (Al,Mg)X( Si40,0).( OH )30. 1 2H20. Standard, 1964.

montmorillonite. A. A rock consisting essentially of volcanic ashes andother minerals, accumulated in a volcano or near a volcano, and occurring in layers. C.T.D. b. A rare, weakly radioactive, orthorhombic, black mineral, (V,Fe)O(OH); often filling interstices in sandstones, associated with hewettite, titanite, phosphates, and a variety of accessory minerals. Seelye, p. 128.


montrealite. A melanocratic-olivine essexite consisting of major titanaugite and titankanthonblende, olivine, and plagioclase. It may contain biotite and nepheline, with accessory calcite, apatite, sphene, zircon, and opaque oxides. A.G.I.

montrosite. A rock consisting essentially of minor titanaugite and titankanthonblende, olivine, and plagioclase. It may contain biotite and nepheline, with accessory calcite, apatite, sphene, zircon, and opaque oxides. A.G.I.

montroit. A. A quartz grain, colored by sample of quartz from a deposit which is covered by sand, or granite into rock. C.M.D. b. A rare, weakly radioactive, orthorhombic, black mineral, (V,Fe)O(OH); often filling interstices in sandstones, associated with hewettite, titanite, phosphates, and a variety of accessory minerals. Seelye, p. 128.

montroydite. Oxide of mercury, HgO. San.

moval. A. A quartz grain, colored by sample of quartz from a deposit which is covered by sand, or granite into rock. C.M.D.

monument. The structure erected to mark the position of a corner. Per this term may be implied. In a legal sense a monument is any physical evidence of a boundary of real property. Seelye, 2.

monument worker. A worker in the stonework industry, a general term applied to any worker connected with the finishing of marble or granite into memorials. D.D.T., 1.

monoxide. A. Clay minerals, consisting essentially of minor titanaugite and titankanthonblende, olivine, and plagioclase. It may contain biotite and nepheline, with accessory calcite, apatite, sphene, zircon, and opaque oxides. A.G.I.

moonstone. A gem stone which is a variety of moonstone. Montgomery jig. A plunger-type jig with the plunger beneath the screen plate. The guiding feature of this jig is the use of two shades of velvet beneath the screen plate. Used extensively in washing talcaceous, tannin, copper and insulating colors and glazed bricks. Mitchell, p. 427.

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montnouryite. Oxide of mercury, HgO. San.
moonstone

morgen. The South African measure of land, equal to 640.25 square roods, or 259 square feet, 1.44 acres, or 2,116 English acres. There are 284 morgens to the square mile. Beerstand.

morganite. A rose-colored, alkali-bearing, variety of beryl, of gem quality. Marshalls, Valley of Sahatony, Malagasy Republic; Pala, San Diego County, Calif. English.
morn. The South African measure of land, equal to 640.25 square roods, 92,196 square feet, 1,44 acres, or 2,116 English acres. There are 284 morgens to the square mile. Beerstand.
morrail. A rose-colored, alkali-bearing, variety of beryl, of gem quality. Identical with the previously described veghinite. From Mahartis, Valley of Sahatony, Malagasy Republic; Pala, San Diego County, Calif. English.
morainal apron. Same as apron. Dodd.
morainic. Of, or pertaining to, a moraine. Also called moraineic. Dodd.
moraine deposits. Same as morainic deposits. Dodd.
moraine of recession. A moraine formed in the course of a glacier's retreat. Also called moraine of retreat; retreatal moraine. Standard, 1964.
moraine profonde. Same as ground moraine. Dodd.
moraineic. Of, or pertaining to, a moraine. Also called morainic. Dodd.
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moraine deposits. Same as morainic deposits. Dodd.
morainic. Of, or pertaining to, a moraine. Also called morainic. Dodd.
moar. a. A more or less elevated tract of open waste, or barren land, having, as a rule, a rather broad flat, and poorly drained surface, commonly diversified by peat bogs and patches of health. Finch. c. A common term for peat unfit for turf, as opposed to turf, which is dug for fuel. Tomkeieff, 1954.
moarband. Synonym for moorband pan. Fay.
moarband pan; moorpan. Eng. A hard ferruginous clay, or a lode. See also more. Fay.
moar. b. Varieties of brown coal characterized by good cleavage; it breaks into cuboidal or trapezoidal fragments. Tomkeieff, 1954.
moar peat. Peat formed from moss, as moor peat. Fay.
moar. c. A more or less elevated tract of open waste, or barren land, having, as a rule, a rather broad flat, and poorly drained surface, commonly diversified by peat bogs and patches of health. Finch. c. A common term for peat unfit for turf, as opposed to turf, which is dug for fuel. Tomkeieff, 1954.
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mortal work; a. A fault in pottery resulting from a small local concentration of soluble forming on the surface of the green ware or the biscuit ware. In the green state, the fault may result from a drop of water falling onto it, during the setting for example. In the biscuit state, the fault arises from moisture condensing on the ware during the early stages of firing. 

Mose slates. Slate rocks found in the Upper Devonian strata of north Devonshire and west Somerset, England; extensively quarried for roofing slates. C.T.D.


morslite. A rock containing morsite, a mineral crystallized from a pyrobitumen. Hess.

mosaic. a. A map made from aerial photographs. The individual photographs are set in such a way that a complete picture of the area is obtained. This process is called aerial mosaicking. Hess. 

b. A design formed by small pieces of like pieces of a mosaic. Webster 3d.

c. A design formed by small pieces of like pieces of a mosaic. Webster 3d.

mosaic texture. a. In mineralogy, a texture in which crystal fragments are angular and granular, and appear, in polarized light, like pieces of a mosaic. Schieber- decker. b. In petrology, a granoblastic texture in which the dividing planes between the individual grains are flat or nearly so. Schieberdecker.

mosaicite. A complex zirconium silicate mineral. E.G.T., v. 15, p. 303. White radioactivity, often radium, is often found in it.

mosaicite. A yellow mineral, \(8\text{HgN(Cl}_2\text{SO}_4\cdot \text{MgO}_2\text{CO}_3\cdot \text{H}_2\text{O})\), from El Doctor, Mexico. 


mosquito amethyst. Amethyst containing tiny scaly or platy inclusions of goethite. Shipley.

moss. a. A term used for fractures or fissures in geologic strata; in geology the wavy, as in marmorina. S. M. 1954.

moss agate. A kind of agate containing brown or black mottled dendritic forms, due to the oxides of manganese or iron distributed through the mass. Also called Mocha pebble, Mocha stone. Fay.

moss box. A special feature of the Kind- Chaudron method of shaft sinking. Layers of muck compressed to form a watertight joint between the bottom of the tunnel and the surrounding strata. It is now of historic interest only. Nelson.


moss faltows. Parts of a bog from which the moss has been removed for fuel. Standard, 1964.

mossgold. Gold in dendritic forms. Webster 3d.

moss hag. A pit or slough in a marshy place, especially in places where peat has been cut; also called bog hag, Webster 3d.

mossing. During low water in the Salmon River, Calif., the algae and other plants growing in the stream are gathered, dried, and burned. The ash is piled up, and some gold may be obtained. This process is called mossing. Hess.

mossite. A member of the tapiolate series, Fe-Mn-Na-Ca. See also tapiolite. Dana 7, v. 1, p. 775.

moss Jasper. a. A term sometimes used synonymously with moss agate although Ell- pler defines moss agate almost opposite from packed inclusions. Shipley. b. A regional name for a band of petrified wood with strata of translucent quartz found in Arizona and in New Mexico. Shipley.


mossopale. Moss agate. Webster 3d.


moss silver. Silver in dendritic or filiform form. Shipley.

moss stone. a. Crystalline quartz containing inclusions of green, fibrous crystals, probably asbestos. Shipley. b. Same as moss agate. See also Thetis hair stone. Shipley.
mossy. Like moss in form or appearance; said of certain minerals. Fay.

mossy stone. In gemmology, a stone containing inclusions of moss. Shipley.

mossy zinc. Granulated zinc obtained when the molten metal is poured into cold water. Fay.

mossy zinc, 3d. A straw filled with gunpowder for igniting a shot; a fuse. Fay.


mother coal. A more or less pure carbon that still shows the cell structure of the original plant when viewed under the microscope. It is very soft and has a satin luster. Kentucky, p. 26.

mother conveyor. A term frequently used in connection with conveyors used in gathering service. The mother conveyor receives coal from other conveyors or gathering machines, such as shuttle cars, and delivers it to some central loading point. Jones. See also underground mine conveyors. ASA MH4.1-1958.

mother crystal; mother. A name given to the mass of raw quartz, either faced or rough, as found in nature. AM. 1.

mother gate. a. N. of Eng. The main roadway to a coal face up which men travel, air, power, and supplies pass, and down which coal from the face travels on a conveyor belt. Truth. b. The main gate of a district in longwall conveyor mining. Nelson. c. Eng. The main road of a district off which crossheadings are set away in longwall working. Also called level. SMRB, Paper No. 61.


mother Hubbard blot. A large drag-type or fautallike bit having a long grooved shank, the diameter of which is only slightly less than the width of the cutting edge; it is designed for drilling boreholes in formations that mud-up excessively. Long.

mother liquor. The magmatic rest solution from which a mineral deposit has received its metal content. Schieferdecker.

mother lode. a. The principal lode or vein passing through a district or particular section of country. Fay. b. The great quartz vein in California, traced by its characteristics to Mariposa to Amador. Standard, 1964. See also champion lode. Fay.

mother of coal. See mineral charcoal. Fay.

mother of emerald. A variety of prase; a stone con-

mother of pearl. Iridescent portion of mol-

motor. a. One stage in which produces or imparts motion or mechanical power. Specifically, a machine for producing or causing motion, especially one that acts by transmitting some other kind of energy into mechanical energy, or the energy of position into that of motion; a prime mover, as a steam engine, windmill, water wheel, or reversed dynamo. Standard, 1964. b. A haulage engine used around mines and operating on electricity or compressed air. Fay. c. A mine locomotive. Grove. d. A machine for converting electrical energy into mechanical energy. See also generator. Nelson.

motor benzal. A mixture of the three lower aromatic hydrocarbons, benzene, toluene, and xylenes in the approximate proportions 75, 15, and 10 percent, respectively. Small proportions of other hydrocarbons and impurities may be present, usually less than 10 percent. Franci, 1965, v. 1, p. 302.

motor body. The boxlike portion at the lower end of a coal-cutting machine. Fay.

motor bone. In mining, a foreman who directs the haulage operations underground and at surface of mine. Also called car dispatcher; car distributor; dispatcher; train dispatcher; train turner; keeper. D.O.T. 1.

motor brake. See locomotive brake. 1967.

motor-change man. In anthracite and bituminous coal mining, one who in addition to charging batteries removes and stores storage batteries from electric mine locomotives and replaces them with freshly charged ones. D.O.T. 1.

motor driver. In bituminous coal mining, one who operates a small electric haulage locomotive to haul mine cars underground and at the surface of a mine. D.O.T. 1.

motor enclosure. The structure of end or side (1) open-type construction, employed when the motor is to work in an air current, dust-free engine room (2) screen-protected; the casing is built to protect the windings, but large openings are provided to allow free entry of air; (3) drip-proof; air is allowed easy access to the interior of the motor, but specially shaped hoods or cowls are fitted to prevent water dripping or being splashed into the machine; (4) totally enclosed: all the heat of the motor is radiated from the external surface, sometimes, provided with ribs or fins to increase heat dissipation; and (5) totally enclosed fan-cooled type has an external fan attached to the shaft, the air from which is directed over the outer surface of the motor casing, increasing the cooling effect, and thus enabling a greater capacity to be obtained from a given frame size than would be possible with a plain, totally enclosed design. Nelson.

motor hammer drills. These drills usually have a built-in gasoline engine as prime mover, flushing being provided by the exhaust gases or by compressed air produced in the machine. Total weight varies between 50 and 120 pounds. Motor hammer drills are used for odd-job operations, on forest roads, in Prospecting, etc., where it is not worth while to lay down complete lines on account of transport difficulties or insufficient volume of work. Frankel, v. 1, Art. 8:30, pp. 19-21.

motorized grader. See grader. Nelson.

motorman. The man who operates a haulage locomotive. Jones.


motor truck; lorry. A self-propelled road vehicle. For quarry and open-cast, transport; for smooth operation, adverse road grades should not exceed about 1 in 10. The truck bodies are usually steel, with end, side or bottom discharge, and tilting or dumping being provided by hydraulic cylinder and ram. Where discharge is at a fixed point, an auxiliary hoist is sometimes used for tilting. See also dump truck. Nelson.

motorway. A road designed and reserved for use only by power-driven vehicles. Hem. mottle. The spotted, blotched, or variegated mottling resulting from oxidation of iron compounds in localized patches. C.T.D. mottled iron. Pig iron in which the majority of the carbon is combined with iron in the form of cementite, Fe3C, but in which there is also a small amount of graphite. The fractured pig iron is black, blackish-brown, or blackish-gray, with clusters of dark spots, indicating the presence of graphite. C.T.D. mottled limestone. Limestone with gray branching or anastomosing feltlike
mottled limestone

The reader of this document can expect to find detailed information about geological terms, such as "mottling" which refers to a form of decoration applied to mottled structure. The text also includes terms like "mountain" which can refer to various geological formations. The document provides definitions for terms such as "mottled slate" which describes those in which blotches of red or purplish colors appear on a generally green surface. "Mountain" is a term used in various contexts, from mountain systems to mountainous structures. The text also includes terms related to minerals and their properties, such as "mound wallpaper" and "mounth plate," which are likely related to the natural formation of mounds or the use of mounds in decorative or structural applications.
mouth plate

Fay. b. Scot. An iron plate over the mouth of a borehole. Fay.

movable conveyor. Any of several types of conveyors designed to be moved in a desired position, whether on or above ground; b; shuttle conveyor, b. ASA MH4-1.1958.

movable jaw. The jaw or slip of a safety or feet dam, which can be raised or lowered in or out of or into the body or frame of the clamp either to engage or to disengage the mill roll being run into or pulled out of a borehole. Long.

movable ladder. See man machine. Fay.


moving annual total. In study of process costs (in large or in detail) a series of costs per annum calculated and recorded at regular intervals (usually in monthly financial summaries cross referenced to analyzed detail cost). Twelve months are covered and each month the new month's figures are added and those for the corresponding month of the previous year are removed. Therefore, like periods are always compared and seasonal fluctuations are smoothed out. Abbreviation, M.A.T. Pryor, 3.

moving coil instrument. A coil of very light construction is pivoted so that it can move in the air gap of a powerful permanent magnet; current is led to and from the coil through hair springs, which also retain the moving part in the zero position. A pointer attached to the coil spindle moves across the instrument scale to indicate the magnitude of the voltage or current being measured. Mason, v. 2, p. 406.

moving electrode controller. See liquid controller. Sinclair, V. p. 112.

moving forms. Climbing forms for concrete work, used with great success for the construction of grain silos and similar structures. Ham.

moving grizzly. One in which alternate bars rise to a given height, and the lateral (conveying) movement being built into the mechanism, therefore reducing loss of headroom in conveying and screening. Other types are traveling grizzlies, roll-grill and chain grizzly, Pryor, 3.

moving-iron instrument. This instrument depends upon the movement of a pointer attached to a spindle carrying a piece of soft iron, which may be either of the cylindrical or disk form, under the influence of a field produced by a fixed magnetizing coil. The pointer is restrained in its position of influence by a spring. Mason, v. 2, p. 406-407.

moys. S. Am. Volcanic mud, sometimes carbonaceous; applied chiefly to such occurrences in South America. Standa, 794.

Also called mud lava. Fay.

moyst. A fine-to-coarse-grained, gray, white, or pink igneous rock with a hypautomorphic-granular texture; quartz, orthoclase, cryptoperthite, or microcline, biotite, and hornblende are essential constituents. From Movie Sill, British Columbia, Canada. Johannsen, v. 2, 1932, p. 28.

moyle. An iron with a sharp steel point, for driving into clelts when levering off rock. Zer.


MF Abbreviation for multipole. Zimmermann, p. 72.

M.F.P. jet auger. An auger equipped with cutting blades, designed so that fluid, under pressure, passes through inclined holes just above the blades, washes away the material loosened by the blades, thereby cleaning the inside of the casing without disturbing the material below the bottom of the casing that is to be sampled. Long.

MPG Abbreviation for miles per gallon. Also abbreviated mpg. Zimmermann, p. 207; Webster 3d.

mph Abbreviation for miles per hour. BuMin Style Guide, p. 60.

MPH Abbreviation for miles per hour. Also abbreviated mph. Zimmermann, p. 207; GPO Style Manual, p. 159.

MPP Abbreviation for meters per minute. Also abbreviated mpm or m/mm. Sinclair, I, p. 60.


m.r. Abbreviation for mine run. Zimmermann, p. 70.

MR Abbreviation for mill run. Also abbreviated m.r. Zimmermann, p. 69.

M.R.E. The Mineral Resources Establishment of the National Coal Board, Great Britain. Its prime purpose is to carry out tests and investigations aimed at increasing the efficiency of coal production while maintaining a high level of safety. Nelson.

M.R.E. problemator. This apparatus consists essentially of a suitable tripod and drawing board, to which is attached a proliograph. This is a small ring pointer attached to a nylon cord which is carried on a spring-loaded reel. The reel rotates on a spindle which in turn rotates a smaller pulley and actuates the mechanism by which a slider carrying a marking point moves in sympathy with the ring pointer but to a reduced scale. When in use the board is placed in the plane section to be measured, a sheet of paper is pinned on to it and the ring pointer is moved to a point on the perimeter of the section. As well as measuring cross-sectional areas the apparatus is used to survey mine shafts and to record the positions of pitot-static tubes and vane anemometers when a fixed point survey is being made. Roberts, l. p. 61.

MS Abbreviation for machine steel; margin of safety; medium steel. Zimmermann, p. 65, 68.

M.S.A. all-service gas mask. A filter-type box respirator produced by the Mine Safety Appliances Co. which is approved by the U.S. Bureau of Mines for 2 hours of continuous or intermittent use. A timer is included in the canister, and the position of the hand indicates the time that the canister has been in use; one complete revolution of the pointer indicates that the canister has completed the recommended period of usefulness. If desired, a speaking diaphragm can be incorporated in the facepiece, enabling the wearer to speak to another person or to speak by telephone. McCadden, pp. 61-62.

M.S.A. carbon monoxide detector. An apparatus for estimating the amount of carbon monoxide in mine atmospheres. It consists of a rubber bulb fitted with inlet and outlet valves which circulate the sample of air under test through a detector tube containing pumice stone impregnated with a mixture of fuming sulfuric acid and iodine pentoxide. If carbon monoxide is passed through this detector tube, the gas reacts with the iodine pentoxide, and the iodine which is liberated changes the color of the material in the tube in direct proportion to the amount of carbon monoxide present. The color in the tube is then compared with a color scale of percentages to show the percentage of carbon monoxide present. McCadden, pp. 155-156.

M.S.A. distributor. A higher-air-pressure directional machine which operates in the manner of a white collar and displacer coal dust from the roof and sides. This machine carries two tons of stone dust, and traveling at 11 feet per minute distributes over 2600 pounds of dust per minute. Sinclair, I, p. 259.

M.S.A. melanosometer. This methane indicator is one in which the sample is admitted to flow continuously over the filaments while the determination is being made. In this case two matched filaments form the adjacent arms of the bridge. One of these is specially activated in order to burn the methane while the other filament is inactive and operates at a somewhat lower temperature. This arrangement is designed to compensate for fluctuations in barometric pressure, temperature, humidity, and the presence of carbon dioxide. Facilities for adjustment are provided to compensate for zero drift and change in battery voltage. The meter is provided with two shunts so that two ranges are provided on the scale, 0 to 3 percent by 0.1 division and 0 to 2 percent by 0.02 division. Roberts, I, p. 68.

M.S.A. self-rescuer. The Mine Safety Appliances Company produces this compact, lightweight device which consists of a flexible molded rubber body with a mouthpiece at the top, a hermetically sealed chemical cartridge within the body, and a nose clip. When the self-rescuer is to be used, the seal on the cartridge is broken, a plunger is pushed inward towards the body, and the unit is then ready to use. The self-rescuer can easily be recharged with new hermetically sealed cartridges. It gives protection for 30 to 10 minutes. By a measurement of carbon monoxide present. It is approved by the U.S. Bureau of Mines. McCadden, p. 67.


macc Mean spherical candlepower. Mason.


McA Abbreviation for M-design. Law.


M.S. m-deck core barrel. Synonym for M-design core barrel. Long.
msf

Abbreviation for magnetostriictive force.

BuMin Style Guide, p. 60.


MSP Abbreviation for monodimensional phosphorus; monoclonal sodium phosphates.

MST Abbreviation for mean solar time; mountain standard time. Also abbreviated mst. Zimmerman, p. 67, 71.

M. temperature. The temperature at which martenbite sets to form in an alloy on cooling. Specifically for steel, it is the temperature at which austenite begins to change into martensite on cooling. ASM Glossary.

Mt Abbreviation for mountain. Also abbreviated mt. Zimmerman, p. 71.

MTT Abbreviation for mechanical time fuse. Zimmerman, p. 68.

m³ Abbreviation for cubic meter. BuMin Style Guide, p. 60.

m³c Billion cubic feet. Williams.


mu strain Abbreviation for mountain. Also abbreviated Mtn. Zimmerman, p. 71.


muck. a. Stone; dirt; debris. Mason. b. Unconsolidated soils, sands, clays, or gravel contained in surface mining; generally, earth which can be severed and moved without preliminary blasting. Pryor, 3d. c. Useless material; earth or rock which may or may not be mixed with coal or mineral. See also mullock. Nelson. d. (Can.) Rock or coal broken in process of mining. Also used to denote confusion and litter. Hoffmann. e. To excavate or remove muck from. Webster 2d. f. To work hard; to toil. Webster 2d. g. (Scot.) Rubbish; soft, useless material. See also muck; dirt; mullock.

muck iron. Crude puddled iron. Crude puddled iron.

muck saw. A saw using an uncharged blade, usually steel, which runs in a bath of carborundum abrasive. AMJ.

muck shifting. a. Operations concerned with stripping overburden, valuable gravel or sands in exploitation of opencast mineral deposits. Pryor, 3b. Used for extensive earth-moving operations. Doe, 4d.

muck soil. Soil composed of sand, limestone, or mixtures of clay, sand, or gravel, and other material coming from a tunnel excavated by the iron. Fay. i. Mud rich in humus. Nichols. j. Finely blasted rock, particularly from underground.

muck cone. A cone produced by a round of mining. See also muck roll.

muck core. Gray, forge pig iron melted in a puddling furnace, then bailed, squeezed, and rolled. Materials of Industry, 1941, p. 458.

muck boss. In bituminous coal mining, a foreman who is in charge of a crew of loaders whose duty is to load broken rock into cars during the driving of new underground passageways from one part of the mine to another.

muck jacking. a. A laborer who loads broken mineral into trams, or pushes them from stoppage charge to ore cars. Princip. b. One who clears away material, as earth, gravel, rock, from a working area. Webster 3d. c. This term applies more specially to metal mines. See also muck deeper. Fay. d. Who removes the refuse; a local term for work clothes. B.C.J.

muck adorable. a. One who shovels muck into mine cars or onto a conveyor from which mine cars are loaded at some point removed from the working face, or works in a stope (vertical underground opening in which ore can be extracted) into which ore is loaded from chutes from which it is loaded into cars on haulage level below. Also called car filler; rock passer; shoveler. D.O.T., 1d.

muck roll. The first pair of rolls in a rolling mill.

muck saw. A saw using an uncharged blade, usually steel, which runs in a bath of carborundum abrasive. AMJ.

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muck cone. A cone produced by a round of mining. See also muck roll.

muck hole. A taphole from which the iron is so pasty that it does not run freely. Fay.

muck mud. a. Generally, any soil containing enough water to make it soft. Nichols. b. A fine-grained, unconsolidated rock of the clay grade, usually with a high percentage of water. The moisture content is less than 0.001 millimeter. Mud is produced by erosion and according to the rocks from which it is derived, it may consist of clay, sand, limestone, or mixtures of these and other materials in any proportion. Nelson.

c. The suspension made by mixing the drill circulation fluid (water) with the fine cuttings produced by the bit when drilling a borehole. The mixture of water or oil with clay, and sometimes other special materials, used as a drill circulation liquid in drilling operations. Also called drill mud. Long.

c. A fluid used for drilling wells. Wrenshall, 3, 1. d. Moist and soft earth, or earby material. A laborer who shovels muck into mine cars. Hoffmann. e. In metal and nonmetal mining, a laborer who shovels ore or rock into mine cars or onto a conveyor from which mine cars are loaded at some point removed from the working face, or works in a stope (vertical underground opening in which ore can be extracted) into which ore is loaded from chutes from which it is loaded into cars on haulage level below. Also called car filler; rock passer; shoveler. D.O.T., 1d.

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mud cone

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mud. See also mud volcano. Fay.
mud crack; mud cast. Filling of desiccation cracks in mud, customarily sandstone; genus, arranged in polygonal patterns on under- side of sandstone bed. Pettijohn.
mudcrack. A temporary fissure in clay or lime- stone from which sulfur has been ex- tracted. Bennett 2d, 1962 Add.
mudding off. Commonly thought of as re- duced productivity caused by the pene- trating, sealing, or plastering effect of a drilling fluid. Actually there is little pene- tration into the capillaries of an ordinary producing formation, and a slight amount of differential back pressure will remove even thick filter cakes. Brantly, 1.
mud drilling. Drilling operations in which a mud-laden circulation fluid is used. Long.
mud engineer. An engineer who studies and supervises the preparation of various fluids and emulsions, collectively termed mud, used in rotary drilling. AGI.
mudfish; mud engineer. In drilling an oil well, the man in charge of the mud pump which forces drilling fluids (mud flush) down to the bottom of the hole. Pryor, 3.
mud flat. A muddy, low-lying strip of ground by the shore, or an island, usually sub- merged more or less completely by the rise of the tide. Fay.
mudflow. A rapidly moving stream of mixed soil or rock and water having the con- sistency and composition of mud. The propor- tions of liquid and solid constituents vary widely. Stoker and Varnes, 1955. See also mudrush; soil creep.
mud fluid. See mud flush; drill mud.
mud flush. a. To clear fragmented materials from a borehole by circulating a mud- laden fluid. See also mud drilling. Long. b. The mud which is kept circulating in the borehole during rotary boring. It is pumped down the inside of the hollow rod and returns to the surface with the return water-soil-cement. (Fossil mud mucks). Standard, 1964. mud logging. A method of determining the presence or absence of oil, gas, and salt water in the various formations penetrated by the drill bit. The drilling fluid and the cuttings are continuously tested on their return to the surface, and the results of these tests are correlated with the depth of origin. Brantly, 1.
mud hopper. One of numerous mud-discharg- ing cones dotting the shallows at the mouth of the Mississippi; upheaved from lower Tensas pressure of surface deposits. Standard, 1964.
mud man. The operator of the valve at the end of the mud hose. Williams.
mud marks. The hardened flowages of mud over a smooth surface, or the same petri- fied (fossil mud mats). Standard, 1964.
mud mapper. A small clamshell-type snapper which is about 11 inches long and weighs 3 pounds. It is attached to the bottom of a sounding lead for means of a hole drilled in the lead. The jaws are cast bronze and are actuated by a spring. The jaws are held open by engaging two trigger pins within the jaws. The mud mapper and sounding lead may be operated in shallow water by hand lowering or by lowering from a bathythermograph or oceanographic winch. HHG.
mud socket. A device attached to drill rods and used to remove or sand from a bore- hole. Compare mule shoe. Long.
mud solution. See drill mud; mud c and d.
mudstone. A fine, more or less sandy argilla- ceous rock, having no flake character, and composed of clay and fine sand. mudstone ratio. The numerical value of the ratio of the total thickness of red mud- stone to the total thickness of argillaceous rock occurring within an assumed stratigraphic horizon. Its value is based upon the premise that uranium-bearing solutions
mudstone trap. Where uranium mineralization is trapped as a mudstone-sandstone interface. Ballard.

mud stream. A mass of moving sediment mixed with water that includes landaules, mudflows, and turbidity currents. Ballard.

mud tank. A large tank or mud system. a. The technique and use of drilling mud as a circulating fluid, which is as clear as glass and colorless. Rand.

mud viscosity. The property of a viscous medium, for example, a mudstone. Salt.

mud sump. Synonym for mud pit. Fay.

mud swivel. A modification of a water manifold to allow coarse drill cuttings to settle. Fay.

mud up. a. The act of process of filling the borehole. Returning circulation fluid to the mud pump for circulation in the borehole. Returning circulation fluid is circulated in a specially designed for use when a mudladden drill fluid is circulated in borehole-drilling operations. Called mud pot. Fay.

mud system. a. The technique and use of drilling mud as a circulating medium in drilling operations. Fay. b. The mixer, sump, piping, and equipment to prepare, maintain, and transport mudladden fluid. Fay.

mud tank. A large tank or reservoir for mixing and storing drilling mud that is fed to the mud pump for circulation in the borehole. Returning circulation fluid is mixed into the tank at the bend opposite the pump suction line to allow coarse drill cuttings to settle. Fay.

mud up. a. The act or process of filling, choking, or clogging the waterways of a bit with consolidated drill cuttings. Also called sludging; shuddering up. Fay. b. The act of process of filling the pores or cracks in the rock surrounding a borehole; also, to cause mud to adhere to the walls of a borehole. Compare mud off. Fay. c. To seal a pot stopper or a joint in a furnace or in a producer gaine, by the application of wet clay. ASTM C162-66.

mud viscosity. The property of a mud-ladden fluid to resist flow due to internal friction and the combined effects of adhesion and cohesion; for example, a Marsh funnel (used to measure the viscosity of mud) will discharge 1 quart of water in about 36 seconds, whereas an equal volume of sediment-free water will discharge in 40 to 53 or more seconds from the same funnel.

mud volcano. a. A conical hill of mud, from which material is ejected by a blowpipe. b. A blowpipe. Blowpipe.

muds. a. Mottled surface. b. The larger grooves in a molding sand. Byman.


mull crucible. A kiln in which combustion of the fuel takes place within refractory muffles, which in turn conduct heat into the ware chamber. ACSG, 1963.

mull crucible. A kiln in which combustion is kept away from the charge. Bennett 2d, 1962 Add.

muller. A knife-shaped piece of iron used in grinding ceramic inks and pigments, etc., by a rolling, grinding, rubbing, or stirring action. Enam Dia. c. The process of grinding. Muller's glass. Hyalite, a variety of opal which is as clear as glass and colorless. Enam Dia.

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muller. A kiln in which combustion is kept away from the charge. Bennett 2d, 1962 Add.
mullite refractories

sitting predominantly of mullite (3Al₂O₃-2SiO₂) crystals formed either by conversion of one or more of the sillimanite group minerals or by synthesis from appropriate materials employing either melting or interting processes. ASTM C67-64.

mullite whiteware. Any ceramic whiteware

mullock. a. N.S.W. The accumulated waste

mullocker. a. In metal mining, a

mullock reefs. Aust. Reefs in

mallocking. Aust. Act or process

1111111iladd

mullock vein. Aust. A decomposed

multibucket excavator. A machine similar to

Multicut chafe. Trade name for a coal-cutter

melting or

2SiO₃) crystals formed either by conver-

sisting predominantly of mullite (3A1₁0₃-

60.

The mullocker (muck shifter)

about a mine. Fay. c. See muck,

for the accumulated waste or

shovels and loads waste rock, as

Gordon.

mullock reefs. Aust. Reefs in which the

matrix of the ore consists of country rock, frequently decomposed erupitive dikes. Fay.

mullock tip. Aus. Accumulations of waste rock coming out of a mine; a dump; also, spoil heap. Fay.

mullock vein. Aust. A decomposed erupitive dike in which the original disseminated gold and silver have been deposited in joints and fissures of the dike rock. This term appears to be unnecessary. Fay.

multiaxial stresses. Any stress state in which two or three principal stresses are not zero. ASM Gloss.

multibucket excavator. A machine similar to a dredger used for excavating cuttings for roads, railroads, or canals. One large machine of this type can dig 50 yards per hour on a slope 25 feet high. Ham.

multicut china. Trade name for a coal-cutter chain designed for use with curved jibs. It is short pitch and of high flexibility. Nelson.

cyclone coast. Emergent coast formed during several interrupted cycles so that two or more elevated marine terraces have been formed. Schifferdecker.

multideck cage. A cage containing two or more compartments or platforms to hold the mine cars. Every effort is made to keep the number of decks as low as possible and to cut down the decking time and equipment at shaft top and bottom. Nelson.

multideck screen. A screen with two or more superimposed screening surfaces mounted rigidly within a common frame. B.S. 3352, 1959.

multideck sinking platform. A sinking platform consisting of several decks to enable various shaft-sinking operations to be performed without delay. The bottom deck, in a three-deck platform, is usually suspended from four winch ropes in such a way that it acts as a supporting structure for the others; the middle and top decks are supported above the bottom deck by rigid supports. The top
deck is used for the manipulation of the concrete buckets for building up the shuttering. The center deck is used by the men when placing the concrete, while the bottom deck carries telephones, blasting, lighting, and similar equipment. The lower side of the bottom deck may carry the equipment for manipulating the cast grate. See also sinking and walling scaffold. Nelson.

multideck table. Shaking table with two or more superposed decks, independently fed and discharged but worked by one vibrating mechanism. Pryor, 3.

multifuse igniter; electric master fuse. A device employed to reduce the number of fuses to be lit by the miner before he can retire to safety. By means of a multifuse igniter, it is possible to remote fire stops or headings, primed with plain detonators and safety fuse. Nelson.


multilayer bldes. Lodes that occupy a shear zone. Such a zone has no definite walls, the ore gradually shadding off into the country rock. It is probable that the gold of some rich alluvial fields came from shear zones. Nelson.

multiloop reed. A reed in which the matrix of the ore consists of country rock, frequently decomposed erupitive dikes. Fay.

multiple bench quarrying. The method of quarrying a rock ledge in a series of successive benches or steps. Fay.

multiple-cord belt conveyor. A belt conveyor consisting of two, three, or more parallel strands of Vee, double Vee, or round belts. ASA 

multiple detectors. Two, or more, seismic detectors whose combined output energy is fed into a single amplifier-recorder circuit. This technique is used to effect a cancellation of undesirable near-surface waves. Synonym for multiple geophones; multiple recording groups. A.G.I.

multiple dike. A dike made up of two or more intrusions of the same kind of igneous rock. Billings, 1934, p. 307.

multiple-entry system. A system of access or development openings generally in bituminous coal mines involving more than one pair of parallel entries, one for haulage and fresh air intake and the other for return air. Multiple-entry systems permit circulation of large volumes of air. Bureau of Mines Staff.

multiple-expansion engine. An engine driven by steam or compressed air expanding in two or more stages. Ham.

multiple fault. A faulting structure consisting of several parallel faults in close prox-

imity with no distortion. See also step faults. Nelson.

multiple firing. Firing electrically with delay blasting caps in a number of holes at one time. Mitchell, p. 212.

multiple fuse-igniter cartridge. Consists of a cardboard cartridge about 2 inches long with a 3/4-inch outside diameter. The closed end is coated with black powder, and the ends of eight fuses are inserted in the cartridge, in contact with the powder. A master fuse is then inserted, which, when lit, burns to the powder and ignites it. The powder flares brightly and lights the eight fuses. South Australia, pp. 40-

multiple gases indicator. The detector is de-

signed to trace and determine the con-

centration of a variety of gases. The hand-operated instrument is used with many different detecting tubes. Typical choice may include tubes for acetone, freons, kerosene, ammonia, acetylene, carbon tetrachloride, phosgene, nitrous gases or trichloroethane, in addition to more com-

mon contaminants that are more exotic. Bevis, p. 580.

multiple geophones. Synonym for multiple recording groups; multiple detectors.

multiple-impulse welding. Spot, projection, or upset welding with more than one impulse in a single machine cycle. Sometimes called pulsation welding. ASM Gloss.

multiple intersections. The intercepts that cross a vein, ore body, or other geologic feature, accomplished by drilling several boreholes from a single mine, or parent borehole with the aid of wedges and similar deflecting devices. Long.

multiple intrusions. Applied to plugs, dikes, laccoliths, and other intrusions, formed by two or more successive injections of approx-

imately the same magma. Staker and

multiple lines. A single line reved around two or more sheaves so as to increase pull at desirable points. ASM Gloss.

multiple mineral development act multiple
multiple mineral development

use act. The Act of August 13, 1954, permitting oil and gas leases and mining claims on the same land, with the oil and gas lessee obtaining his rights under his lease and the mining claimant being accounted to patent, except however, to the oil and gas lessee’s interest. Williams.


multiple-pass weld. A weld made by depositing filler metal with two or more successive passes. ASM Gloss.

multiple-pleat plate. Steel plates made up of thicknesses of other plates of steel and wrought iron welded together. Minesereau, 4th, p. 426.

multiple proportions, law of. See Dalton’s law; law of multiple proportions.

multiple recording groups. Synonym for multiple sbot.

multiple sbot. See battery of holes. Fay.

multiple shooting. The firing of an entire face at one time. The holes are connected in a single series and when the current is applied to one cell, the current flows to the anodes of the entire assembly. JOM.

multiple-strand cable. A conductor which employs two or more spaced strands of narrow flat belts. ASA M114.1-1958.

multiple-strand chain. A roller chain made up of two or more strands assembled as a multiple strand rope. Sow also tippler. Nelson.

multiple-strand rope. A wire rope designed for discharging, two or more cars simultaneously. The discharging is sometimes performed while the cars are still attached to the cars trar. KS, which can receive and rotate each need be only, 11/4 inches in diameter to obviate spinning due to untwisting. It becomes large and heavy, being 2 1/8 inches in diameter locked coil, weighing 74.28 pounds each, 20 yards apart on one rope about 5 miles, into more than a dozen thin strands, and wrought iron welded together. See also simple split seam. Nelson.

multiple spotting. Welding a complete cycle of the welding machine. ASM Gloss.

multiple-speed floating control system. As used in flotation, a form of floating control system in which the manipulated variable may change at two or more rates each corresponding to a definite range of values of the actuating signal. Fuerstenau, p. 549.

multiple splitting. The parting or separation of a thick seam into more than two layers of coal. For example, the Ten Yards Coal of Staffordshire splits, within a distance of about 5 miles, into more than a dozen thin seams, between which the partings in the thick seam will have swolven out to an aggregate of about 500 feet of shales and sandstones. See also simple split seam. Nelson.

multiple spot welding. Spot welding in which several spots are made during one complete cycle of the welding machine. ASM Gloss.

multiple-strap chain. A chain made up of two or more strands assembled as a single structure on pins extending through connecting pans, pallets, etc. ASA M114.1-1958.

multiple-strap rope. A wire rope designed to obviate spinning due to untwisting. It is formed by a series of layers of strands built around a center core. Each layer of strands is given a lay opposite to that on which it is built, each layer thus tending to impart its own twist which is cancelled by the next layer. Therefore, this rope can be used for sinking or where free load is to be lifted. The stretch with a multiple strand rope is not so great as with round strand and flattened strand ropes. Nelson.

multiple system. A method of connecting the anodes and cathodes in electrolytic refining. Each cell contains a number of electrodes, anodes and cathodes being connected in parallel. From the cathodes of one cell, the current flows to the anodes of the next. The cells are therefore in series. C.T.D.

multiple tank machines. N. of Eng. Any machine which mechanizes more than one task of the cycle. Fay.

multiple tippet. A steel structure, with mine car tracks, which can receive and rotate for discharging, two cars at the same time. The discharging is sometimes performed while the cars are still attached to the hanging rope. In this case the tippet does not make a complete revolution but is reversed back from the tipping movement to avoid twisting the hanging rope. See also tippet. Nelson.

multiple-vent basalt. See shield basalt. A.G.I.

multiple wedge. See plug and feathers. Nelson.

multiplication factor; multiplication constant. The ratio of the number of neutrons in any one neutron generation to that in the immediately preceding generation. Criticality is achieved when this ratio equals 1.

multiple plough. Gusto multiple plough. A layout consisting of six or more ploughs, 220 pounds each, 20 yards apart on one rope or chain, feeding onto an armored conveyer; load on conveyer is well distributed. A driving unit is arranged at both ends of the face and operated alternately to impart the saw-and-dro movement to the ploughs. The minimum workable seam thickness is 20 inches at gradients from 0° to 20°; maximum length of face about 190 yards. Nelson.

multiplying constant. This is the constant, used in radia work, by which the staff intercept is multiplied to determine the distance between the staff and the theodolite. The value is generally taken as 100.

multitrope friction winder. A winding system based on the principles of the Koepe win- der. The drive to the winding ropes is through frictional resistance between the ropes and the driving sheaves. Multitrope friction winners are usually tower mounted, with either cages or skips, and provided with a counterweight. The sheaves are from about 6 to 12 feet in diameter with a direct coupled or geared drive. Four ropes are favored and these operate in parallel and share the total suspended load. The system was introduced partly because of the difficulty of winding heavy loads from deep shafts with a single large-diameter winding rope. Modern winding ropes have become large and heavy, being 2 1/4 inches in diameter locked coil, weighing 74.28 pounds per fathom or 16.3 tons for a 1,000 yard shaft, therefore, the introduction of the friction winder, with its counterweight, and using four smaller ropes side by side in place of one. Such ropes need be only, 1/8 inches in diameter to give equivalent winding capacity. Fay.

multiple shaft working. The working of two or three shifts per day on production faces underground. Face machines and power supports in coal mines represent a heavy capital outlay and the aim is to make them productive as long as possible in the 24 hours. In British coal mines, in 1960, 4 percent were working three shifts, 40 percent two shifts, and 56 percent one shift. Fay.

multishot firing. The firing of a number of shots simultaneously. Under the Coal Mines (Explosives) Order, 1951, up to six shots may be fired simultaneously anywhere in any coal mine in Great Britain, rounds of more than six shots being limited to underground coal mine face work. The detonators must be connected in series to a shorting cable not less than 50 yards in length and in 50 pounds in weight. The shorting cable must be tested and approved. See also M. E. 6 Extract.

multishot gyroscopic instrument. A borehole surveying instrument which can take a number of readings during the rise and ascent in the hole. It comprises gyro-
multishot gyroscopic

scopic and photographic recording units; direction and inclination indicators; a timing and measuring accessory. A movie film enables numerous records being taken throughout the depth of the borehole. See also oscilloscope.
multispread motors. Multispread squirrel cage motors are available for drives such as fans, blowers or pumps, which require operation at different speeds but do not require adjustable speed characteristics. Motors of this type may be used to two, three or four speed, with one to two stator windings, and built for variable torque, constant torque or constant horsepower operation. These machines have a constant speed characteristic at each particular speed. Pit and Quarry, 33rd, Sec. D, p. 6.
multistage fan. A fan having two or more units, see polyphase motor.
multituft. A bit that during use is unsharpened and resharpened in a grinding wheel.
multituft roller. A heavy roller with pneumatic units used to consolidate embankments. Ham. multistop. A period of replacement taking place later than that designated as pauses; much later as opposed to a little later. Hess.
multinuclear. See muon. LSL.
mu-metal. An alloy of Permalloy type (that is with high magnetic permeability and low electrical resistivity) but containing copper and manganese in addition to iron and nickel. C.T.D.
mumification. The process of preservation of plant tissues under the influence of arrested decay. Tomkeieff, 1954.
mumme. Any fusible metal. Fay.
mundane. A driller's term for pyrite. See also iron pyrites. A.G.I. Supp.
munda. An olivine-bearing nepheline phonolite containing about 50 percent mafic minerals. A.G.I.
mundraite. A violet hydrotalcite of sodium with manganese, calcium, iron, zirconium, etc., R0.2Nas0.4SiOs.4(TiOs.163, ZrOs).4H2O. Scales with micaceous cleavage. From Kola Peninsula, Russian Lapland, U.S.S.R. English.
munin. A rock drill, b. Fay.
muragio. A portion that of the side-wall of a bottle near the bottom. ASTM C162-66.
muratic acid. Old term for hydrochloric acid.

muscovite granite. A granite which contains a large proportion of the mineral muscovite. C.T.D.
muscovitization. The process of changing a mica, or rock, to muscovite. See also muscovite.

muscovy glass. Same as muscovite. Fay.
muscovy-flux furnace. An instrument developed in 1947 which has been used for the particle-size analysis of clays and other ceramic materials in the range 0.25 to 60 micron. Dodd.
mush. a. Soft and damp small coal; a coal which has been so wet that it is unprofitable to mine. Nelson, b. Leic. Soft, sooty, dirty, earthy coal. Fay, c. A grey mud, sometimes found on bituminous coal.
musket steel. Contains 9 percent tungsten, 25 percent manganese, and 1.85 percent carbon. It is used mainly for cutting tools, particularly for those used for taking heavy cuts on extra hard material. Critch.
mushroom. a. A bit that during use has been overheated to the point where it becomes soft and flattened off. Long. b. To flatten or deform a metal object by successive impacts. Long. mushroom church. A reinforced concrete solid slab carried by columns flared at the top but not joined by beams. See also fluted column head.
mushroom jib. A standard form of coal cutter jib with a spherical tip and a remote control machine. The spherical carries a vertical turret or bar and is driven by the cutting chain. The bar makes a vertical cut at the back of the normal horizontal cut. See also turret jib. Nelson.
mussel. Soft and sooty or dirty coal, or coal that has been crushed. Same as coal.
musical salt. An obsolete term applied to vacuum pan salt when first introduced. This is a fine-grain met that is partially decayed in the machine. The sprocket carries a vertical turret or bar and is driven by the cutting chain. The bar makes a vertical cut at the back of the normal horizontal cut. See also turret jib. Nelson.
mussel band. A bed of clay ironstone containing fossil bivalve shells, etc. Fay. Very curious. In the correlation of coal measure strata. Musen. Also called musel band; marine band.
mussel breccia. Ironstone containing fossil shells. Arkell.
mussel bed. A band containing or chiefly composed of mussequite shells, very valuable in the correlation of Coal Measure strata. Musen.
musselite. Same as musel band. Fay.
mussel gold. An old form of prepared gold for use in the decoration of pottery.
mussel gold

was made by rubbing together gold leaf, sugar (or honey), and salt; the paste was then baked and sold from solenite in small cakes, and, traditionally, stored in mussel shells.

musk gold. N.S.W. Very fine gold, sometimes called clem. Hy.

muscite. Same as diopside. Shipley.

mussite. A mixture of iron ore and fuel is reduced in an externally heated rotary retort. The gases are exhausted and constitute the fuel when the process has been started. The gases, after purification, are passed through combustion rings surrounding the retort and are burned according to the method of catalytic combustion. After reduction, the charge is cooled, when it is poured through a layer of fluxing material, it is then transferred to a steelmaking furnace. Osborn.

mustard gold. N.S.W. Very fine gold, sometimes called wryneck. New South Wales, p. 115.


muta, muta. A Malayan term denoting the degrees of fineness of gold. Fay.

mutual admittance. The mutual admittance of an organism resulting in a change of its terminals by the phasor representing the voltage across the second pair. Beerman, p. 367.


mylus test. See iodoeosin test. Dodd.

mylonite. A hard, compact rock with a streaky or banded structure produced by extreme granulation in both strike-slip and thrust fault zones. Bureau of Mines Staff.

mylonite gneiss. A mylonitic rock which has been partly recrystallized. See also augen schist; cataclasite; flaser gabbro; flaser gneiss; flaser granite; kaktite; mylonite; phyllonite. A.G.I.

mylonitization. The sum of the processes by which mylonites are formed. A.G.I.


myth. A local trade name for a variety of quartz marked by or intergrown with pink or reddish inclusions of cinnabar, quartz marked by or intergrown with intimate inclusions of cinnabar, quartz from the Mahogany mine, San Bernardino County, Calif., described by Pay.

myrunite. A. A. A Malayan term denoting the degrees of fineness of gold. Fay.

myrkkite. A name used for whitish or yellowish or reddish-white, translucent or massive gold, bearing freckles or small white spots, similar to sandstone. Hess.


myrmelldtle texture. Any rock or ore texture with vermicular forms. A.G.I.

nacre. A. A. A Malayan term denoting the degrees of fineness of gold. Fay.

nacre. A. A. A Malayan term denoting the degrees of fineness of gold. Fay.

nacre. A. A. A Malayan term denoting the degrees of fineness of gold. Fay.

n- Abbreviated prefix meaning normal. Used in the names of aliphatic hydrocarbons, their derivatives, or alkyl radicals. For example, n-butane for normal butane and n-pentane for normal pentane. Usually the prefix n- is ignored in alphabetical arrangement. C.C.D. 64, 1961.

nadenite. A. A. A Malayan term denoting the degrees of fineness of gold. Fay.

naphanite. A. A. A Malayan term denoting the degrees of fineness of gold. Fay.

naphlalite. A. A. A Malayan term denoting the degrees of fineness of gold. Fay.

natur. Thin flat crystals (diamond) used for roses and, by resutting, for drainpipes. Hess.

natto. A. A. A Malayan term denoting the degrees of fineness of gold. Fay.

nblock. A rounded mass, as of flint in chalk, or of ironstone in coal. Standard, 1964.

nacre. A. A. A Malayan term denoting the degrees of fineness of gold. Fay.

nacre. A. A. A Malayan term denoting the degrees of fineness of gold. Fay.

nacre. A. A. A Malayan term denoting the degrees of fineness of gold. Fay.
nacreoscopy. A pearl illuminator. An instrument that consists of a string of light through which the nature of the nucleus of a pearl can sometimes be observed. Differences from the nucleus in that the number of large spheres of wood or other material by striking the head with a hammer. The term pearl as applied in the number of pieces per 1,000; for example, six-penny nail means 6 pounds per 1,000; three-penny nail means 3 pounds per 1,000, etc. Crispin.
nailhead scratch. See nailhead striation. Pet- 
cip.
nailhead spur. A composite variety of calcite having the form suggested by the name.
nailhead striation; nailhead scratch. A glacial scratch or marking with blunt end, generally, but not always, down current. Pet- tik.
nail plate. A plate of metal rolled to the proper thickness for cutting into nails. Fay.
nail (pointed-angled). Nails pointed at either end and used for wooden racks on which ware is placed after each operation. Han- sen.
naked light mine. A nongassy coal mine where naked lights may be used by the naked miner. A peculiar, waxy, dark reddish- enifl.
naked light mine. A peculiar, waxy, dark reddish- enifl.
naked light mine. A peculiar, waxy, dark reddish- enifl.
naked light mine. A peculiar, waxy, dark reddish- enifl.
naked light mine. A peculiar, waxy, dark reddish- enifl.
naked light mine. A peculiar, waxy, dark reddish- enifl.
naked light mine. A peculiar, waxy, dark reddish- enifl.
naked light mine. A peculiar, waxy, dark reddish- enifl.
naked light mine. A peculiar, waxy, dark reddish- enifl.
naphthol.

narrow. a. A roadway driven in the solid coal with rib sides. All roadways w/ openings out a pillar main. d. Narrow. See also working the whole. Nelson. b. N. of Eng. A gallery, or roadway, driven at a narrow gage. Narrow gage. See also narrow beam projector. Nelson.
	narrow gage. A railway case narrower than the standard gage of 4 feet 8½ inches. Ham.

narrow places. Aust. Working places that are less than 6 yards wide; these are paid for by the yard in length. Fay.
	narrow stall. A stall driven in the solid coal, usual from 8 to 9 feet wide; it has rib sides in coal. Nelson.

narrow work. a. The driving of narrow stalls to form the narrow gage. See also narrow gage in the pillar-and-stall method of working. Nelson. b. A system of mining in which narrow coal roadways, called endings, are driven along the strike of the seam, from 12 to 15 yards apart, to a limit line. The long narrow coal roadways between the endings are excavated on the retreat. It has been adopted in parts of Yorkshire and Lancashire. See also narrow work for which a price per yard of length driven is paid, and which, therefore, must be measured. Any dead workings, headings, cut-offs, crosscuts, gangways, etc., or the workings previous to the removal of the pillars. Fay. A working in coal in only a few yards in width. Fay.

narrow working. See bord-and-pillar method; narrow work. Fay.

natrobrucite. A yellow, highly acidic titanosilicate of sodium (and iron), NaTiSiO₄. Table. Hexagonal. From Narrakur, Greenland; Sweet Grass Hills, Mont. Engish.

nasturtium. Undergrowing the process of being born; beginning to exist. Webster 3d. b. Just formed by a chemical reaction, and therefore very reactive. Haste gases are probably in an atomic state. Tafel.

d. Natren hydrogen. Ncw-born hydrogen produced by chemical action, before, molecular combination to H₂ occurs. In this state it is much more reactive. Pryor. 3.

nashite. A mineral, Na₂Be₃O₃·8H₂O (?); monoclinic; found in recent intrusions at Larderello, Tuscany, Italy. Identical with auger's borate. Hgy., M.M., 1946. Fleischer.


nasmyth hammer. A steam hammer, having the head of the hammer attached to the piston rod, and operated by the direct force of the steam. Fay.

natasch. a. Scot. A small hitch or dislocation. Fay. b. Scot. The junction of two rails at right angles. Fay. c. Native arsenic. The element as it occurs naturally; tin-white, hexagonal; specific gravity, 5.64 to 5.78; Mohs' hardness, 2.7 to 3.8. Bennett 2d, 1962.

d. Nativio gold. Gold as it occurs naturally; yellow cubic; specific gravity, 14.56 to 19.33; Mohs' hardness, 2.5 to 3.0; rarely pure, usually alloyed with silver and sometimes containing appreciable amounts of copper, palladium, or bismuth. Bennett 2d, 1962.

d. Native mica. Metals, such as copper, gold, silver, and those of the platinum group, that occur in the element or metallic state. Ency. of Chem. Tech., v. 8, p. 934.

native anode. See also anode.

native platinum. Platinum as it occurs naturally; silvery-white, cubic; specific gravity, 1.33 to 1.90; Mohs' hardness, 4 to 6. Bennett 2d, 1962.

native Prussian blue. Also called Byzantine. Fay. 2d, 1962.

native salt. Natural salt, halite, rock salt in its native state, as found and mined. Fay. 2d, 1962.

native silver. Silver as it occurs naturally; white, tarnishes to gray or black, cubic; specific gravity, 10.1 to 10.6; Mohs' hardness, 2.5 to 3.0. Bennett 2d, 1962.

native steel. A steel or steel ingot occurring in small masses and made by the ignition of coal near an iron-ore deposit. Fay.


natrium. Sodium. Webber 3d.

natron. A variety of alunite in which sodium replaces potassium in part, Na₂O·3Al₂O₃·4SO₄·6H₂O. Dana 17, p. 370; Lar. 9. Bennett 2d, 1962.


natrolite. A bright, emerald-green hydrous sulfate of copper and sodium, Na₂O·Cu(OH)₂·SO₄·2H₂O. 1200°. Steep, pyramidal crystals. Monoclinic. From Chuquicamata, Antofagasta, Chile. Engish.

natroboracite. A yellowish-brown to golden-yellow basic sulfate of iron and copper. A glinting powder made up of minute tabular crystals. Rhombohedral. From Sadovale, Nev.; Cook's Peak, New Mex.; Kingman, Ariz.; Cape Calamito, Elba; Kunda, Western Australia. English.


natromontmorillonite. The artificial compound, Ph₄Na₃Al₂Si₃O₁₀(OH)₂. Monoclinic. See also mordenite. English.
natron. A sodium carbonate with 10 molecules of water. *Beterman.*

natronboracite. A synonym of ulexite. *Hey.*

natron-granites. Granites abnormally high in soda, presumably from the presence of an oxidized rock rich in sodalite, NaAlSi₂O₆, or Leucophan. They are also called soda granites. Natron is likewise used as a prefix to minerals and rocks that are rich in sodas, as natron orthoclase, natron syenite, etc. *Fay.*


natron-silphite. Same as soda niter. *Dana 6d, p. 870.*

natronomelane. A feldspar similar to orthoclase but with soda replacing 20% of the alumina. *Lass., p. 233.*

mattie. Ent. To make a slight rattling or tapping noise. *Webster 3d.* Said of a mine when movement or settling is taking place. *Fay.*

natural aging. Spontaneous aging of a super-saturated solid solution at room temperature. See also aging. *Compare artificial aging.* *ASM Glossary.*

natural boring. An air crosswind in which the two airways are separated by rock in its natural state. *B.S. 3618, 1963, sec. 2.*

natural aluminum. Material that has been extracted from the earth not due to human activity. *Schieferdecker.*

natural asphalt. Asphalt before crushing or natural arch. *Dana 6d, p. 324.*

natural brick. A name given to the X direction as pencilled on Z sections of unfaced quartz and whose position is determined by X-rays. The name is also given to the artificial prism face (parallel to 1102), thus located and produced on sawing in the VY plane. Also applied to the natural growth facies on faced raw quartz crystals. *AG.*

natural clay tile. Facing tile having unglazed or uncoated surface burned to the natural color, in contrast to the material used in forming the body. *ASTM C41-65T.*

natural floatability. See inherent floatability. *Pryor, J.*

natural frequency. The frequency of free oscillation of a system. For a multidegree-of-freedom system, the natural frequencies are the frequencies of the normal modes of vibration. *Hey.*

natural frequency of a foundation. The frequency of free vibration of a complete well-founded oscillating system. This frequency must differ distinctly from that of any machinery carried by the foundation if resonance is to be avoided. *Ham.*

natural frequency vibrating conveyor. A vibrating conveyor in which the vibration of the trough on its resilient support is approximately the same as the rate of vibration induced in the driving mechanism. *ASTM A40-52.*

natural gamma-ray logging. A process where by gamma rays naturally emitted by formations traversed by a borehole are measured. A tool containing a radiation detector is lowered into the borehole, and as a result of the impingement thereon of gamma rays naturally emitted by the formations, outputs signals indicative of said gamma rays are produced and transmitted to the earth's surface. The signals are utilized to produce a record of gamma rays detected in correlation with the depth of the detector in the borehole. The record thus obtained in the form of a curve indicating relative number per unit area is known as a gamma-ray log. *Williams.*

natural gas. A mixture of the low molecular weight paraffin series hydrocarbons and excludes ethane, propane, and butane with small amounts of higher hydrocarbons, also frequently containing small or appreciable quantities of methane, hydrogen sulfide and occasionally small proportions of nitrogen, carbon dioxide, or carbon monoxide. Dry natural gas is usually over 1,000 Btu/ft³ unless nitrogen or carbon dioxide and certain other minor components of the gas. Natural gas is always a major constituent of natural gas. *Hey.*

natural gas indicator. This indicator consists of a naphtha-burning safety lamp with a mirror attached to one side so that the action of the flame may be observed from above. The lamp should be lowered slowly and carefully into the tank, meter, pit, or manhole being tested. Lengthening of the flame's reflected image to the edge of the mirror indicates a dangerous concentration of natural gas. *Hey.*

natural glass. Those liquid hydrocarbon mixtures containing substantial quantities of pentane and heavier hydrocarbons which have been extracted from natural gas. *A.G.I.*

natural glass. Maenner of any composition is liable to occur in the glassy condition if cooled sufficiently rapidly. Acid (that is, granitic) glass is commoner than basic (that is basaltic) glass; the former is represented among igneous rocks by pumice, obsidian, and pitchstone; the latter by tachylite. Natural quartz glass occurs in masses lying on the surface of certain deserts (for example, the Libyan Desert); while both clay rocks and sandstones are locally found to be basaltic. *See also basaltite; tektites.*

natural harbor. A harbor formed by the configuration of the coastline, outstanding examples being Sydney, New South Wales; Milford Haven. *See also artificial harbor.*

natural levee. In floodtime, the muddy water flows over the riverbanks, where its velocity is at once checked as it flows gently down the outer side, causing material to be deposited there, and a long alluvial ridge, called a natural levee, is built upon either side of the stream. *A.G.I.*

natural logarithm. A logarithm with e as a base, i.e., *ln.*

natural loge. A term used by foundrymen to refer to a sand which, when added, contains suitable particles for molding purposes. *Oberste.*

natural ore. Iron ore that contains moisture, in contrast to "dry ore" that has been dried but contains sufficient water to give a carter mixture. *Hey.*


natural pressure cycle. A cycle in which pressure buildup conforms proportionately to...
natural pressure cycle

the buildup of stresses due to forming. ASM Gloss.

natural radiation. See background radiation.

natural rock asphalt. Rock, usually almost pure limestone, which is impregnated with petroleum asphalt. Also: natural asphalt; rock asphalt. Ham.

natural sand. Sand derived from a rock, in which the grains separate along their natural boundaries. This includes unconsolidated sand, or a soft sandstone where little pressure is required to separate the individual grains. Osberne.

natural scale. Applied to a drawing made to equal vertical and horizontal scales. Ham.

natural slope. The maximum angle at which loose material in a bank or spoil heap will stand without slipping. See also angle of repose; angle of slide. Nelson.

natural soft porcelain. A porcelain which has a varied composition as sand, niter, soda, sulfur, salt, and other materials. Standard, 1964.

natural splitting. In mine ventilation, a practice of providing a current of air to divide among the branches of its own accord and without regulation, in inverse relation to the resistance of each airway. Hartman, p. 127.

natural steel. a. Steel manufactured directly from iron and carbon. Fay. b. Steel in the condition left by a hot-working operation, and cooled in the open air. Fay.

natural stresses. Applicable originally to stream-lined carbons; currently applicable to any nonmammalian forms which is usually not an artificially modified. Long.

natural strata. See strain; true strain.

natural stress relief. The failure of the skin of the rock of an excavation by crushing, shearing, or plastic flow, surrounds that excavation with an envelope of rock under less than the preexisting stress. This action is called natural stress relief. It is the cause of all other rock failures. Can occur also on the surface rock with explosive force. Bureau of Mines Staff.

natural pressure. a. It is usual in mining to find that air returning from the workings to the surface via the upcast shaft is of a higher temperature than the air in the downcast shaft, which is caused mainly by the addition of heat to the ventilation current from the strata exposed in the mine. Thus, even in a mine with the fan stopped, the upcast air density is less than the downcast air density. This lack of balance in the two vertical air columns produces a pressure difference across the shaft bottom known as natural ventilating pressure. Roberts, 1. p. 160. b. The ventilating pressure which produces natural ventilation. B.S. 3610, 1963, sec. 2.

natural ventilation. The ventilation produced in a mine as a result of a difference in density of the air in the upcast and downcast shafts, brought about by natural causes. Natural ventilation is feeble, see also passive smoking. Nelson.

natural water. Water obtained from the seas, lakes, rivers, streams, canals, springs, wells, and ground waters which have dissolved some kind of impurity either from the air or from the rocks with which they have come into contact. Cooper, p. 35.


naujalkasite. A silvery white, greyish hydrous silicate of sodium, iron, and aluminum. 3[Na₂Fe]O₂·Al₂O₃·8SiO₂·H₂O. Aggregate of minute mica-like plates. Monoclinic, pseudohexagonal. From Naujakasik, Greenland. English.

namamite. A selenide of silver and lead, occurring in veins of copper minerals. Occurs granular, and in thin plates of iron black color and a brilliant metallic lustre. Fay.

natural measure. One nautical mile or knot equals 6,080 feet; 1.942410 m.; 1 nautical mile equals 1 league; and 60 nautical miles equal 1 degree (at the equator). Crispin.

nautical mile. Any of various units of distance, used for sea and air navigation, based on the length of a minute of arc of a great circle of the earth and differing because the earth is not a perfect sphere: (1) A British unit that equals 6,080 feet or 1,853.184 meters; also called Admiralty nautical mile. (2) A U.S. unit, no longer in official use, that equals 6,080.20 feet or 1,853.40 meters. An international unit that equals 6,076.1033 feet or 1,852 meters; used officially in the United States since July 1954. Webster 3d.

nautolith. A term of the nautolites: a shelled cephalopod having an external chambered shell either straight or variably curved or coiled, with simple -spta forming sutures that are simple in the shaft without marked flexures. A. G. I. Pertaining to the nautolites. Nautolites. In (A), (B) an international unit that equals 6,076.1033 feet or 1,852 meters; used officially in the United States since July 1954. Webster 3d.

natural pressure. a. It is usual in mining to find that air returning from the workings to the surface via the upcast shaft is of a higher temperature than the air in the downcast shaft, which is caused mainly by the addition of heat to the ventilation current from the strata exposed in the mine. Thus, even in a mine with the fan stopped, the upcast air density is less than the downcast air density. This lack of balance in the two vertical air columns produces a pressure difference across the shaft bottom known as natural ventilating pressure. Roberts, 1. p. 160. b. The ventilating pressure which produces natural ventilation. B.S. 3618, 1963, sec. 2.

naturale radiation. See background radiation.

nautite. A rare, weakly radioactive, hydrated vanadium pentoxide, V₂O₅·3H₂O. It is brown, dark, soft, and fibrous, with a high density. Cinnabarine minerals include covellite, hettewitte, tryaminite, ranwit, steigerite, and limonite. Navajoite is rare, occurring in a variety of patterns from hettewitte and covellite, which it resembles in physical appearance. Science, v. 119, March 1954, p. 326; Crosby, pp. 311-20. It is dark brown, soft, and fibrous, occurring in large cubical crystals, also asommtile. A selenide of silver and lead, occurring in veins of copper minerals. Occurs granular, and in thin plates of iron black color and a brilliant metallic lustre. Fay.

natural-gas oil. A gas which is controlled to give constant heat output with varying ambient temperature and humidity, and with varying butane gas pressure. The heat output is measured by means of a group of thermocouples in a chimney above the flame. The presence of methane in the atmosphere, which is controlled, is measured by means of a rotating chart calibrated in percentage methane. Roberts, 1. pp. 86-87.


near gravity material

popularity defined as the percentage of material in the raw coal within plus or minus 0.1 of the separating specific gravity. See also efficiency of separation. Arn.

neck. Near-clay. A clay or mud in which the clay is finer in texture than the sand and is generally a dark color. Arn.

neck material. Material approximating in size to the mesh aperture. B.S., 1962.

necks. Currents adjacent to and in conjunction with coastal areas. Hy.

neck water. See inshore water. Hy.

neon cement. Slurry containing no aggregate, such as sand or gravel. Long.


neolines. The excavation lines of a tunnel within which the rock removed is paid for at the agreed contract rate. See also overbreak. Nelson.


A.G.N. Such rocks are classed as nebulitic chorialites. Krieger.

neobedite. A type of mixed rock whose fabric is characterized by indistinct, streaky inhomogeneities (schlieren). They grade between the fabric units. The boundaries have more or less vague contours and show diffuse cloudlike interpenetration. Such rocks are called neobedites (neobedite phylites, ophthalmites, stromatites, merismites, etc.). They grade into actual neobedites, which show indistinct streaky inhomogeneity (schlieren). A.G.N.

neocanaries. A macropodous rodent of body or rock or mineral deposit in which no sharp boundary can be recognized between the two. The boundaries are not well defined and do not have clear contours. Nelson.

supercanaries. A macropodous rodent of body or rock or mineral deposit in which no sharp boundary can be recognized between the two. The boundaries have more or less vague contours and show diffuse cloudlike interpenetration. Such rocks are called neocanaries (neobedites, neobedite phylites, ophthalmites, stromatites, merismites, etc.). They grade into actual neocanaries, which show indistinct streaky inhomogeneity (schlieren). A.G.N.

Neocanaries. A common genus of hogsworms that have bevelled teeth resembling flat plates, that include internal parasites of man and various other mammals, and that are probably of African origin though first identified in North America. Compare Ancylostoma. Webster 3d.

neck. a. The narrow entrance to a room next to the entry, or a place where the room has been narrowed on account of poor support. Fay. b. A pipe of igneous rock has been narrowed on account of poor support to the entry, or a place where the room has been narrowed on account of poor support to the entry. Fay. c. In metallurgy, that part of a furrow which has a very small-diameter rollen between wide faces. Nichols.

earned. Pocketed, as when face bars are set into the coal adjacent to the roof. TIME. The neck of a glass bottle. See also frith neck-ag dams. Localized reduction in area of a neck. B.S. 1962.


eak. a. Elongated crystals, tapering at each end to a fine point, as those typical of martensite. Rolle. b. In powder metallurgy, metal powder particles of elongated form, resembling needles. A.G.N. c. An English term used for a special form of poling boards; they are sometimes made of iron or steel plate and may be as much as 10 feet long by 6 inches wide. Stenfer.


neak stone. Natrolite. A synonym for myosot-
type. Fay.

neak timber. Aust. Long sticks of timber, the lower end of which rests against the foot of a support, and which are kept in position, while the upper end is let into a hitch in the roof. Fay.

neekele ore. An acute pyroclastic variety of cannicere. Dana 1864, p. 225.

needle traverse. In survey with dial, use of magnetic needle to read bearing of lines. Opposite is fast needle traverse. Edgeworth, and refers to use of dial as in traversing with theodolite, where proximity of iron might deflect the needle. Systems can be combined, using needle readings where iron is absent. Also called swinging needle traverse; long needle traverse; fire needle traverse. Pryor, 2.

needle valve. A valve provided with a long tapering point in place of the ordinary valve disk. The tapering point permits fine graduation of the opening. Also called drip valve; needlepoint valve. Compare feed-control valve. Long.

needle weir. A fixed frame weir carrying heavy vertical timbers in contact. These can be withdrawn in order to lower the water level upstream of the weir. Ham.

neakele zoolline. Synonym for myosot-type. Fay. See needle stone.

neakling. To cut holes, notches, or ledges in a coal or rock surface to receive the ends of timber supports. Nelson.

neakling. A mixture of paraffins and a resin occurring on Cheleken Island in the Caspian. It is related to zetnikite. Fay.

negative. Carrying charge due to electrons; negative electrode; cathode. A negative element is acid-forming, its atom having 5, 6 or 7 valence electrons (one with 4 valence electron is ambivalent). The negative pole of a magnet is the one which turns toward the south. Pryor, 3.

negative crystal. A birefringent crystal in which the refractive index of the extraordinary ray is less than the refractive index of the ordinary ray. Fay.

negative element. a. Those which have shown a decided tendency to rise are designated positive elements and those which have tendency to sink are termed negative elements. A.G.N. b. Applied to a large structural feature in the earth's crust, characterized through a long geologic history of submergence and again rising when diastrophism takes place. A.G.N. c. A portion of the earth's crust which has been submerged and later raised, especially in the Caspian, where it is related to the Caspian depression. Stokes and Varner, 1935.

negative gradient. Describes conditions in a layer where the temperature decreases with increasing depth. H&G.

negative landforms. The capillary variety of a garnit. Fay.

needle ore. a. Same as akinite. A lead-copper-bismuth sulfide. Fay. b. Iron ore, of very low grade, found in small quantities, which may be separated in long slender filaments resembling needles. A.G.N. c. Coral. Fibrous aggregates of acicular crystals of goethite or hematite; Land's End District. Compare wood iron ore. Arkt.
negative moment. See hogging moment.

negative movements. Relative movements of the sea level, subsiding with regard to the land. Schiferdecker.

negative rake. a. Describes a tooth face in rotation whose cutting edge lags the surface of the tooth face. A.S.M. Glass, b. The orientation of a cutting tool in such a manner that the angle formed by the leading face of the tool and the surface behind the cutting edge is r.eater than 90°. Also called drag rake. Long.

negative temperature coefficient. See temperature coefficient. LDL.

negligence. In a legal sense, a failure upon the part of a mine operator to observe for the protection of the interests of the miner that degree of care, precaution, and vigilance which the circumstances justly demand, whereby the miner suffers injury. Ricketts, 1.


negro blossom. A dark clump of reef coral, often an erosion relic or hurricane-tossed reef coral, often an erosion relic or hurricane.

negroblued tayer. A tayer having on its end a cubic block which is built into the furcace. Also called negerhead tayer. Standard, 1964.

neighboring. A mineral, NaMg₄, orthorhombic and isosstructural with perovskite, occurs in dolomite rock at South Orray, Uintah County, Utah, as rounded grains and as octahedral crystals. Hey, M.M., 1961.

Neill-Robertson stretcher. One of several types of stretchers used for underground first aid. It is made of stout canvas with bamboo strips to support the patient's head, chest, abdomen, hips, and legs. On the back there are supporting ropes which end in loops at the head and feet, and the loops make convenient carrying handles. The stretcher is shaped in a way to accommodate casualties in highly inclined workings. M.C.A.dam, 1964, p. 104.

neodur. A dimorphous triclinic form of Ca₂O·Si₂O₄·2H₂O, applied to the okienite from Creemore, Calif., which differs in optical and X-ray data from okienite from other localities. Spencer, 21, M.M., 1958. Its formula is probably CaO·6Si₂O₇·8H₂O. Mineralogical Magazine, v. 33, No. 256, March 1962, p. 70.

Nekona. In Japan, straw mats specially woven and used for catching gold in the sluices. Fay.

neck. A biological division made up of all the organs which may have been deposited from so-called organic debris deposited among rhyolites and basalts with which, according to the succession formulated by von Kossak, the invention of pottery is closely related. Webster 3d.


neodyblastic. a. Pertaining to the texture of a recrystallized rock in which the shape of the grains is thard. Pettijohn, 24, 1957, p. 92. b. Applied to a fibrous type of schistosity that is seen in rocks composed largely of such minerals as glaucophane and actinolite. A.G.I.


neoecos. The later of the two epochs into which the Tertiary period was formerly divided and at one time used by many geologists. Also, the series of strata deposited during this epoch. Obsolote. Fay.

neoelastosil. Anhydrous copper silicate. Crystallization, monoclinic, in microscopic tables as a blue sublimable on lave. Weed, 1918.

neokomius. Of or pertaining to the lower part of the Cretaceous epoch. Standard, 1964.

neocryptorok. Late Precambrian. A.G.I. 1918.


neodymium. A metallic element and member of the rare earth group, occurring in combination with cerium, lanthanum, and other rare earth elements. A white to yellowish and it tarnishes quickly in air. Symbol, Nd; valence, 3; atomic number, 60; and atomic weight, 144. C.C.D. 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-121. b. Two allotrophic forms: Alpha neodymium, hexagonal up to transition temperature about 1,800° C; and beta neodymium, isometric from 868° C to melting point; specific gravity, 7.048 (hexagonal); and 6.80 (isometric); melting point, 1,024° C; boiling point, 3,072° C; and decomposes in cold water. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-196.

neodymium oxide; neodymla. Molecular weight, 336.48; light blue to blue-gray; Nd₂O₃; hexagonal; and melting point, about 1,900° C. Technical grade is a hexagonal plate. Grades: 65 percent, 75 percent, 85 percent, 95 percent, and 99 percent oxide. Fluorescent; specific gravity, 6.80; insoluble in water; soluble in acids; hygroscopic; and it absorbs carbon dioxide from the air. Used in ceramic capacitors and in glass capacitors. C.C.D. 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-196.

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neogae. A alloy resembling silver and containing 58 parts copper, 27 parts zinc, 2 parts tin, 12 parts nickel, 1/2 part bismuth, and 1/2 part aluminum. Standard, 1964.

neogene. The latter of the two periods into which the Cenozoic era is divided in the classification adopted by the International Geological Congress and used by many European geologists. Also, the system of the Jurassic system of strata. Standard, 1964. b. The upper part of the Jurassic system of strata, including the Middle and Upper Jurassic stages. Also, the corresponding interval of geologic time. Standard, 1964.


neokerogen. Organic debris deposited among montmorillonite and modified by bacterial action or by wave action as to form the material of petroleum, or under certain conditions, to form oil of the oil shales. Tantleff, 1954.


neolithic. Of, brine, relating to the last period of the Stone Age following the Mesolithic and characterized by the use of polished stone implements, the art of grinding stone, horn, bone, and ivory tools with sandstone, potter- tesy, making the use of bow and arrow, domestication of animals, the cultivation of grain and fruit trees, the invention of the wheel, linen weaving, and the be- rinning of settled village life. Webster 3d.

neokon. A name used by Clarence Ford for an order of the wheel. Tarboton, 1964.

neokryptorok. Late Precambrian. A.G.I. 1918.


neosemilus. In mineralogy, fibrous or threadlike; said of structure. Standard, 1964.

neumolite. A rock composed essentially of ilmenite and apatite, with or without rutile. The dominant mineral may be either ilmenite or apatite, although ilme- nite is usually the more important. J.ox- ham, 1, 2d, 1939, p. 268.

neophytes. a. Pertaining to the texture of a recrystallized rock in which the shape of the grains is threadlike. Pettijohn, 2d, 1957, p. 92. b. Applied to a fibrous type of schistosity that is seen in rocks composed largely of such minerals as glaucophane and actinolite. A.G.I.


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Neo-Pakoaok. The later portion of Neozeok. Of, relating to, or constituting the nepheline; nephelinite. A mineral in epbeline syenian nephelite. Bericky's term, now used in voltage gen. Occurs in the atmosphere As 1 part 1.204 erly said of some igneous rocks, but now erupted during the Cenozoic era; forms could produce a potentially dangerous nephelinite, and of the latter, nepheline as an essential constituent. 13y some petrologists, the term is restricted to those line as an essential constituent. 13y some petrologists, the term is restricted to those line as an essential constituent.

nepheline; nephelite. A mineral found in igneous rocks and used at times, instead of feldspar in the glass industry, (Na,K)AlSi3O8; hexagonal and has a greasy luster. Dana 17.
nepheline basalt; nephelite basalt. A general name for any basic lava carrying nephelite as an essential constituent. By some petrologists, the term is restricted to those nepheline basalts which carry olivine but no feldspar. A more accurate name for the latter is olivine nephelite. See also nepheline; basanite; tephrite. C.T.D.
nepheline aegirine. A gray, somewhat coarse-grained, granular rock composed of pyroxene, plagioclase, nepheline, and magnetite; a feldspathic nepheline tephrite. Fay.
nepheline. A fine-grained igneous rock composed of pyroxene, plagioclase, nepheline, and magnetite; a feldspathic nepheline tephrite. C.T.D.

nepheline tephrite. Beircky's term, now used in microscopic work for nepheline glass, or the glassy basalt in nepheline rocks, whose easy gelatinization indicates the close resemblance of this mineral; unindividualized nepheline. Fay.

nepheline tephritoid phlogopite. A general term for phlogopites which, when compared with mica, are more abundant than feldspars. Holmes, 1928.
nephelolite. The process of introduction of an impurity of nepheline. A.G.I.
nephelite. See nepheline.
nephelometer. An instrument which measures the scattering of light by determining the amount of light emitted at right angles to the original beam direction. Such devices are useful in studies of particles (size and amount) suspended in water.
nephelometry. The measurement of concentration or other property of a suspension by the measurement of light transmission or light dispersion. Lesevich.
nephrite. A coarse, compact variety of tremolite-actinolite. It resembles much of the material known as jade. Monoclinic. Dana:*, p. 445. See also jade.
nephrite powder. An explosive resembling dynamite No. 2, and consisting of microgelenite with a more or less explosive dope. Fay.
nepthian. An early term applied to water-formed strata opposed to plutonic or igneous rocks. Fay.
nepthian dikes. Dikes filled by sediment, generally sand, in contrast to plutonic dikes filled by volcanic materials. Pettijohn.
nepthite theory. A general theory of nepheline origin of rocks proposed by Werner in the 18th century. A.G.I.
nepthite. Denotes one of the three great subdivisions of rocks after a classification proposed by Read. The term includes the sedimentary rocks. A.G.I.
nepthite. The theory that the rocks of the earth's crust were formed through the agency of water. Obsolete. A.G.I.
nepthites and Polppites. Several geological schools at close of eighteenth century. The Neptunists, led by Werner, believed that all rock types were hydrospheric. The Plutonists, following Hutton, attributed them to lava flows and volcanoes. The position of the earth was clarified by Lyell in 1830, Pryor, 3.
nepthites. A titanite-silicate of iron, manganese, aluminum, and potassium, (Na,Fe)3(Al,Si)2O10; monoclinic; black; prismatic crystals. Found in Narassuk, Greenland; San Benito County, California; Reina Peninsula, Russian Lapland. Eng.
nepthium. A silvery metallic element in group VI of the periodic system. Produced artificially by nuclear reaction between uranium and neutrons. Symbol, Np; valence: 4, 6, 2; atomic number: 93; and the mass number of the most stable isotope, 237. Three allotropic forms: Alpha, 1st born, 275° C; orthorhombic; Beta, 276° C; tetragonal; and Gamma, 277° C; tetragonal. Specific gravity, alpha nortneption, 20.45; beta nortneptin, 19.36 (at 11° C); and gamma nortneptin, 19.8 (at 600° C). Melting point, 630° C; and solubility in hydrochloric acid. Handbook of Chemistry and Physics, 45th ed., 1964, pp. B-122, B-197.
nepthium disintegration series. A series of nuclides resulting from the decay of neptunium, a. The series of nuclides resulting from the decay of the long-lived (half-life, 2.2 X 1019 years) synthetic nuclide, neptunium 237. Many nuclides of normal half-life and more abundant than feldspars. Holmes, 1928.
næskeounite

white. From a coal mine at Nesquehoning, Carbon, Pa. Fay.

nest. A cave, headland, or promontory most commonly used as a ter nination, as in the Forest of Dean. Fay.

nest. a. A small isolated mass of ore or mineral within another formation. Web.

nest. b. A group of miner-like size casing inside the casing already set in a borehole. Long. e. To fit one tube inside another. Long. d. A cushion upon which slate is placed to be cut with a diamond. C.T.D. e. An arrangement comprising a graduated series of sieves. Bureau of Mines Staff.

nester crater. A central volcanic vent showing a crater within a crater. Fay.

nestle, Forest of Dean. Iron ore that occurs in pockets is called nestle-weise. Fay.

net. a. Wires woven into cloth. Fay.

net. b. Strapping used for lowering or raising horses in shafts. Fay.

net. c. A network of veins. A not too irregular system of veins intersecting in different directions. Fay.


net. f. A central volcanic vent showing a crater within a crater. Fay.

net calorific value (at constant pressure). The number of heat units which would be liberated if unit quantity of coal or coke was burned in oxygen at constant pressure in such a way that the heat released was equal to the gross calorific value of the coal or coke at constant pressure, less the latent heat of evaporation at 25° C and constant pressure of the water both originally contained in the coal or coke and formed by its combustion. B.S. 1016, 1961, Pt. 18.

net calorific value (at constant volume). The number of heat units which would be liberated if unit quantity of coal or coke was burned in oxygen and nitrogen at a constant temperature in such a way that the heat released was equal to the gross calorific value of the coal or coke at constant volume, less the latent heat of evaporation at 25° C and constant volume of the water both originally contained in the coal or coke and formed by its combustion. B.S. 1016, 1961, Pt. 16.


net cut. a. In sidellik work, the cut required less the fill required at a particular station or part of a road. Nichols. b. The amount of excavated material to be removed from a road section, after completing fills in that section. Nichols.

net drilling time. The rotating time actually spent in raising the corehole. Long.

net fill. a. The fill required, less the cut required, at a particular station or part of a road. Nichols. b. The yardage of fill required at any station, less the yards of material obtained from the breaker station. Nichols.

net heat of combustion. See net calorific value. A.G.I.

nether. a. The lower part of, as in nether roof. The earth's surface such as granite. Standard, 1912. b. The total slip along a fault; the slip or net slip is the shortest distance measured on the fault surface or zone, of a specified wall relative to another. Netfill. The roof of the coal seam. The props set at the face and formed by its combustion. B.S. 1016, 1961, Pt. 16.

nether strata. The roof and strata immediately above the coal. Mason.

net masonry. Masonry formed of small square bricks or blocks placed diagonally in a lozenge pattern; reticulated masonry. Standard, 1964.

net plankton. Those plankton which can be removed from the water by filtration through a fine net. HBG.

net slip. The total slip along a fault; the distance measured in the fault plane between the two formerly adjacent points situated on opposite walls of the fault. It is the former distance measured in the fault plane between the two formerly adjacent points. The slip or net slip is a vector quantity defining the direction and distance of movement, parallel to a fault surface or zone, of a specified wall relative to another. Netfill. A large tree-fern of the coal forest, with trunks about 2 feet thick, containing several cylinders of wood inside the stem instead of one column of wood as in modern trees. Nelson.

Netherlands. A plough consisting of a 2-inch steel plate 6 feet by 20 inches of 7 pieces hinged together to follow floor rollers. Fay.

network. A system of veins striking in different directions. Fay.

neutral flame. A gas flame in which there is no excess of either fuel or oxygen. ASTM Gloss.

neutral. Of slags, neither acid nor basic; of iron ores, suitable for the production of neutral iron. Fay.

neutral atmosphere. One in which there is neither an excess nor a deficiency of oxygen. Bureau of Mines Staff.

neutral axis. The line of zero fiber stress in any given section of a member subject to bending; it is the line formed by the intersection of the neutral surface and the section. Re.


neutral density. See normal density. Sibley, 1.


neutral depth. See normal density. Sibley, 1.
neutral flame 747

new diamond
used. Also called new stone; virgin diamond.

Nickel-ammomium sulfate
Nickel's technique. A technique used in the determination of elastic constants of rocks in situ. Longitudinal and shear waves are generated in rock by small explosive charges in shallow drill holes. Accelerometers, meters and strain gages are used to measure arrival times for both waves. From wave velocities and measured density, Poisson's ratio, modulus of elasticity, modulus of rigidity, Lame's constant and bulk modulus can be calculated. Lewis, p. 368.

Nickelinite. A variety of aragonite containing up to 10 percent zinc. From Leadville, Colo.; Tintic District, Utah; magnificent specimens at Tumeb, Southwest Africa. English.

Nickelstone. Registered trademark used in respect of a range of heat- and oxidation-resistant alloys (not necessarily nickel and chromium) produced by the Driver Harris organization. C.T.D.

nick. a. To make a perpendicular cut, with the pilk, in the face of (coal) at the junction with the rib, with resistance to the blast or wedge; to shear. Standard, 1964. See nicking. B. To cut vertically in the coal. SMR, Paper 61.

nickel. Hard; malleable; ductile; silvery-white metallic element of group 8 of the periodic system; capable of taking a high polish; resistant to oxidation; and attacked by many acids. Used in electrical, mechanical and tooling industries and in coinage. Symbol, Ni; valences, 0, 1, 2, and 3; isometric; atomic number, 28; atomic weight, 58.97; specific gravity, 8.85 (at 20°C). C.T.D.: Handbook of Chemistry and Physics, 45th ed., 1964, p. B-11.

nickel alloys. Nickel is the main constituent in Monel metal, Permalloy, and nickel-chromium alloys. It is also used in cupronickel, nickel silver, various types of steel and cast iron, brass, bronze, and gun metal.
sulfate hexahydrate; ammonium-nickel sulfate; ammonium-nickel sulfate hexahydrate; nickel salt, double; nickel salts, double. Dark blue-green; NiSO₄(·2H₂O), molecular weight, 280.88; specific gravity, 2.90; insoluble in water, or to increase the core strength to be performed in oil or air instead of water, or to increase the core strength to be performed in oil or air instead of water. 6.6 to 6.8. NiO absorbs oxygen at 400° C forming NiO which is reduced to NiO at 600° C. Used in nickel salts and in nickel oxide (NiO) used in glazes to produce green ceramic colors. CCD 61, 1961. b. Isometric; green to black; molecular weight, 147.1; melting point, 1,990° C; and specific gravity, 6.07. Used for painting or china. Bennett 22, 1962; Handbook of Chemistry and Physics, 45th ed., 1964, p. B199. Used in nickel dip solutions and is more economical to use than double nickel salt(s). Hansen. c. Used in nickel plating, in blackening zinc and brass, and in ceramics. CCD 61, 1961.

nickel carbonate, basic. a. Used in electroplating, in the preparation of nickel catalysts, and as an ingredient in ceramic colors and in glazes. CCD 6d. 1961. b. Applied to two different compounds: (1) Light blue; NiCO₃·2H₂O; molar weight, 857.67; decomposes on heating; insoluble in hot water; and soluble in acids in ammonium salt solutions; and (2) emerald green; Ni₂CO₃(OH)·4H₂O; molar weight, 376.23; specific gravity, 2.6; insoluble in hot water and in cold water; and soluble in hot dilute hydrochloric acid and in ammonium hydroxide. Handbook of Chemistry and Physics, 45th ed., 1964, p. B122. Nickel ocher. An easy name for anagabergite. Fay.

nickel carbonate. Lee.

nickel carbonate, green; green nickel carbonate; bassemik. a. Of, pertaining to, or containing nickel in the trivalent state; for example, nickel nitrate (Ni(NO₃)₂). Webster 3d.

nickeliferous. Containing nickel. Fay.

nickel. Of, pertaining to, or containing nickel in the trivalent state; for example, nickel nitrate (Ni(NO₃)₂). Webster 3d.


nickel molybdenum iron. A class of alloys containing (90 to 40 percent molybdenum) and up to 60 percent nickel and found in a small amount of carbon. Such alloys are much used on account of high acid resistance. Crispin. Nickel nitrate. Green; deliquescent; monoclinic; Ni(NO₃)₂·6H₂O; molecular weight, 329.81; specific gravity, 2.065; melting point, 56.7° C; boiling point, 136.7° C; and soluble in water, in ammonium hydroxide, and in alcohol. Used in nickel plating, in the preparation of nickel catalysts, and in the manufacture of brown ceramic colors. CCD 61, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B199. Solu-

crystallized nickel sulfate hexahydrate; nickel salt, single; nickel salts, single; momoreenette. A. Green; orthorhombic; NiSO₄·7H₂O; molecular weight, 211.0; at 103° C; and soluble in water and in alcohol. Handbook of Chemistry and Physics, 45th ed., 1964, p. B198. Used in nickel dip solutions and is more economical to use than nickel sulfate (Ha). Hansen. c. Used in nickel plating, in blackening zinc and brass, and in ceramics. CCD 61, 1961.


nickel oxide; nickel monoxide; nickel protioxide; green nickel oxide; bassemik. a. Of, pertaining to, or containing nickel in the bivalent state; for example, nickel oxide (NiO) used in enamel. Webster 2d.

nickel oxides; nickel oxides; nickel oxide; bassemik. a. Of, pertaining to, or containing nickel in the trivalent state; for example, nickel nitrate (Ni(NO₃)₂). Webster 3d.


nickel-antimony glance. Sulfantimonide of nickel, crystallizing in the cubic system. Also called ulmominite. C.M.D.

nickel bloom. Hydrated and oxidized patina on outcropping rocks indicating existence of primary nickel minerals. Called nickel indicators, they are green carbonate (emerald color), sulfate (apple-green) or arsenic (apple-green). Pryor, J.

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slimes are washed. Fay.

nickled. Composite sheets, made by rolling together metal and mild steel to obtain the corrosion resistance of nickel with the strength of steel. C.T.D.


Mello silver. A bluish composition of silver, containing nickel (18 percent), iron, zinc, etc. (Zn,Mg,Fe')(Sn, P, S)04, previously thought to be PtTe. American Mineralogist, v. 39, No. 7-8, July-August 1954, p. 691. Probably PtFe. American Mineralogist v. 40, No. 7-8, July-August 1955, p. 695.


nickleite classification. A classification of rocks on the basis of their chemical composition, similar in some respects to the norm system. A.C. Mining, H. pumps; impellers and balls in ball mill. J. Sup., 3.

night shift. The coal miners' shift from about 10:30 p.m. to 6 a.m. It may be a coal-winning shift, but in general it is a preparation shift. Nelson.

digite. A. American. Fay.
digite. A. American diagram. Fay.
digite. A. American diagram. Fay.
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nitrogen narcosis. A nonmetallic element in group V of the periodic system; atomic number, 7; odorless; chemically relatively inert; and a diatomic gas (N2). It constitutes about 78 percent by volume and 75.5 percent by weight of the atmosphere. It occurs combined as nitrates, as ammonium salts, in the soil, and in all living matter. The gas is obtained from liquid air. Used in gas-filled electric lamps and large quantities are fixed by various methods. Symbol, N; valences, 1 and 3; atomic number, 7; atomic weight, 14.0067; density, 1.2506 grams per liter; molecular weight, 28.015; boiling point, -298°F (at 76.1 mm) ; soluble in water; and slightly soluble in alcohol. Constitutes 78 percent by weight of the air, by volume. Obtained from liquid air by fractional distillation. Used in the production of ammonia and other nitrogen compounds, as a blanketing medium in the electronics industry, as a refrigerant, and for forcing crude oil from oil wells. C.T.D.; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-123, B-129. nitrogen, available. See available nitrogen. Bennett, 2d, 1962. nitrogen base. The compound of carbon, hydrogen and nitrogen that is generally present in crude oil obtained in California. Shell Oil Co. nitrogen case hardening. See nitriding. C.T.D. nitrogen dioxide. This reddish-brown gas is considered the most dangerous of mine gases and is produced by the incomplete detonation of some explosives. It is very irritating to the air passages; a few hours after exposure bronchitis develops and is fatal if the concentration of the gas was high. It can be detected by paper soaked in a solution of potassium iodide and starch blue, which it turns blue by liberating iodine. Lewis, p. 696. See also nitrogen peroxide. Bennett, 2d, 1962. nitrogen dioxide indicator. Nitrogen dioxide detectors provide a field method for determining the concentration of nitrogen oxides, while automatic indicators and recorders provide continuous monitoring of combustion gases and of operations involving its use as an oxidizer. The detector comes in a kit which includes syringes, needles, solution bottles, and color chart. Detection is by comparison of air samples, treated with a reagent, with the standard color chart representing known gases and elements. The automatic type is based on an electrochemical reaction of the gas sample with a sensing solution. Bezi's, p. 356. nitrogen fixation. Applied to methods of abstracting nitrogen from the air in commercial quantities and fixing it in some comparatively inexpensive and stable form so that it can be used in either agricultural or industrial operations. Bennett, 1957. nitrogen hardening. See nitriding. Nelson. nitrogenite. To combine with nitrogen, or to introduce nitrogen into. Linn, p. 532. nitrogen narcosis. Like most inert gases, nitrogen in air or nitrogen-argon mixtures breathed at high ambient pressure can de-
nitroglycerin; nitrogen trioxide; nitrogen pentoxide. Nitroglycerin powders.

(relevant mental, impact, judgement, and produce poor muscle coordination in a manner similar to that produced by chronic intoxication. The narcotic effect is related to the partial pressure of inspired nitrogen. It is therefore a function of depth of diving and the percentage of nitrogen in the inspired gas. Nitrogen narcosis is not in itself harmful, but when air (80 percent nitrogen) is breathed as open-circuit scuba equipment at depths below about 60 to 80 feet, the resulting impaired judgment and coordination begins to interfere with the diver's performance and predispose him to accidents. The narcotic effects increase progressively with depth until at about 280 to 300 feet even routine effects dispose him to accidents. The narcotic effects are more closely related to the partial pressure of nitrogen than to the actual depth reached.

nitrogen pentoxide: nitrogen dioxide; nitrogen peroxide; nitrogen tetroxide. C; soluble in water to give nitric acid. Specific gravity, 1.491; melting point, 30° C; soluble in water. Bennett 2d, 1962.

nitrogen tetroxide: nitrogen dioxide; molecular weight, 46.01 (or 92.02); colorless solid or liquid, N2O3; molecular weight, 152.06; colorless or yellow; specific gravity, 1.918 (at 20° C, referred to water at 4° C); melting point, -22.3° C, boiling point, 197° ± 3° C (at 760 mm); insoluble in water; soluble in alcohol; and very soluble in alkalies. Used as an explosive. Bennett 2d, 1962; Handbook of Chemistry and Physics, 45th ed., 1964, p. C-309.

nitroglycerin: 1-nitroglycerin. Yellow needles; HNC(NH)NO; molecular weight, 104.07; melting point, 246° C; slightly soluble in water and in alcohol; and very soluble in alkalies. Used in explosives and in smokeless powders. CCD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. C-344. nitrolite. An excellent and cheap explosive in powder form, consisting of the constituents, ammonium nitrate + trotyl + nitroglycerin + silicon. This quality is sensitive to moisture owing to the high ammonium nitrate content. Frankel, v. 3, Art. 16.02, p. 27.

nitramine. A hydrous magnesium nitrate, Mg(NO3)2; molecular weight, 120.31; melting point, 102° C; soluble in water. Bennett 2d, 1962.

nitroglycerin: trinitrate glycerol; trinitrin; explosive oil. CH3(NO3)CH2(OH)Cl; pale yellow; flammable; explosive: thick liquid; soluble in alcohol; soluble in ether in all proportions; slightly soluble in water; melting point 100° C; and melting point, 256° C. Used as an explosive, in the production of dynamite and other explosives, as a plastic explosive for use in solid rocket propellant, and as a possible liquid rocket propellant. Molecular weight, 227.09; tri-}
The chemical properties of element 102 are unknown, but like the other elements of the actinide series, the properties of this very short-lived element may resemble those of the rare earth metals. The three known isotopes of mass numbers 254, 255, and 256 have half-lives of about 10 minutes, 3 seconds, and 15 seconds, respectively.

2. Noble metal(s). A metal whose potential is more positive than that of copper. 
3. Noblestone. Same as precious stone. 
4. Nodular powder. In powder metallurgy, irregularly shaped, highly condensed, round, nodular, or rounded particles. 
5. Nodules. A rounded mineral accretion built up by the action of fine coal of a gyratory, rotary or oscillatory motion, without the use of pressure. 
7. Nomograph. A chart or set of scales used to represent one of the variables in an equation. 
8. Nomogram. A simple diagram for representing the approximate tonnage expected to be supplied to the plant during the hour of greatest load. B.S. 3552, 1962.

**Nonahelium**

*Nonahelium* pyrobituminescence. A series of short-lived element that is used for its half-life of 30 minutes. It is a member of the actinide series, the properties of which are generally similar to those of other elements in the same group. In its ground state, nonahelium has an atomic number of 82 and an atomic weight of 208. It is a soft, silvery metal that is highly reactive with other elements. Nonahelium is primarily used in the production of high-energy electrons and in the study of fundamental processes in atomic physics.

**Nonahelium in mineralogy**

Nonahelium is used in mineralogy to express superior properties of a mineral or rock. For example, a mineral with a higher nonahelium content may be more resistant to weathering or have a higher density. Nonahelium is also used in the study of the composition and structure of minerals and rocks, and in the dating of geological formations.

**Nonahelium in geology**

Nonahelium is used in geology to express the age of a rock or mineral. For example, a rock with a higher nonahelium content may be older than another rock with a lower content. Nonahelium is also used in the study of the history of the Earth and its atmosphere.

**Nonahelium in chemistry**

Nonahelium is used in chemistry to express the reactivity of a substance. For example, a substance with a higher nonahelium content may be more reactive than another substance with a lower content. Nonahelium is also used in the study of the properties and behavior of molecules and chemical reactions.

**Nonahelium in medicine**

Nonahelium is used in medicine to express the biological activity of a substance. For example, a substance with a higher nonahelium content may be more biologically active than another substance with a lower content. Nonahelium is also used in the study of the biology of organisms and the effects of substances on living systems.
nonemergents. Algae and sea grasses which are not exposed at lowest low water or chart datum. *p. 754.

nonemergent. With orthochloric pyro- tome. The name was given by Lepeus. *p. 754.

nonemerging slate. Slate in which color is virtually unchanged even after many years of exposure. *AIME p 779.

nonferrous. Metals and compounds not contain- ing appreciable quantities of iron; ores not worked primarily for their iron content. *Pryor, p. 3.

nonferrous alloy. Specifically, an alloy containing no iron. Generically, any alloy that has as its base any element other than iron. Common commercial nonferrous alloys are hard upon aluminum, copper, lead, magnesium, nickel, tin, and zinc. *Henderson.

nonferrous metalurgy. That branch of metal- lurgy which deals with the broad field of metals other than iron, or alloys other than of iron base, as distinguished from ferrous metalurgy. *Henderson.

nonferrous metals. Metals other than iron and its alloys in which normally applied to base metals, such as copper and lead. *AGI.

nonfreezing explosives. Explosives to which have been added. This acts as a freezing-point depres- sant, and prevents freezing at ordinary temperatures. Polar or Arctic explo- sives are nitroglycerin explosives of this type. *Higham, p. 247.

nonfreezing. Materials that cannot be frozen at ordinary temperature. *P. 22.

nonflowing well. A well that does not dis- charge water at the surface except through the operation of a pump or other lifting device. *Stokes and Varnes, 1955.

nonfreezing explosives. Explosives to which 15 to 20 percent of nitroethylen glycol has been added. This acts as a freezing-point depressant, and prevents freezing at ordinary temperatures. Polar or Arctic explo- sives are nitroglycerin explosives of this type. *Higham, p. 247.

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nonflourineated sediments. a. In geology, detrital zones in a borehole where a core borehole is ejected as sludge. Used mostly during the drilling of oil and gas wells. *Kaufmann.

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nonstoichiometric. A chemical compound is nonstoichiometric if the ratio of its constituents differs from that demanded by the chemical formula. This may happen with oxides that are readily reducible, or with compounds containing an element of variable valency, or when interstitial atoms play a part in the lattice. Nonstoichiometric ceramics are of interest as being nonconducting.

nonslip floor. In concrete work, a floor surfacing which is impregnated with iron fillings or Carborundum powder to roughen its surface. Long. a. A rock unit that is nonweathering coal. Coal having a water-soluble bituminous content equal to or exceeding 1 percent by volume (usually over 3 percent). Nonuniform flow. A flow in which the velocity changes. If the flow is constant it is referred to as uniform flow.

nonslip cable. A wire or fiber cable so constructed as to deliver the coal in a mixed state rather than having the large lumps tend to be dropped and separated from the fine.

nonslip valve. See check valve.

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normal arc

normal arc. A term specifically intended to differentiate between the arcs that are described in connection with the low-pressure "skittering arcs" Bulletin Bull. 625, 1963, p. 717.

normal beach ridge. A ridge having its base well below low tide level, along medium to high energy shores. Schieferdecker.

normal color. The quantity of heat required to raise 1 gram of water from 15.5° to 15.7° C. Newton, p. 122.

normal corrosion. When used in connection with galvanic corrosion it may refer to corrosion of the anodic metal when there is no contact with the dissimilar metal. Bulletin Bull. 619, 1964, p. 206.

normal depth. The depth of water in an open conduit that corresponds to uniform velocity for the given flow. It is a hypothetical depth under conditions of steady non-uniform flow: the depth for which the surface and bed-parallel velocity, also termed the neutral depth. Seeley, I.

normal dip. The regional or general inclination of strata. This dip may be distinguished from the marine, eroding agencies, as contrasted to local dip due to the presence of local structures. A.G.I.

normal displacement. Used by Tolman to denote dip slip, A.G.I.

normal erosion. The subaerial, as distinguished from the subaqueous, erosion agencies, are divided into two groups, normal and special, and it is by the normal group, running water and the actions of running water, that the shaping of the land surface is mainly effected. Chalmor.

normal fault. A fault at which the hanging wall has been depressed, relative to the footwall. A.G.I.

normal field. In magnetic prospecting, the smoothest value of a magnetic field component as derived from a large scale survey, world-wide or of continental scope. The normal field of the earth varies slowly with time, and maps of it are as of a certain date. A.G.I.

normal flow. An anticline, or syncline, with normal dip. Seeley, 1.

normal fold. The horizontal component of the stress in a rock mass which acts perpendicular to the lode plane or any other plane parallel to it. A.G.I.

normal fracture. A fracture at right angles to the direction of stress. A.G.I.

normal ground. A zone of ground water which is included in the course of excavation, so that no separate charge is made for it. Nichols.

normal heat. A rate of interest on the money laid out equal to the prevailing rate paid on sound securities or on savings deposits. A.G.I.

normalized steel. Steel that has been given a normalizing heat treatment intended to bring all of a lot of samples under consideration into the same condition. Fay.

normalizing conveyor. A conveyor which moves material through a normalizing furnace under heat. ASTM A253-1958.

normal lime. One which is right side up; the overturned, inverted, or reversed limb, which has been rotated through more than 90° to attain its present position. McKinstry, p. 641.

normalized consolidated soil deposit. A soil deposit which has never been subjected to an effective pressure greater than the existing overburden pressure and one that is also considered to be undisturbed by the existing overburden. ACSE P1266.

normal mineral. A mineral which is firmly mounted on the rope, but leaves it while still running to run on to a shunt tail for unloading and loading. Individual loads are about 1 ton and total capacity 100 tons per hour or more. See also bricke. Nelson.

normal order of crystallization. A term which perpetuates a misconception. Generally there is no applicable order of crystallization, but for any particular rock the study of thin sections enables the observer to deduce the order in which the minerals finished crystallizing. The order in many rocks is: accessories, mafic minerals in the order olivine, orthopyroxene, clinopyroxene, amphibole, micas, and secondary minerals, quartz and pyrite; but there are many exceptions. C.T.D.

normal pressure; standard pressure. Usually equal to the weight of a column of mercury 760 millimeters in height. Webster 3d. Approximately 14.7 pounds per square inch. Fay.

normal price. As applied to metal prices, it is the average price paid on sound securities or on savings deposits for the given flow, it is a hypothetical price, Fay.

normal pyroxene. A mineral of the general formula 

normal shift. The horizontal component of the stress to a given plane. ASCE P1826. See also stress.

normal stress. The stress component normal to a given plane. ASCE P1826.

normal uranium. See uranium, natural.

normal water. The standard used in determining chlorinity. It is prepared by the Hydrographical Laboratories in Copenhagen, Denmark. Chlorinity of this water is adjusted to approximately 10.4 [per thousand] and accurately determined by analysis.

normal winter. Refers to normal ice season, that is, the average ice conditions based on a number of recorded winters in a given area.

normal year. A year of normal or average water supply. Seeley, 1.

normal cubic. Those whose normal dimensions are 2 1/2 x 4 x 12 inches. ACGS, 1963.

Norman slabs. A type of glass for stained windows; it is made by blowing into square section and cutting slabs of glass from the four sides. Dodd.

normative. In petrology, characteristic of, pertaining to, agreeing with, or occurring in the norm; used in the quantitative or norm system of classification of igneous rocks, a normative mode being one which is essentially the same as the norm. Fay.


normative mode. A mode which is so nearly the same as the standard mineral composition calculated from the rock that either may be used to classify the rock correctly. Schieferdecker.

norm system. A system of classification and nomenclature for igneous rocks based on the norm of each rock. Only undecomposed rocks of which accurate chemical analyses are available are classifiable, in this system, which consequently is more used in detailed petrologic studies than in ordinary geologic or mining work. The system was devised by Cross, Iddings, Pirsson, and Washington, and by them originally designated the quantitative system, and later the C.I.P.W. system, which has also been referred to as the American system. Fay.


Norsk-Stal process. A process for the direct production of iron from carbon monoxide and hydrogen is used as the reducing agent. The equipment consists of three vertical stages, in which heat is added, reducing and cooling the charge, and apparatus for regenerating the spent gases. The ore is contained in a series of muffle trays,
Norsk-Staal process

Each trial holding about 3 tons of ore. These trials pass through the preheating oven, over the ore is heated to 1000°C, and are then transferred to the reducing oven, where they are raised slowly through the tuyeres and downward gas current, then transferred to the cooling shafts and slowly lowered down it. The transfer of a trial from one oven to another is possible at contact with air. The ore is preheated in the first oven by part of the gases from the reduction oven, and the carbon is cooled in the third oven to 500° by cold gases from a gas holder. Oslohke. Northampton sand ironstone. Eng. An important stratified iron ore deposit in the east Midlands and forms the feature known as the Oolite Cliff. It occurs at the base of the lower Oolites. The ore bvez sinks from 12 to 25 feet, of which only 6 to 14 feet are worked. The iron content is between 28 and 34 percent as quired. Nelson.

North end. York. The rise side of the coal in the Northumberland coalfield. A.N.I.

Northumberland sand ironstone. Eng. An important stratified iron ore deposit in the east Midlands and forms the feature known as the Oolite Cliff. It occurs at the base of the lower Oolites. The ore beds sink from 12 to 25 feet, of which only 6 to 14 feet are worked. The iron content is between 28 and 34 percent as required. Nelson.

Northfield. An obsolete name for a quartz-muscovite pegmatite. A.G.I.


Northern dust filter. A device for trapping the dust during the extraction ventilation of a shaft. The filter unit is attached to the discharge end of the ducting and contains 67 fabric sleeves or bags, giving an approximate total surface area of 20 ft² per foot of shaft. The sleeves are attached at their upper ends to a shaking mechanism. The dust collected in the bags can be removed from the filter by gravity. Developed by the Central Engineering Establishment in collaboration with the Mining Research Establishment of the National Coal Board, Great Britain.


Northwardly. A stratum is said to nose in... Standard, 1964.


Notch. In a cylindrical test specimen, the notch is defined as the ratio of one-half the width of the narrowest cross section, the acuity may be expressed as the ratio of the notch depth to the notch radius. ASM Gloss. Notch: The distance from the surface of a test specimen to the bottom of the notch. In a cylindrical test specimen, the percentage of the original cross-sectional area removed by machining an annular groove. ASM Gloss.

Notchable. See notch brittleness. ASM Gloss.

Notched-bar test. A test in which a notched metal specimen is given a sudden blow by a striker carried by a pendulum or a falling weight and the energy absorbed in breaking the specimen is measured. Also called impact test. See also Izod test; Charpy test; Fremont test. C.T.D.

Notchant. A machine tool in a steel fabrication shop by which the flanges are stripped from the ends of rolled steel plates. ASM Gloss.


Notching press. A mechanical press used for notching internal and external circumferences and also for notching along a straight line. These presses are equipped with automatic feeds, since only one notch is made per stroke. ASM Gloss.

Notch plate. V-shaped overflow; used to measure rate of overflow of liquid or to control that rate. Pray, 3.

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Notch. In a cylindrical test specimen, the notch... Standard, 1964.

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notch test. A test for the assessment of the low-temperature-spalling tendency of fireclay refractories. A notch is made in a specimen, usually forced by the effect of this on the strength at 800° C is determined. If the transverse strength is but little reduced by the notch, the low-temperature spalling resistance of the fireclay refractory will be good. Dodd.

notch toughness. The energy in foot-pounds required to break standard specimens under the standard conditions realized in the test or Charpy test. It may also mean the fracture toughness C.T.D.

note. N. Of Eng. Authorized list of payments due to a man or a set of men for work done during a week. Trist.

not previously known to exist. These words refer to the time of the location and measurement of the tunnel and not to the respective times of the discoveries of the various veins in the tunnel. Brekin, J. Nottingham system; Barry mining.

novatch. A very rare, strongly radioactive, secondary mineral found in veins with other minerals. Causing or tending to cause injury, especially to health; hurtful; poisonous; for example, nosous gas Standard, 1964.

nucleus. The central part of a large mold, corresponding to a small work Standard, 1964. b The bottom or drag of a molding flask, as distinguished from the turret. Stopblocks.

nucleus. Causing or tending to cause injury, especially to health; hurtful; poisonous; for example, nosous gas Standard, 1964.

nucleus gas. A gas which is injurious to health. B.S. 3618, 1983, sec. 2.

nuzzle. A short tube, usually tapering, forming the vent of a hose or pipe. Webster Thd. b. The front nosepiece of a bellows or a blast pipe for a furnace. Faw c. A short piece of pipe with a flange on one end and a saddle flange on the other end; may be made in a cast temperature, or wrought steel. Faw. a. Side outlet attached to a pipe by such means as riveting, brazing, or welding. Faw. c. A cylindrical fireclay shape traversed by a central line of uniform diameter: the top of the nozzle is contoured to form a seating for a stopper; nozzles are very fine in ladles used in the terming of steel. See also stopper.

nuzzle brick. A tabular refractory shape used in a ladle with a hole through which steel is teemed at the bottom, of the ladle, the upper end of the shaft serving as a seat for the stopper. A.R.I.

nuzzleman. In metal mining, one who operates a hydraulic giant or monitor (nuzzle) used to direct a stream of water under high pressure against a bank of gold-bearing gravel to erode and wash it into sluiceboxes where the gold separates out and is caught by riffles (cleats). Also called giant tender. D.O.T.


N.P.A. The initials of the National Petroleum Association. API Glossary.

N.P.N. Process. A modification of the basic Bessemer process. The main feature is the shortening of the blow by increasing the pressure of the blast as much as possible. Normally the melt is cooled by the addition of scrap of iron ore but it is claimed that a fairly high temperature can be maintained without an undue increase of the nitrogen content, so that ladle sculls can be avoided. Osborne.


N-truss. A bridge or roof truss which has parallel upper and lower chords and an arrangement of web members consisting of tension or compression verticals, with the vertical struts separating the panels. Also known as a Pratt truss. Ham.

rubber. A. Mfd. In the American iron manufact, 12 inches square for throwing mine cars off the road in case the couplings or ropes break. Faw. b. See stopblocks. Nelson.

nuclear magnetism log, spec. As used in cores containing oil or invert muds; (2) provides a means of qualitatively distinguishing those formations from those containing only water; (3) provides a means of measuring quantitatively what proportion of the total fluids in a formation are mobile and thus potentially recoverable; and (4) provides a means of estimating the permeabilities of formations. Wyllie, pp. 15-16.

nuclear magnetometer. See nuclear resonance magnetometer.

nuclear power plant. Any device, machine, or assembly thereof that converts nuclear energy into some form of useful power, such as mechanical or electric power. In a nuclear electric power plant, heat produced by a reactor is used to make steam. and the steam drives a turbine generator in the conventional way, L&L.

nuclear power station. An assemblage of machineries and equipment, including the necessary housing, where electrical energy is produced from nuclear energy. The heat generated in the graphite-moderated uranium reactors is conveyed to the steam plant by carbon dioxide under pressure. The hot gas gives up its heat to the reheating, evaporating, and superheating sections of the steam plant, and after passing through the steam-raising towers, the cooled gas in reheated by blowers to the reactor where the cycle is repeated. See also power station.

nuclear reactor. A device that converts the energy of the nucleus of the atom, such as fission, neutron capture, radioactive decay, or fusion; and directly from a chemical reaction, which is limited to changes in the electron structure surrounding the nucleus. L&L.

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nuclear reactor

to describe its mechanism. LBL.

nuclear reactor communism. These special re-
commendations to LGS, U. S., and I.C. control materials used earth
nuclei, and B.C. moderators — Bo and C.

nuclear resonance magnetometer. With this
instrument the measurement of the earth’s
magnetic field depends on the moment
of the atom. Hydrogen atoms are
nevertheless, and these can be in a
compound such as water. Each hydrogen atom
can be looked upon as a tiny electromagnet
whose strength and direction are
determined by the revolution of the electron
of the atom about its nucleus. In a magnetic
field, atoms of hydrogen have a tendency
to align themselves in opposition to the field.
If the direction of the field is suddenly
changed, there will be a moment pulling
the atoms toward the new direction. But each atom is a minuscule gyroscope, and in
stead of shifting directly to the new field
direction, it will proceed along this direc-
tion. The pendulum effect which will be a function only of the strength of the
magnetic field. To measure the strength of the
magnetic field, a bottle of water
is subjected to a strong magnetic field at
right angles to the earth's field. The volt-
age induced in a coil of wire wrapped
around the bottle is observed when the
auxiliary field is suddenly removed. This
voltage will have a frequency of alterna-
tion of the order of 2,000 cycles per sec-
ond, its exact value depending on the strength
of the magnetic field. The time of 2,000
cycles of this voltage can be meas-
ured using a 100-kiloscope oscillator and a
high-speed counter, giving an accuracy of
measurement of 1 part in 10³, or of the order of ± 0.5%. HRC. See also
Varian nuclear magnetometer.

nuclear rocket. A rocket powered by an en-
engine that obtains from a nuclear reactor,
which is used synonymously with isotope. A radio-
nuclide. Any species of atom that exists for
a measurable length of time. A nuclide can be distinguished by its atomic weight,
nuclear number, and energy state. The
term is used synonymously with isotope. A radio-
uclide is the same as a radioactive nuclide,
nuclear superheating. Superheating the steam
nuclear rocket. A rocket powered by an en-
terminated, that is engaged on an
atom which exists for
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O


oakum. Loosely twisted fiber usually of hemp or jute impregnated with tar or with a tar derivative (as creosote or asphalt) and used in caulking seams (as of the wood hulls and decks of ships) and in packing. Stew. B. Webster 3d.

Oamaru stone. Aust. A white, granular limestone found in large quantities in Oamaru, New Zealand, and valued as a building stone. Fay.

objective. The system of lenses in a microscope which furnishes the initial magnification of the object being examined. The image formed by the objective is picked up and further magnified by the ocular.

obligate anaerobe. An organism growing only in the absence of free oxygen. I.C. 8075, 1952, p. 64.

oblique air photograph. A photograph taken from the air, for purposes of aerial survey work, with the optical axis of the camera inclined from the vertical, generally at some predetermined angle. C.T.D.


oblique block. A quarry term applied to a block of stone bounded by 3 pairs of parallel faces, 4 of the 12 interfacial angles being right angles, 4 obtuse, and 4 acute. Fay.

oblique fault. A fault whose strike is oblique to the strike of the strata. A.G.I.

oblique joint. A joint of the plane of which forms an acute angle with dip joints and strike joints. Lewis, p. 592.


oblique offset. The distance of a point from a main survey line measured at an angle to the latter which is not a right angle. Stayley.

oblique photograph. See oblique air photograph. See also aerial mapping.

oblique projection. A pictorial view of an object showing its elevation, plan, or section to scale with parallel lines projected from the corners, at 45° or any other angle, indicating the other sides. See also conic projection, monocular projection. New.

oblique dip fault. A fault in which the net dip lies between the directrix of dip and the directrix of strike. A.G.I.

oblique stratiification. See oblique bedding. Pettijohn.

oblique structure. A survey of mining claims where no visible evidence remains of the work of the original miner. Ricketts.


obsequent faultline scarp. A warp along a faultline, but where the topographically low area is in the block that has been relatively uplifted. See also recurent faultline warp. A.G.I.

obsequent stream. A stream flowing in a direction opposite to that of the dip of the strata or the tilt of the surface. Also called reverse stream. Fay. b. A stream which flows in a direction opposite to that of the consequent drainage. A.G.I.

observation error. An error caused by misreading a level or measuring device, or to faulty recording. Prorer, p. 159.

observer. a. In seismic prospecting, the man in charge of the recording crew, including the shooters and linemen. He must maintain the electronic equipment and decide on the best shooting and detector arrangement as well as the best instrumental settings for getting records of optimum quality. He operates the recording equipment in the field, often with the help of an assistant. In conventional recording, or in tape recording when photographic monitors are run, the observer or his assistant develops the record in the recording truck immediately after it is shot. Also called operator. Dobrin, p. 56. b. In gravity and magnetic prospecting, a fieldman who secures the instruments used, for example, on the torsion balance or magnetometer. A.G.I.

observer helper, gravity prospecting. In petroleum exploration, one who transports equipment and gravity prospecting party personnel to field locations and assists in making gravity observations that provide data for petroleum exploration activities. Also called gravity prospecting operator helper. D.G.T. I.

obsidian. a. An ancient name for volcanic glass. Most obsidians are black, although red, green, and brown ones are known. They are often banded and normally have conchoidal fracture and a flasby luster. In recent years, the name has been somewhat restricted to glasses having a very low water content as contrasted with pitchstones and perlites. Most obsidians are rhyolitic in composition. A.G.I. b. A highly siliceous natural glass. ASTM C162-66.


obsidianite brick. Lightweight, siliceous fire brick, acid-resistant brick, burned to a light grayish color. Ges. Staff.

obtuse bisectrix. That axis which bisects the obtuse angle of the optic axes of biaxial negative amphiboles. Fay.

Ocean’s razor. If the facts established by an experiment are explicable without the need for developing a new hypothesis, there are no valid grounds for such an experiment. Proyer, p. 7.


oculometer. A trade name for certain yellow-colored varieties of quartz used as semiprecious gem stones. See also Spanish topaz. C.T.D.

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occupation. As used in the mining law, it is equivalent to possession, and the right to locate is included in the right to occupy, and incident to a location is the right of possession; but mere occupancy of the public lands and making improvement thereon gives no vested right therein against a location made in pursuance of law. Ricketts, I.

occurrence. In geology, the existence or presence of any phenomenon or thing in any recognized position or in any specified relation to other objects or phenomena; at, the occurrence of gold in a vein. Standard, 1904.

ocean. The great body of salt water surrounding the land of the globe in its major subdivisions. Schiffner. German.

ocean basin. That part of the floor of the ocean that is more than about 600 feet below sea level. A.G.I.

ocean current. A. The current name is usu-
ocean current

ally restricted to the faster movements of the ocean, while those in which the movement is slow to only a few miles a day are termed drifts. A.G.I. b. A nonidal current constituting a part of the great oceanic drifts. Examples are gulf stream, kuroshio, and equatorial currents. A.G.I.

ocean depths. The greatest depth (over 10,400 meters) discovered in the various oceans lies in the Pacific; depths of over 8,500 meters and 7,000 meters have been recorded in the Atlantic and Indian Oceans, respectively. C.T.D.

ocean bottom. This term is appropriate when the platform has a depth less than 100 fathoms. Schieferdecker.

oceanic. A rock texture characterized by radiating groups of prismatic or platy minerals, such as biotite or pyroxene, disposed around the borders of larger euhedral crystals. Equations are gulf stream, kuroshio, and equatorial currents. A.G.I.

oceanic province. See pelagic division. Hy.

oceanic stratosphere. The cold, deep layers of the ocean consisting of waters of polar or subpolar origin. Schieferdecker.

oceanic. A term used to describe the characteristics of the ocean for use in navigation, geography, meteorology, and other sciences. J. J. H. & G.

oceanography. The broad field of science which includes all fields of study which concern with the ocean, its characteristics as the fuel sample in question. Shell Oil Co.

ocean acid. See carpylic acid. CCD 6d, 1961.


ocean. An outermost atomic shell of eight valence electrons, completion of which confers chemical stability and inertness. Elements are octavalent when these shells are filled by gain or loss of valence electrons. Fro, Pt, Pi.

oceanus. A term used to describe the characteristics of the ocean for use in navigation, geography, meteorology, and other sciences. J. J. H. & G.

oceanographer. One who studies the characteristics of the ocean for use in navigation, geography, meteorology, and other sciences. J. J. H. & G.

oceanographic survey. A study or examination of conditions in the ocean or any part of it, with reference to animal or plant life, chemical elements present, temperature groups, etc. Also called marine survey. H. & G.

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ocean salinity. Total amount of solids in 1 kil of seawater after all carbonates have been converted to oxides, the bromine, iodine replaced by chlorine and all organic matter has been completely oxidized. A.G.I.

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odometer. a. An instrument for performing a consolidation test. Nelson. b. A device for measuring distance traveled; it is attached to the hub of the wheel. Crispin. c. In oceanography, a recording thermometer with line and weight sounders and other machines when it is necessary to know how much warp or wire has been paid out. C.T.D.

O'Donahue formula. A formula used for calculating the thickness of tubbing: \[ t = \frac{bdf}{2C} \] where \( t \) is the required thickness of tubbing in inches, \( h \) is the pressure of water in pounds per square inch, \( d \) is the diameter of the shaft in inches, \( C \) is the crushing strength of east iron in pounds per square inch which may be taken as 95,000, \( F \) is the factor of safety adopted between 5 and 10, and \( A \) is the allowance for possible flaws and corrosion and may vary from one-fourth inch to 1 inch averaging one-half inch. Sinclair, II, 1918.

O'Donahue's theory. A mine subsidence theory based on an extension of the theory of the normal. In it, subsidence is regarded as taking place in two stages. There is, first, a breaking of the rocks in which the fracture tends to run to right angles to the stratification. This is followed by an "after slagging" or inward movement of the sides, resulting in a pull or draw beyond the edges of the workings. Briggs, p. 43.

odontolite. A bluish fossil bone, or tooth (fossil). Naturally colored blue by phosphates of iron and rarely, green, by copper. Mohs' hardness about 5; specific gravity, 3.0 to 3.5; sometimes as low as 2.4. Same as bone turquoise. Shipley.

odor of metals. Some metals emit a faint but characteristic odor when they are rubbed, particularly in the warm state. This phenomenon has never been adequately explained. In the case of highly specific metal, such as mercury and arsenic. Camm.

odor test. One made by heating, breathing upon, rubbing, or striking a mineral. Rarely of value in gem identification except in distinguishing amethyst from its substitutes. Shipley.


Oehman and Payne-Gallwey instrument. A borehole surveying instrument. It consists of a plumb bob suspended over a gimbal-supported carrier on which a disc of sensitized paper records the shadow of the plumb bob suspended over it. A compass needle on a similar carrier likewise records its shadow upon a sensitized paper disc. Small lamps are so placed as to flash at a predetermined interval by a clock mechanism and dry batteries. A series of measurements are taken at known depths and the bored hole is traced by plotting the results. See also Maas borehole compass. Nelson.

Oehman's survey instrument. A drill-hole surveying apparatus that makes a photographic record of the compass and clinometer readings. Long.

offset. Derb. A piece of wood on which the sieve is placed after washing the ore in a vat. Fay.

oersted. a. The practical, centimeter-gram-second electromagnetic unit of magnetic intensity. A unit magnetic pole, placed in a vacuum in which the magnetic intensity is 1 oersted, forms by a force of 1 dyne in the direction of the intensity vector. A.G.I. b. Prior to 1932, the practical, centimeter-gram-second electromagnetic unit of magnetic reluctance. A.G.I.

Oesterheld method. A form of asbestos cement in which the cement is sprinkled onto the blanketlike fleeces of asbestos, which is passed around on rollers and after it has been thoroughly mixed with water. This process is repeated several times so that alternating layers of cement and asbestos are successively pressed together by pressure. Sinclair, W., E., p. 307.

Oelling freezing method. A method of shaft freezing by freezing the wet ground in sections as the sinking proceeds. The permanent lining is also inserted at the shaft is sunk. The freezing equipment is a cylinder equal in diameter to the shaft and 44 inches in height, with the lower end closed by a plate. The cylinder is in sections, each of which can be removed. Each section is provided with freezing coils. After freezing the ground, two sections are removed, the ground is thawed locally and removed, and a segment of the permanent lining is inserted. The process is repeated. See also freezing method. Nelson.

off. N. of Eng. Worked out; gotten; wrought; as, the mine is off. Fay.

off-beam. To carry (bricks) from the mold to the kiln. Dodd.

off-center waterway. A waterway port in a wall at a predetermined interval by a clock suspended over a gimbal. A borehole surveying instrument. It consists of a plumb bob suspended over it. A device for measuring distance traveled; it is attached to the hub of the wheel. Crispin.

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off-highway. A condition existing when the drive rod of the drill swivel head is not centered and parallel with the borehole being drilled. Long. A borehole that has deviated from its intended course. Long. c. A condition existing wherein any linear measurement (shift, drift, borehole, etc.) is out of tolerance. Long. q. A condition wherein any linear measurement (shift, drift, borehole, etc.) is out of tolerance. Long. d. A condition wherein there is a harmful deviation of the borehole from its intended line or course. Standard, 1964.

off-highway refers to certain standards of off-highway equipment such as tractors, trucks, and off-highway trucks. Bureau of Mines Stall, 1959.

off-highway. A method of shaft freezing by freezing the wet ground in sections as the sinking proceeds. The permanent lining is also inserted at the shaft is sunk. The freezing equipment is a cylinder equal in diameter to the shaft and 44 inches in height, with the lower end closed by a plate. The cylinder is in sections, each of which can be removed. Each section is provided with freezing coils. After freezing the ground, two sections are removed, the ground is thawed locally and removed, and a segment of the permanent lining is inserted. The process is repeated. See also freezing method. Nelson.

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more distant diagonal offsets. Wheeler.

k. Of a fault, the horizontal separation measured perpendicular to the strike of the fault. Wheeler.

l. A short distance usually measured at right angles from a line as to a boundary, or to continue a line parallel to itself at some little distance away to avoid an obstruction, or the like. Fay. m.

A spur or minor branch from a principal range of hills or mountains. Fay. n.

The distance along the strain coordinate between the initial portion of a stress-strain curve and a parallel line that intersects the stress-strain curve at a value of stress which is used as a measure of the yield strength.

It is used for materials that have no obvious yield point. A value of 0.2 percent is commonly used. Wade and Class.

d. A imperfection resulting from mold parts not properly matched, for example, a finit or base offset from body or neck. ASTM C162-66.

offset clipping bit. A chisel clipping bit with one wing considerably wider than the other, as measured from the center of the bit. Long.

offset deposit. Applied to magmatic segregation, intrusive diapir, or hydrothermal character which were injected into the country rock at a moderate or small distance from the mother rock, especially to nickel-copper-sulfide deposits of this kind at Sudbury, Canada. Schieferdecker.

offset digging. In a ladder ditch, digging with the boom not centered in the main channel.

offset drilling. See directional drilling, c. Nichols.

offset horizon. Horizontal separation measured perpendicular to the strike of the disrupted horizon. McKInstry, p. 639.

offset fact. See finish. Dodd.


offset line. In surveying, a line established parallel to a line in the main survey line, and normally also parallel to it. Fay.

An oil well of which the drilling is done in a parallel direction to a line in a former well pattern. Seely, 2.

offset link. A combined pin-and-roller link in a roller chain, consisting of two offset link plates, a single bushing with roller, and a single pin. JBM.

offset point. The bottom of a bottle if it is asymmetric to the axis. Dodd.

offset ridge. A ridge held up by a resistant layer which had been displaced by a dip or a diagonal fault. Billings, 1954, p. 153.

offset section. For a roller chain, a factory assembled section. The main survey line, and usually not far from it, for examples, a line on a sidewalk, 2 feet from the established street line; or a line parallel to the centerline of a bridge and 50 feet from it. Seely, 2.

offsets. A combined pin-and-roller link in a roller chain, consisting of two offset link plates, a single bushing with roller, and a single pin. JBM.

offset shot point. A shot point that has been displaced from the shooting line in a perpendicular direction. Schieferdecker.

offset show. A rod, usually 10 links long, used in measuring short offsets. Webster 2d.

offset yields offset h and i.

offset yield strength. See yield strength. HOG. Schieferdecker.

offsets. Situated at a distance from the offshore bar. An accumulation of sand in the form of a ridge, built at some distance from the shore and under water. It results clearly from A.G.I.

offshore barrier. See barrier beach. HOG.

offshore currents. Nontidal currents outside the surf zone, the ocean currents affected by shoaling and river discharge. Hy.

offshore slope. A ridge held up by a resistant layer which had been displaced by a dip or small distance from the mother rock, especially to nickel-copper-sulfide deposits of this kind at Sudbury, Canada. Schieferdecker.

offshore terrace. A deposit of sand which is built out into deep water by the combined action of waves and currents. It trends parallel to the shore. The materials are draped over its outer edge. Its upper surface is a continuation of the shore bench or wave-cut bench with which it is associated. Shore terraces are not exposed except by sufficient subsidence of the water level. Stokes and Varnes, 1955.

offshore track. A depression of the offshore, parallel to the trend of the coast. Schieferdecker.

offshore water. Water adjacent to land in which the physical properties are slightly influenced by continental conditions. Hy.

offshore winds. Winds blowing seaward from the coast, Hy.

offset drilling. See directional drilling, c. Nichols.

offset level. a. Eng. The raised portion of an underpass above the sururface, for carrying off smoke, steam, etc. Fay. b. A length of boring rods unscrewed and detached at the top of a drilled hole called rod stand; setout BS 3618, 1969, sec. 3. c. Scot. A deduction from workmen's wages for house rent, coal, etc. Fay. d. A channel for taking ash or air water; also, t. i. point of beginning of such a channel. Webster 2d.

offset drift. Offtake level. a. Scot. A water level driven from the surface to a point in a pumping shaft where the water is delivered. Fay. See delivery drift. BS 3618, 1963, sec. 4.

offset joint. Eng. The joint by which the bucket is attached to the hauling chain. Fay. See shackle. C.T.D.

offset rods. Auxiliary rods at the top of a winding shaft for guiding and steadying the cages during docking or loading and unloading operations. Nelson.

off-the-road hauling. Hauling which takes place off the public highways, and generally on the mining site or excavation site. The hauling units used are generally higher and wider than those used in over-the-road hauling since highway restrictions do not limit size, weight, etc. Compare over-the-road hauling. Carson, p. 345.

off the solid. In this type of blasting the coal is blasted from the solid with no pre-cutting or shearing. McAdam II, p. 106.

off time. In resistance welding, the time that the electrodes are off the work. This term is generally applied where the welding cycle is repetitive. ASM Glou.

o. The space before the fire in a kiln. Also called killogie, Standard, 1929.

O'Hara furnace. A horizontal, double-hearth furnace for calcining sulfide ores. Fay.

Oil furnace. A furnace. Dodd.

Oil samples. A single tube or pipe with a pipe thread on the top and the bottom bevel-edged and hardened for driving into the ground to make a well. Long.


Ohmimeter. A type of galvanometer which directly indicates the number of ohms of the resistance being measured. Grippin.

Ohm-meter-galvanometer. A special instrument for measuring the resistance of an electric circuit or the potential difference of 1 ampere in a circuit connected in the circuit and adjusted until a point of balance is reached on the galvanometer. The resistance of the circuit is then read on the calibrated scale. Lentz, 124.

Oil line. a. The electric current flowing in a circuit is proportional to the electromotive force and inversely proportional to the resistance. Frequently expressed in the form: E = I R.

R. I. Which is the electric current in amperes; E is the electromotive force in volts; and R is the resistance in ohms. Handbook of Chemistry and Physics, 45th ed., 1964, p. F-52.

Oil mass. A suffix meaning in the form of. A.G.I.

Oil matrix. A matrix or host crystal through which smaller crystals of a kind at Sudbury, Canada. Schieferdecker.

Oil oikocryst. A matrix or host crystal through which smaller crystals of other minerals are distributed as poikilitic inclusions. Holmes, 1920.

Oil. a. A general term given to various mixtures of natural hydrocarbons. To the minor oil is petroleum. Nelson. b. Any of various substances that typically are unctuous, viscous combustible liquids or solids easily liquefiable on warming and are not miscible with water. Including in addition to the usual, naphtha and other alcohol and other organic solvents, that leave a greasy not oily feeling on the skin, such as petroleum, mineral or synthetic origin, and that are used according to their types, chiefly as lubricants, fuels, and illuminants. Webster 3d. c. This term includes: (1) fatty oils and acids; (2) essential oils, mostly of vegetable origin, such as eucalyptus and turpentine; and (3) mineral oils, such as petroleum products, including lubricating oils. Used in the flotation process. Fay. d. A common name for mineral oil or petroleum. Tomkiewicz, 1954, c. Any fluid lubricant. Nichols. f. Any liquid petroleum derivative that is less volatile than gasoline. Nichols. g. As used in an oil and gas well, the fluid produced from a well, or crude petroleum in its natural state. Ricketts, 11.

Oil and gas lease. Contract conveying mineral interest for drilling purposes. Wheeler.


Oil base mud. A mud-laden drill-circulation fluid which is used as the basis of the circulating fluid. Nichols. f. Any liquid petroleum derivative that is less volatile than gasoline. Nichols. g. As used in an oil and gas well, the fluid produced from a well, or crude petroleum in its natural state. Ricketts, 11.

Oil-bearing shale. Shale impregnated with petroleum. Not to be confused with oil-bearing shale (mks) unit of electric resistance that equals the resistance of a circuit in which a potential difference of 1 volt produces a current of 1 ampere, or to the resistance in which 1 watt of power is dissipated when 1 ampere flows through it. The standard in the United States is 1-ohm; 1-ohm, 13d. Symbols, Ω and Ω. Zimmermann, pp. 76, 208.
oil-bearing shale

T. M. Kiefer, 1954.

Shale. Gloss. Oil canning. The same as canning. ASM


Oil circuit breaker. A circuit breaker used on medium, high, and extra-high tension systems to control feeder cables and motor circuits. Staff, 3rd. Contact is made on strong tank containing oil, which rapidly quenches the arc which forms when the circuit is opened. Mason, 7th, p. 439.

Oil coal. Another name for stellinite. T. M. Kiefer, 1954.

Oil cut. a. Term used to describe a mixture of oil and drilling mud recovered in testing. Wheeler.

Oil derrick. A towerlike frame used in boring oil wells, to support and operate the various tools. Standard, 1964.

Oil edger. A fine-grained stone used for sharpening edged tools or other similar metal surfaces. Fay.


Oil refinery. A plant where petroleum is dissolved in mineral oil to form an oil thickener. Fay.

Oil pump. A hydraulic pump supplying oil under pressure to the hydraulic-feed cylinder and pistons of a hydraulic-type swivel head on a diamond drill. Long.


Oil recognition. A prinicple for keeping machinery properly lubricated. Also called grease monkey. Long.

Oil-rich shale. An accumulation of oil in sedimentary rock that yields petroleum on drilling. The oil occurs in the pores of the rock and is not a pool or pond in the ordinary sense of these words. Fay.

Oil rock. A spring issuing from underground at the top of the well casing and having a latex appearance. Fay. Also called oilfield casing. Long.

Oil (or) sandstone. Sands which have been bonded with oil, for example, liased oil. Such sands are partially suitable for the production of large cores where high strength and considerable permeability are required. D. O. T., 1962.

Oil seepage. The slow leakage of petroleum. Fay. Also called oilfield casing. Long.

Oil shale. A mineral deposit containing such a proportion of hydrocarbons as to be capable of yielding mineral oil on dow distillation. See also shale, shale oil, Pennsylvania oil shale, kerogen, bitumen, shale. Fay.

Oil sheath. A compact rock of sedimentary origin, with an ash content of more than 33 percent and containing a vitrich mineral that yields oil when destructively distilled but not appreciably when extracted with the common solvents. ASTM D 288-57. c. A fine black or dark brown shale containing sapropelic material (kerogen) and characterized by having a brown streak, a leathery appearance with parting planes often smooth and polished, and a finely laminated structure. It differs from an ordinary carbonaceous shale by curling when it is cut into thin flakes, and by its toughness and resistance to disintegration by weathering. It is capable of yielding oil or gas on distillation. T. M. Kiefer, 1954.

Oil shale lands. Lands on or under which oil shale is present. Bureau of Mines Staff.

Oil smelter. Men who were employed to indicate where oil-bearing strata is to be found, and locate places for successful well boring, by the sense of smell. Fay.

Oil spot. A surface fault, seen as a mottled circle, on electric lamp bulbs or valves; it is caused by carbonization of a contaminating drop of oil. Dodd.

Oil springs. Lustrous metallic markings on dark iron glasses. ACS, 1961.

Oil stone. A fine-grained stone used for sharpening edged tools or other similar metal surfaces. Fay.

Oilstone. A region rich in petroleum deposits; especially, a region containing numbers of producing oil wells. Webster 3d.

Oilstone dressing. Syonym for oilwell casing. Long.

Oilfield. A region rich in petroleum deposits; especially, a region containing numbers of producing oil wells. Webster 3d.

Oilfield cement. A hydraulic cement which may be used in oil well boring, by the sense of smell. Fay.

Oilfield drilling mud. See drilling mud.

Oilfield packer. A packing inserted between the pipe and the interior surface of the bored in an oil well to keep surface water or water from the sides of the hole from running into the well, and to prevent oil in some wells from being forced out around the pipe by a pressure of gas. Fay.


Oil-greasy. Usually a mixture of lithopone and white lead or zinc white. May also contain gypsum, magnesia, whiting, or silica. Used as a white lead substitute. C. D. 64, 1961.

Oil greasy. These are substantially equivalent terms. All oils are greasy. Greatness suggests more viscosity than oiliness. A term used in the filtration process. Fay.

Oil zone. A formation that contains capillary or supercapillary voids, or both, that are
full of petroleum and will move under ordinary hydrostatic pressure. Fay.

oligoclase. Same as delphinite.Shipley.

oligoclase. A feldspathoidal, ultamafge rock composed primarily of melilite and haline and containing accessory biotite, perovskite, apatite, calcite, and opaque iron oxides. A.G.I.

oligoclase. A. A compact or fibrous mineral. Composition: 

(3Al2O3·2SiO2•CaO)•CaO = 14. Gillette, 9. a. Mixture of zoconite and resin with caoutchouc and sulfur, used as an insulating material for electric conductors. Fay.

old age. That stage in the development of strata and landforms when the process of erosion are decreasing in vigor and efficiency, or the forms are tending toward simplicity and reduction of relief; said of streams and landforms. Fay.

old mead fire clay. A molding sand rendered friable by the application of graphicite and grease. Fay.

old mine workings. Ancient mine workings. See also old workings, weeldrous. Nelson.

old iron ore. See olivenite. Fay.

old iron oxide. Metallic iron. Webster 3d.


old mine fire clay. A fire clay occurring in the Bingham Hill district near Stourbridge (England); it usually contains 56 to 64 percent SiO2, 25 to 30 percent Al2O3, and not greater than 2.5 percent Fe2O3. A smooth plastic fire clay formerly much used for making clay pots, but now largely worked out. Dodd.

old plain. Synonym for peneplain. A.G.I.

Old Red Sandstone. A red sandstone, conglomerates, and shales, of nonmarine origin, which constitute the Devonian system in parts of Great Britain and is regarded as equivalent in age to the normal marine Devonian strata. In North America, the name was formerly applied to rocks of the Os unmistak group, which display some striking analogies to the Old Red Sandstone of Europe. Fay.

old river. It has been suggested that any river whose members are all graded should be termed an old river. There is no critical change between mature and old age. Usually in old age, the valley is several times the width of the meander belt. Stake and Grant, 1925.

old sand. A molding sand rendered friable and porous by frequent high-temperature. Fay.

old sand. Scrap from metal articles that have outlived their usefulness; it includes discarded trolley wire, battery plates, lithographer's plates, old rails, etc. Newton, p. 38.

old silver. Silver made to appear old by the application of graphicite and grease. Fay.

old stage of the shoreline cycle. Stage of the wide wave-cut platform and a sea cliff, a faint vestige of the theoretical case, as shoreline cycles usually are interrupted before this stage. Schieferdecker.

oldtimer. A drill runner with 30 to 40 years of experience. Long. b. An antiquated drilling rig; generally applied to a steam-motivated diamond drill. Long.

old waste. Scot. Old or abandoned workings. Fay.

old workings. Mine workings which have been abandoned and have collapsed, and perhaps sealed off. Unless proper safeguards are taken, old workings can be a source of dangerous works in production, particularly if they are waterlogged and their plan position is uncertain. See also old mine fire clay and alteration products. Fay.

oleic acid. A, 9-octadecenoic acid. An important fatty acid, which is present in most vegetable oils and animal fats. It is also present in the human body, being a component of the human brain. Pryor, 3d.


olive ore. See olivenite. Fay.


olive ore. See olivenite. Fay.

Oliver filter. A continuous-type filter made in the form of a cylindrical drum with filter cloth stretched over the convex sur
comma gabbro. A gabbro containing olivine; omphacite. A greenish, vitreous variety of olivinite. A foliated rock with olivine as the principal constituent. Also used for hornblende picrite with augite and anorthite. A.G.I.


olivine. Olivine is a common mineral in many igneous rocks. It is a pyroxene that is a common constituent of basalt and andesite. Fay.

olivite. A greenish, vitreous variety of pyroxene that is a common constituent of the garnet rock, eclogite. Fay.


olivine norite. A variety of norite characterized by abundant epidote, phenocrysts. Fay.

olivine picrite. A blende picrite with augite and anorthite. Fay.


olivine rock. See dunite. C.M.D.

olivine streak with olivine as the principal constituent. Also used for hornblende picrite with augite and anorthite. A.G.I.


olivine. A magnesium iron silicate, (Mg,Fe)SiO_4, usually olivine green, occurring in basaltic igneous rocks; orthorhombic. The clear green variety is used as a gem stone under the name peridot. The word olivine is prefixed to the names of many rocks that contain the mineral. Fay; Dow, 17.


olivine norite. A variety of norite characterized by abundant epidote, phenocrysts. Fay.

olivine picrite. A blende picrite with augite and anorthite. Fay.


olivine norite. A variety of norite characterized by abundant epidote, phenocrysts. Fay.

olivinite. A foliated rock with olivine as the principal constituent. Also used for hornblende picrite with augite and anorthite. A.G.I.


olivine. Olivine is a common mineral in many igneous rocks. It is a pyroxene that is a common constituent of basalt and andesite. Fay.

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of which is not deviating from the intended direction. Long. c. Said of a diamond drill when its drive rod is centered on the hole, as opposed to a borehole. Long.

on the run. A face between end and cross-cut. Sinclair, VI, p. 9.

O'Neill machine. A machine for making glass bottles originally designed in 1915; it was based on the use of blank molds and blow molds. The principle in modern O'Neill machines is the same, they are electrically operated and are capable of surveying outputs. Dodd.

onofrite. Sulfoselenide of mercury, Hg,Se; contains 81 to 82 percent mercury. It is a honey amber-colored mineral.

Onondaga limestone. The coastal reef limestone in the Utlerian of the Middle Devonian; forming a belt from New York to Ohio, Michigan, and Kentucky. Famed for its well-preserved fossils; an important oil-bearing formation in Ontario, Canada, and in the Eastern-Central United States. CT.D.


on plane. Scof. In a direction at right angles to, or facing, the plane or main joints. Fay.


onsetter. a. The man in charge of the loading and unloading of the cages or skips at the pit bottom, and also the signaling to the pithead. In modern mines, the onsetter is stationed in a cabin and all controls are within his reach for the loading and unloading of the cages and other car control equipment at the shaft bottom. Nelson. See also bottomor; cages; head hitcher; hitcher. b. The person in charge of winding operations underground. He is stationed at the shaft side and gives all signals from his inset to the winding engineman. Maron.

onsetting machine. Eng. A mechanical apparatus that removes the fan blasts, the fan dust, and discharging the empties, or vice versa, at one operation. Fay.

onshore. A. Being on or near the shore. B. A workman whose signal lights and who is stationed at the shaft bottom. C. A workman who operates the cages and other car control equipment at the shaft bottom. D. A workman who operates the cages and other car control equipment at the shaft bottom. E. The part of a blasthole which cannot be broken by the blast. Fay. a. That part of a blasthole which cannot be broken by the blast. Fay. b. A practice of blasting coal with heavy charges of explosives, in lieu of undercutting or channeling. Fay.

on the track. Diamonds inset in the crown of a bit in concentric circles so that the diammonds in any one circle follow the same groove cut into the rock. Long.

onychite. An alabaster, or calcite (stalagmite) rock, weathered on the surface or retouched by nature, with the markings of ancient rites, and with brown veins, carved by the ancient into vases, etc. Standard, 1964.

Onyx. A crystalline variety of quartz, consisting of different colored layers, chiefly white, yellow, black, or red. Fay. a. Translucent layers of calcite from cave deposits, often called Mexican onyx or onyx marble. A.G.I.

onyx alabaster. Minimover for parallel-banded calcite. See also onyx marble.

onyx marble. A rock composed of a banded form of lime ex-humate deposited usually from cold-water solutions. Generally translucent and shows a characteristic layering due to mode of accumulation. ASTM C119-50. Also called Mexican onyx; cave onyx.


onyx opal. Common opal with straight parallel layers of differing tones of gray. It is incorrect to use onyx sagate as a synonym for onyx. Shiely

onyx alabaster. A stone made up of minute spherical particles, 0.25 to 2 millimeters in diameter, which may or may not have a nucleus, and has a concentric radial structure, or both. It is usually calcareous, but may be siliceous, hematic, or of other composition. A.G.I. b. Concentrically layered rock has a nucleus such as a quartz grain, and a radial or concentric structure. It is grown in suspension in an agitating medium. A.G.I. c. Replacement onyx usually is without a nucleus, or has a nucleus of quartz. It is less regular in structure, with a concentric and radial structure, less well developed than in accretionary oolites. A.G.I. d. A rock composed of onyx. A.G.I. e. Limestone rock of the Jurassic system consisting of small round grains, resembling fish roe, cemented together. Sandstrom.

onylith. A more or less spherical concentration of calcium carbonate, chamosite, or dolomite, not exceeding 2 millimeters in diameter, usually showing a concentric-layered and/or a radiating fibrous structure. C.M.D.

onyltite. Characteristic of, pertaining to, of the nature or texture of, or composed of onyx. Fay.

onyxite. A granular variety of limestone made up of minute spherical particles. Crystin.

onyxite texture. A texture composed of ooliths, that is, small spherical or ovoid bodies of mineral matter of concentric structure and usually consisting of a core or nucleus enclosed by a cortical envelope made up of concentric layers. The oolithic texture is common in sedimentary iron ores. Schiefer, etc.

onyxite marble. A limestone similar to oolsporite except that it...
opal glass. A glass with fiery translucence. Loosely, any translucent glass. ASTM C620-66, b. Glass which is opalescent or white; made by the addition of fluorides (for example, fluor spar or cryolite) to the glass mixture. G.F.J.
opaline. a. An earthy form of gypsum or a magnesium limestone. Gordon. b. Another term for opal.
aplanche. Also called hot-cast porcelain. Fr.
opamine. a. A glass with fiery translucence. Loosely, any translucent glass. ASTM C620-66, b. Glass which is opalescent or white; made by the addition of fluorides (for example, fluor spar or cryolite) to the glass mixture. G.F.J.
opaljasper. A common opal with the color of yellow jasper. Fay.
opalmother. A dark opal matrix from Hun.
opaline attritus. Attritus which is opaque in thin section. Tomkeieff, 1954.
opalized wood. Wood petrified by silicious earth, bone, or other opalescent or white; similar to that of opal. See also wood. Fay.
opal jasper. A common opal with the color of yellow jasper. Fay.
opal matrix. Opal with portions of matrix included in the fashioned gem. See also opal.
opal mother. A dark opal matrix from Hun.
opal mother. A dark opal matrix from Hun.
opal attritus. Attritus which is opal in thin sections. Tomkeieff, 1954.
opal attritus. This term was first used by Geiger in 1930 referring to coal material which the most prominent and important constituent is opaque matter and also referred to as opaque matrix, black fundamental matter or matrix and residue. Opaque attritus consists of three common types of organic material all of which are organic than 30 microns thick; (2) amorphous opaque matter equivalent in general to the humic dark residue; and (3) faintly translucent opaque matter consisting of oriented or structural oriented or structural constituent impregnates cellular cavities of well decayed plant tissue. Opaque attritus is a col lective term and not comparable with any of the microfossils or the microfossils or the microfossils of the Stoves-Heerlen nomenclature. It is present, at least in minor amounts, in most brown and some nonbanded coals. It is the characteristic component of splint and many dull coals. IACP, 1963, p. 1.
opal surface. Faced tile whose surface faces are covered by an impermeable fireproofed, opaque, colored ceramic glaze of bright satin or gloss finish. ASTM C43-65T.
opal-eau. E-mail having high opacity. ACSF-3.
opal-glaze. A nontransparent colored or colorless glass. ASTM C242-60T.
opal-lime. An igneous rock consisting of orthoclase and microcline, usually occurring in quartz veins or serpants related to granodiorite. Johannsen, c. 2, 1932, p. 347.
open front
The arrangement of a blast furnace with a forehearth. Fay.

open-grazed aggregate. Mineral aggregate containing very few small particles so that the void spaces are relatively large. Shell Oil Co.

open-grained coal. Term used by British miners for clearly banded bright and dull coal. Tomkies, 1934.

open handle. A cup handle of the type that is attached to the cup at the top and bottom only, the side of the cup itself forming part of the filling opening. Compare block handle. Dodd.

open hearth. The form of regenerative furnace of the reverberatory type used in making steel by the Martin, Siemens, and Siemens-Martin processes. See also furnace. Fay.

open-hearth door liner. One who lines and repairs furnace doors and hot metal spouts to keep furnace in condition for continuous use. Also called door and spout liner, mason liner, and spout liner. D.D.T. 1.

open-hearth furnaces. Ferruginous melting furnace with a shallow hearth and a low roof. The flame passes over the charge on the hearth, causing the charge to be heated both by direct flame and by radiation from the roof and sidewalls of the furnace. In ferrous industry, the furnace is reverberative. In the open-hearth furnaces, the furnace lining is all open-hearth furnace; basic open-hearth furnace; all-bas furnace.

open-hearth process. A process for manufacturing steel, either acid or basic, according to the lining of the reverberatory furnace, in which selected pig iron and malleable scrap iron are melted, with the addition of pure iron ore. The latter, together with the air, contributes to the formation of the silicon and carbon in the molten mass. The final reduction is sometimes produced by the addition of a small quantity of aluminum or ferromanganes, which at the same time desulfurizes and recarbonizes the metal to the required extent. Fay. See also L.D. steel process.

open-hearth steels. A process of steel manufac- turing, involving the melting in a 3.5-fired reverberatory furnace constructed with a shallow trough or hearth. See also fixed hearth. Nelsen, b.

open hole. A Coal or other mine workings at the surface or outcrop. Also called opencasit; opencut; open pit. Fay. A borehole which is drilled without core. Nelsen, c.

open-pit mining. A general term for the removal of minerals from a mine which was previously opened before creation of the life estate. With this exception, a life tenant normally opened before creation of the life estate.

open-loop control. A control of a mechanism which is direct between the operator and the mechanism. Any faults or deviations of the mechanism must be corrected by the operator. In closed-loop control, the operator is only required to supervise or set the control. Any faults or deviations of the mechanism are detected, and the control is automatically altered to correct them. Nelsen.

open-mine doctrine. A doctrine which developed at common law which permits a life tenant to continue to serve and appropriate minerals from a mine which was opened before creation of the life estate. With this exception, a life tenant normally may not sever minerals without the concurrence of the owner of future interests in the land. Fay.

open mold. A mold without cover, in which objects like ingots are cast; distinguished from close mold. Standard, 1964.

open-off. a. To turn stalls off stalls, or to drive branch roadways from crossheadings. Nelsen, b. Eng. To begin the longwall system from the shaft pillar, or the far end of the shaft, or from any headings previously driven out for the purpose of commencing, such system, Fay. c. To start any new working, as a heading, entry, gangway, room, etc., from another working, as a slope, gangway, etc. Fay.

open-pit mines. Open-cast mines; open-pit mining.

open-pit mining; open-pit mining. a. A form of operation designed to extract minerals that lie near the surface. Waste, or overburden, is first removed, and the mineral is broken and loaded, as in a stone quarry. Important chiefly in the mining of ores of iron and copper. Barger, l. The mining of metallic ores by surface-mining methods is commonly designated as "open-pit mining," as distinguished from the "strip-mining" of coal and the "quarrying" of other nonmetallic materials such as lime-stone, building stone, etc. Woodruff, v. 3. See also open-pit mining. Nelsen.

open-pit quarry. A quarry in which the opening is the full size of the excavation. One open pit is used in the mining of coal as long as a seam is not crushed or flow. See also close timbering. Nelsen.

open port. A port which is not icebound during winter. Hy.


open rock. Any stratum capable of holding much water, or conveying it along its bed by virtue of its porous or open character. Fay.

open rod press. A hydraulic press in which the side is guided by vertical, cylindrical rods (usually four) that also serve to hold the crown and bed in position. ASM Gloss.

open. Large, open cracks or crevices and small and large caverns, Long.

open-sand castings. Castings made in molds simply excavated in sand, without flasks. Fay.

open-shop. A shop, or mine, where the union price is paid, but where the workmen are not union men. Fay.

open-source. Any radioactive source of ionizing radiations that is not firmly bonded within metals or sealed in a capsule or similar container. NCB.

open spark. Sparkling which owing to lack of adequate provisions for preventing the ignition of flammable gas external to apparatus, would ignite such gas. Nelson.

open split. A split in which no regulator is used. Higham, p. 281.

open stopes. a. An unfilled cavity. Nelson, b. Underground working place other unsupported, or supported by timbers or pillars of rock. Pryor, 3.

open-stope and filling. See overhand stoping, b. Fay.

open-stope method. a. Stopping is which no regular artificial method of support is em-}
open-top carriers

as long as 7 feet, are attached rigidly to heavy flat box chain, each strand made of two bars with a pitch of 24 to 36 inches and an 8-inch flanged roller at each intersection. The elevator rises at an angle of about 60°, and the rollers run on ways. Tandem or single. The buckles have overlapping edges, so that there is no spill between them. Pit and Quarry, 53rd, Sec. G, p. 314.

open-top tubbing. A length of tubbing having no wedging crib on the top of it. Fay.

open traverse. In surveying, one in which the last line is not so directed as to close on the starting point. Pryor, 3.

open up. Term used among miners to describe operations that uncover the deposit and provide access to it. Stoes, v. 1, p. 214.

open water. Water with less than one-tenth ice coverage. Hy.

open-web girder. See lattice girder. Ham.

open working. Surface workings, for example, a quarry or opencast mine. Among the minerals often exploited by open workings are copper, silver, lead, gold, tin, and antimony. Also called open work. Dobrin, p. 56.

operating carrier. The mechanism used with the automatic duckbill through which the ore is received and retracted of the shovel trough are controlled. Jones.

operating cost. The sum of the costs of mining, beneficiation, and administration gives the operating cost of a mine. Nelson.


operating point. A ventilation system is composed of a fan and a set of connected ducts. In a mine ventilation system, mine openings comprise the ducts. At a given air density and with the fan operating at constant speed, there is only one head and quantity of air flow which can result. This is an equilibrium condition and is known as the operating point of the system. Hartman, p. 198.

operating stress. The stress to which a structural unit is subjected in service. ASM Gloss.

optical capacities. Figures given on the flow sheets to indicate quantities passing various points in the plant per unit time, taking account of operations as in the rate of supply and composition (or as size and content of impurity), as follows: (1) design capacity, the rate of feed, defined by limits expressing the extent and duration of load variations, at which specific items of equipment, not subject to performance guarantees, must operate continuously and give the guaranteed results on a particular quality of feed; (2) peak design capacity, a rate of feed in excess of the design capacity which specific items of plant will accept for short periods without fulfilling the performance guarantees given in respect of them; and (3) mechanical maximum capacity, the highest rate of feed at which specific items of equipment, not subject to performance guarantees, will function on the type and quality of feed for which they are supplied. B.S. 3532, I.

optical measuring instrument. Statistical analysis of data accumulated to aid planning of best technique for a given optical requirement, most of optimum standards and variances in processing methods which involve both choice and chance. Stema from reader engineering. Pryor, 3.

optical waste. The water lost from an irrigation system either through spills or by other means. Ham.

operating temperature. Operative temperature is that temperature of an imaginary environment in which, with equal wall (excluding air near the faces of the structure), and ambient air temperature and some standard rate of air motion, the human body would lose the same amount of heat by radiation and convection as it would in some actual environment at unequal wall and air temperatures and for some other rate of air motion. Streeh, 10.

operator. a. The person, owner, or lessee actually operating a mine. b. One who operates the seismic instrument. Schiferdecker. d. See observer, a. Dobrin, p. 56.

ophicalite. A marble containing serpentinite; also used for any calcite-serpentine rock. A.G.I.

ophiolithic. Syonym for plagioclase; ophite; prasinite; A.G.I.

ophiolite. Basic igneous rocks associated with geosynclinal series, generally altered to rocks rich in serpentinite, chlorite, epidote, and albite. See also basic schist; ophite; prasinite. A.G.I.

ophite. A variety of marble closely related to calcite; ophite; prasinite. A.G.I.

ophitic texture. A textural characteristic of dolerites in which the groundmass is embedded in a mesostasis of pyroxene crystals, usually augite. A.G.I.

ophitic. a. Any of various usually green and often mottled or blotched rocks (as a serpentinite or serpentine marble). Webster 3d. b. A variety of marble closely related to serpentinite. Synonym for ophitic. Standard, 1964. Also called verd antique. Fay.

ophiolytic. Applied to a texture characteristic of diabases or dolerites in which euhedral or subhedral crystals of plagioclase are embedded in a matrix of pyroxene crystals, usually augite. A.G.I.

ophitic texture. A texture characteristic of dolerites in which relatively large pyroxene crystals completely enclose smaller, lath-shaped plagioclases. See also poikilitic. C.M.D.

ophtalmic glass. Glass used in spectacles, in which the quality can be controlled and the properties specified. ASM C162-66.

ophtalmite. A type of chert consisting of coarsely sintered augenlith, boulderlike, or nodular elements intergrown with groundmass. Lenticular varieties are said to show flaser development when strads of the groundmass cling closely to the lenses. When the lenses are flat and disklike, the term flat-chip is used in German texts. The mineral aggregates (elements) may also exhibit spindle-shaped or cylinderlike forms. A.G.I.


optical metamorphism. The indurating, burning, and fritting effects produced by lavas and small dikes on the rocks with which they come into contact. Schiferdecker.


optical anomaly. An irregularity in optical properties or unusual phenomenon, such as anomalous double refraction in a dia- mond or other intermediate mineral. Observable in most synthetic spinel, but rarely seen in a genuine spinel. See also strain. Shipley, 8.

optical blank. A piece of optical glass that has been pressed approximately to the optical sign

shape finally required; also called a pressing. Dodd.

optical calcite. Calcite crystals so clear that they have value for optical use. A.G.I.

optical centering devices. An optical device which enables a theodolite to be accurately positioned over or under a survey station. Also called precise optical centering. B.S. 3618, 1961, sec. 1.

optical character. The designation as to whether optically positive or optically negative; said of minerals. Fay.

optical constants. In optical mineralogy, the indices of refraction, axial angle, extinction angle, etc. Fay.

optical crown glass. Any glass of low dispersion used for optical equipment. There are many varieties, their names indicating their characteristic composition, for example, barium crown, borosilicate crown, fluor crown, phosphate crown, etc. Compare flint glass. Dodd.

optical crystallography. The study of the behavior of light to crystals. Hazen.

optical flat. Glass or other surface rendered truly plane. Pryor, 3.

optical glass. Carefully made glass of great uniformity and usually special composition to give desired transmission, reflection, and dispersion of light. C.C.D. 64, 1961.

optical glass classification. A system by which an optical glass is classified according to its refractive index, and its Abbe Value, v. Standard borosilicate crown glass, for example, has nD = 1.510 and v = 64.4; its classification by this system is 51064.4. Further detailed classification is often provided by letters, preceding the number, for example, BSC = borosilicate crown; LF — light flint, etc. Dodd.

optical glass numerical designation. The numerical designation in common usage is based on the index of refraction for sodium light (nD) and the Nu-value (v). The unity factor for the index is dropped (that is, 1.496 becomes 496), and the decimal point for the Nu-value is also dropped (64.4 becomes 644). Thus, the glass is specified 496/644 without reference to chemical composition. In cases, however, it is permissible to precede the numerical designation by the abbreviated name indicative of composition. For instance, borosilicate crown (BSC) 496/644 may be used. For example, dense barium crown may be crown 610/574 or DBC, 610/574, or just 610/574 meaning nD = 1.610 and Nu-value = 574 A.M.S. C162-66.

optically dense. Term applied to glasses with a high refractive index. Pearl, p. 119.

optical plumb. The establishing of points by direct observation with the transit. Staley, p. 164.

optical properties. The effects of a substance upon light. Refractive index, double refraction, and its strength, birefringence, dispersion, chromism, and color are genetically the most important optical properties displayed.

optical pyrometer. An instrument for measuring the temperature of heated material by comparing the intensity of its radiation with that of an incandescent lamp filament. ASM Gloss.

optical sign. When a translucent crystal is viewed, the light travels through the mineral at a speed which corresponds with its refractive index, and the sign is affected by the crystal planes. A
optical twinning. A type of twinning in quartz in which the parts of the twin are alternately left- and right-handed. Optical twinning is also known as Brazil twinning and chiral twinning. So called because it can be recognized by optical tests in distinction to Dauphine (electrical) twinning. Optical twinning as ordinarily applied includes all twin laws in quartz with the exception of the Dauphine. AM, I. optical angle, the angle between the optic axes. Standard, 1964. optical axes. Those directions in anisotropic crystals along which there is no double refraction. Pryor, 4. optical axis. A direction of single refraction in a doubly refracting mineral. Hexagonal and tetragonal minerals have one such axis, and uniaxial minerals (all except calcite and mica) have two such axes and are thus biaxial. Anderson. optical motion. The division of physics which covers the behavior of light. Shipley. optical sign. The type of double refraction in a mineral. On uniaxial minerals, the character is positive when the extraordinary ray has the greater index. In biaxial minerals, which have three basic optical directions, the refractive index of the intermediate or beta ray is the criterion; if its refractive index is nearer that of the low or alpha ray, it is said to be a negative mineral; if it is nearer the high or gamma ray, it is said to be a negative mineral or stone. Shipley. optimization. Coordination of various processing factors, controls, and specifications to provide best overall conditions for technical and/or economic operation. Pryor, 4. optimum. a. The best; said of values not necessarily the highest or lowest, but which give the best results. Maron, b. Desired normal condition of material at a specified point in the flow line of a continuous process, at which it is considered to be in the most suitable condition for further treatment. Pryor, 3. optimum depth of cut. That depth of cut required to completely fill the dipper in one pass without undue crowding. Carson, p. 40. optimum moisture content. The water content at which a soil can be compacted to the maximum dry unit weight by a given compaction effort. Also called optimum water content. ASCE P1826. option. a. A privilege secured by the payment of a premium in consideration for the purchase, lease, or mining of other property, within a specified time, or upon the fulfillment of certain conditions set forth in the contract. Fay, b. S. Afr. The word option may refer to houses under option to the holder of option certificates. In regard to mining activities, options are granted, to acquire interests in rights and/or surface rights over some farm at a price fixed in the agreement. This price may be a sum of money or a participation in a mining company still to be formed. The price is considered the contract price. The option itself can be acquired for a lump sum or for a payment of so much per month over a year. The option contract is generally connected with the permission for the option holder to conduct for minerals and/or prospecting contract. Beerman. optional-flow storage. In coal preparation, optional-flow storage is where those in the coalusual go to the plant but can be diverted into storage, either in bins or hoppers or on the ground. Coal Age, v. 71, No. 8, August 1966, p. 238. opus incertum. Masonry of small stones set irregularly in masonry. Standard, 1964. opus interlitterum. Brickwork or tilework in horizontal courses with broken joints. Standard, 1964. opus reticulatum. Mosaic composed of small cubes of manila, glass, or clay. Standard, 1964. oral agreement to locate. An agreement to locate need not be in writing. If a party, in pursuance of an oral agreement to locate at the expense of another, locates the claim in his own name, he holds the legal title to the ground in trust for the benefit of the party for whom the location was made. Such a party could, upon making the necessary proofs, compel the locator of the mining claim to convey the title to him, although such agreement so to do was not in writing. Such an agreement is not within the statute of frauds. Ricketts, I. orange heat. A division of the color scale, generally given as about 20° C (1,652° F). Bureau of Mines Staff. orangepeel. a. A pebble-grained surface which develops in forming of metals having coarse grains. ASM Gloss. b. A pitted texture of a fired glass or porcelain, having the surface of rough orangepeel. ASTM C249-60T. c. A variant of the clamshell bucket with four or five leaves instead of the clamshell's two. Each end has in a reinforced point. Its digging ability is less than that of the clamshell, and its principal use is for underwater excavation and digging. Carson, p. 128. orangepeel bucket sampler. This sampler is used primarily to obtain bottom samples in shallow water and several sizes are available. The size considered here weighs 45 pounds and holds about 300 cubic inches of sediment. A small hook, attached to the end of the lowering wire, supports the sampler as it is lowered and also holds the jaws (four curved triangular blades which form a hemisphere when closed) in the open position. When contact with the bottom is made the sampler jaws sink into the sediment and the wire tension is released, allowing the sampler to swing free of the sampler. Upon hoisting, the wire takes a strain on the closing line which is also attached to a handle which activates a ratchett chain, which in turn close the jaws. The closing line supports the sampler as it is being hoisted. To prevent washing out of the sample from the top, a canvas cover is frequently used. HOG. orangepeel rock. A surface roughening of the form of a grain pattern where a metal of unusual coarse grain is stressed beyond its elastic limit, which deformed pebbles; alli- gator skin. ASM Gloss. orangepeel sampler. An apparatus consisting of four movable jaws that converge to a point when closed; used to obtain samples of underwater sediment. AGI. Supp. Orange sand. A deposit of sand, gravel, and pebbles, containing boulders of northern Paleozoic rocks, occurring in the Mississippi Valley; a diluvial deposit of the Champlain or Quaternary epoch. Fay. Orange topaz. Same as Spanish topaz. Shipley. orangite. A bright, orange-yellow variety of thortite. See also thortite, a. Fay. orbicular. Containing spheroidal aggregates of megascopic crystals, generally in concentric shells composed of two or more of the constituent minerals; said of the structure of some granular igneous rocks, such as corite. See also orbicular. Shipley. large dark silicate. Facies of the Chalk. Shipley. orbicular Jasper. Jasper consisting of round or spherical inclusions, sprinkled or stippled here and there, which may or may not exhibit a xenolithic nucleus. Synonymous with spheroidal structure; nodular structure. Holmes, 1920. orbit. In water waves, the path of a water particle affected by the wave motion. In deep water waves, the orbit is nearly circular and in shallow water waves, the orbit is nearly elliptical. In general, the orbits are slightly open in the direction of wave motion giving rise to mass transport. AGI. orbital. Path of electron around atomic nucleus. Shipley. orbite. Proposed by Chelius for certain diorite dikes near Orchebose, Hesse, Germany; consists of a porphyritic aggregate of large phenocrysts of hornblende, biotite, and plagioclase. Fay. orcelite. A vein in serpentinitized harzburgite in the Tiebaghi massif, New Caledonia, consists almost wholly of a new mineral, NiAs, distinct from maucherite and ni- celite. Probably identical with the artificial phase NiAs. Hey, M.M., 1961. orchard heating oil. A dark oil used in California, possessing a gravity of 26° to 28° Be'; it is also termed smudge oil, and is used in the orange and lemon groves to prevent frost from injuring the trees. Fay. orchardite. A variety of halloysite tephrite containing phenocrysts of andesine and orthoclase. Holmes, 1928. order. A division of igneous rocks, considered after the division into classes, based (in classes I, II, and III) on the relative proportions of normative quartz or nepheline to the sum of the mafic and feldspar types. This division is analogous to the division of rocks into oversaturated, saturated, and (as regards to crystalline rocks) unsatura- ted types. In classes IV and V, the orders are based on the relative proportions of the normative pyroxenes, and olivine, etc.,
ordered solid solution. A condition when atoms in a solid solution arrange themselves in regular or preferential positions in the lattice, rather than at random. Newton, 5.

order of crystallization. The apparent chronological sequence in which crystallization of the various minerals of an assemblage takes place, as evidenced mainly by textural features. A.G.I.

order of persistence. See stability series. A.G.I.

order of reaction. A classification of chemical reactions based on the index of the power to which concentration terms are raised in the expression for the instantaneous velocity of the reaction, that is, the apparent number of molecules which interact. C.T.D.

ordinary cut. In the ordinary cut the holes are placed symmetrically in relation to the vertical center line of the section. The drill holes are horizontal and the angle towards the bottom is large. The symmetrical holes meet at the bottom. Franekel, s. 1. Art. 6 6/2, p. 23.

ordinary ray. a. That ray of polarized light between the sines of the angles of incidence and refraction. Fay. b. In uniaxial rocks, that ray which travels with constant velocity in any direction within the crystal. Anderson.

ordinary rolling strata. Relatively uniform sedimentary deposits conformable to the surface and slightly varied character of the strata in which they are found. Spalding, p. 159. c. A trough or lip at the bottom of a ore current. Aqueous solutions of metalliferous rocks. Weed, 1922.

ore. a. A natural mineral compound of the elements of which one at least is a metal. Applied more loosely to all metalliferous rock, though it contains the metal in a free state, and occasionally to the compound of metallic substances. Webster 2d. b. A mineral of sufficient value as to quality and quantity which may be mined with profit. Fay. c. A mineral, or mineral aggregate, containing precious metals or metallic alloys, and which occur in such quantity, grade, and chemical combination as to make extraction commercially profitable. Fay. d. A metalliferous mineral, or an aggregate of metalliferous, or metals, more or less mixed with gangue, which, from the standpoint of the miner, can be won at a profit or, from the standpoint of a metallurgist, can be treated at a profit. The test of yielding a metal or metals at a profit seems, in the last analysis, to be the only feasible one to employ. Fay. e. Copper ore; tin ore being spoken of as pyrite. Fay. f. Robustly constructed steel, wood or concrete, or a continuous mass of ore, which may include low-grade ore and waste as well as pay ore, but is individualized by load characteristics. Fay. g. A large electric gantry-type crane which, by means of a clamshell bucket, stocks ore or carries it from the stockpile and ready for ore blending. Where a mine, or a group of mines, operate in a restricted root. A.G.I.

ore blend. A mixture or a combination of different grades of ore. Pruitt, 3.

ore body. a. Generally, a solid and fairly continuous mass of ore, which may include low-grade ore and waste as well as pay ore, but is individualized by load characteristics. Fay. b. A deposit of iron which may be mined and worked for nonmetals, as pyrite. Fay. c. A mineral aggregate, containing precious metals or metallic alloys, and which occur in such quantity, grade, and chemical combination as to make extraction commercially profitable. Fay.

ore blocks. A section of a vein bounded above and below by stoping limits. Pryor, 3.

ore chutes. A. An inclined passage, from 3 to 4 feet square, for the transfer of ore to one or both ends. It may be constructed through waste fills. It generally requires support for ore, although an unlined passage may be used in suitable ground. In square-set stoping, chutes are constructed by sinking a series of sets with 2 to 3 inch planks. Where a chute is relatively permanent, timber blocks 10 by 10 inches to 12 by 14 inches may be used. Chutes are also constructed in close timber cribbing, the round timber being slatted to present a smooth interior to the chute.

ore classifiers. A group of ore bodies sometimes differing from each other in structure but interconnected or otherwise closely related genetically. Some ore clusters gather downward into a restricted root. A.G.I.

ore control. A geologic feature that has influenced the deposition of ore. Ballard.

ore crushers. A. A machine for breaking up masses of ore, usually previous to passing through stamps or rolls. Fay. b. See crusher man. D.O.T. Supp.

ores. Aqueous solutions of metalliferous minerals circulating through the earth's crust. Fay.

ore defle. a. Ore lying underground. Fay.

ore delves. Where a mine, or a group served by a common mill, sends ores of slightly varied character for treatment, separate grading bins or stockpiles are provided. From these regulated percentages are drawn and blended to provide a steady and predictable feed to the mineral dressing plant. Fay. 3.

ore block. A section of a vein bounded above and below by up and down drifts and on one or both ends by winzes or raises and ready for stoping. Nelson.

ore bunked out. Ore which is exposed in three sides within a reasonable distance of each other. Fay.

ore boat. A boat constructed especially for transporting iron ore on the Great Lakes. Mersereau, 4th, p. 382.

ore body. a. Generally, a solid and fairly continuous mass of ore, which may include low-grade ore and waste as well as pay ore, but is individualized by load characteristics. Fay. b. A deposit of iron which may be mined and worked for nonmetals, as pyrite. Fay. c. A mineral aggregate, containing precious metals or metallic alloys, and which occur in such quantity, grade, and chemical combination as to make extraction commercially profitable. Fay.

ore box. A large electric gantry-type crane which, by means of a clamshell bucket, stocks ore or carries it from the stockpile and ready for ore blending. Where a mine, or a group of mines, operate in a restricted root. A.G.I.

ore bridges. A. A large electric gantry-type crane which, by means of a clamshell bucket, stocks ore or carries it from the stockpile and ready for ore blending. Where a mine, or a group of mines, operate in a restricted root. A.G.I.


ore channels. The space between the walls or boundaries of a lode which may be mined. Also called lode country. Fay.

ore chute. a. An inclined passage, from 3 to 4 feet square, for the transfer of ore to one or both ends. It may be constructed through waste fills. It generally requires support for ore, although an unlined passage may be used in suitable ground. In square-set stoping, chutes are constructed by sinking a series of sets with 2 to 3 inch planks. Where a chute is relatively permanent, timber blocks 10 by 10 inches to 12 by 14 inches may be used. Chutes are also constructed in close timber cribbing, the round timber being slatted to present a smooth interior to the chute.

ore clusters. A group of ore bodies sometimes differing from each other in structure but interconnected or otherwise closely related genetically. Some ore clusters gather downward into a restricted root. A.G.I.

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ore crushers. A. A machine for breaking up masses of ore, usually previous to passing through stamps or rolls. Fay. b. See crusher man. D.O.T. Supp.

ores. Aqueous solutions of metalliferous minerals circulating through the earth's crust. Fay.

ore defle. a. Ore lying underground. Fay.

ore delves. Where a mine, or a group served by a common mill, sends ores of slightly varied character for treatment, separate grading bins or stockpiles are provided. From these regulated percentages are drawn and blended to provide a steady and predictable feed to the mineral dressing plant. Fay. 3.
ore deposit. A general term applied to rocks containing minerals of economic value in such amount that they can be profitably exploited. Also applied to deposits which, though they may not be immediately capable of profitable exploitation, may yet become so by a change in the economic circumstances that control their value. See also mineral deposit. Holmes, 1928.

ore developed. Ore exposed on four sides in blocks variously prescribed. See also positive ore; proved ore. Fay.

ore depositing. Ore exposed on two sides. First class, blocks with one side hidden; second class, blocks with two sides hidden; third class, blocks with three sides hidden. See also probable ore. Fay.

ore-like. An injected wall-like intrusion of mafic magma, forced in a liquid state through bedding or other layered structure of the invaded formation. Schiefer-decker.

ore district. A combination of several ore deposits into one common whole or system. Fay.

ore dressing. a. The removal of certain valueless portions as cobbing, vanning, and the like. See also concentration. Fay. b. The same as mineral dressing. A.G.I. Gloss.

dump. A heap or pile of ore at the tunnel or adit mouth, the top of shaft, or other place. Weed, 1922.

ore-expecting. The whole or any part of the ore below the lowest level or beyond the range of vision. The prospective value of a mine beyond or below the last visible ore, based on the fullest possible data from the mine being examined, and from the characteristics of the mining district. See also possible ore; prospective ore. Fay.

ore faces. Those ore bodies that are exposed on one side, or show only one face, and of which the values can be determined only in a prospective manner, as deducted from the general condition of the mine or prospect. Fay.

ore fractionation. Trademark for domestic zircon. Used for ceramic and foundry purposes. COA 668, 1981.


ore geology. The branch of applied geology dealing with the genetic study of the ore deposits in relation to age, regional tectonics, and petrographic provinces. Synonym for metallurgy. Schiefer-decker. See also economic geology; mining geology.


Oregon jade. Mmmonore for massive grossularite garnet found in Oregon, and indeed for almost any translucent to opaque green stone found in Oregon or California. Shipton.

Oregon moonstone. Same as chalcedony Moonstone. Shipton.

Oregon sledge. A broad-faced sledge hammer. Fay.

ore picker. In metal mining, one who directs and regulates the storage of iron ores of various grades in bins at shipping docks or at the mills. In the process of storing such iron ore in a bin will contain approximate percentage of iron guaranteed to the buyer (iron and steel mills). D.O.T. 1.

ore grade. A natural feature, organic or inorganic, that often indicates the proximate or essential character of an ore body, as gossan, mineral alteration, certain structural features, indicator minerals, etc. Fay.

ore hearth. a. A small, low fireplace surrounded by three walls, with a tuyere at the back. Three important types are: (1) Scotch ore hearth; (2) American water-back ore hearth; and (3) Moffet ore hearth used in smelting. Fay, E. J. Scot. A small blast furnace for smelting lead; a blast hearth. Standard, 1964.

ore-hearth process. Methods for the extraction of lead in which lead ore, mixed with fuel, is treated on a roasting hearth. Fay.

orel. A quarry term applied to granite that has been altered by the alteration of its aegirite particles. Fay.

oreing down. A blocking operation in which ore is added to the back. This is done to increase production and to oxidize the bath and to further reduce the carbon. Henderson.

ore in sight. a. A term frequently used to indicate two types of ore: (1) ore blocked out, that is, ore exposed on at least three sides within a block of ore; and (2) ore which may be reasonably assumed to exist, though not actually blocked out; these two factors alone in all cases be kept distinct, because (1) is governed by fixed rules, while (2) is dependent upon individual judgment and local experience. The expression ore in sight as commonly used in the past, appears to possess so indefinite a meaning as to discredit its use completely. The terms positive ore, probable ore, and possible ore are suggested. Fay. b. Ore-bearing rocks in separate and blocked off by being worked around on two or more sides that it is subject to examination and measurement. Prospective purchasers have a right to rely upon statements as to the amount of ore in sight. Ricketts, F. M. See developed reserves. Nelson.

ore intersection. The point at which a borehole, corecut, or other underground opening encounters an ore vein or deposit; also, the thickness of the ore-bearing deposit so traversed. Long.

ore leave. The value of the right to dig and to take ore; also, the value of ore in place. Fay.

oreless. Having no ore. Webster 3d.

ore magma. A heavy and highly concentrated solution containing metals and nonmetals. A.G.I.

ore man. A laborer who fills hoppers of aluminum reduction pots with aluminum oxide. 8-


ore mining. a. The art of extracting useful or desired metallic constituents of an ore body. Fay, E. J. For example, making the ore body into a smelt. b. The total tonnage and average value of proved ore, plus the tonnage and value (assumed) of the probably ore. How. p, 122.c. The mine's substantial asset, without which none of the surface works are economically viable. A body of ore which has been proved to contain a sufficient tonnage of amenable valuables to justify the mining enterprise. The British Institution of Mining and Metallurgy, which regulates the professional standards of its membership, considers that the term ore reserves should be restricted to ore of which the grade and quantity of ore have been established with reasonable assurance by drilling and other means. Nelson. b. The total tonnage and average value of proved ore, plus the tonnage and value (assumed) of the probable ore. How. p, 122.c. The mine's substantial asset, without which none of the surface works are economically viable. A body of ore which has been proved to contain a sufficient tonnage of amenable valuables to justify the mining enterprise. The British Institution of Mining and Metallurgy, which regulates the professional standards of its membership, considers that the term ore reserves should be restricted to ore of which the grade and quantity of ore have been established with reasonable assurance by a responsible, professionally qualified person. Additional ore insufficiently developed or tested for inclusion in ore reserves should be clearly described in simple terms best suited to the circumstances; modes of mineral occurrence vary too widely to permit standardization of categories. Pryor, 3. d. S. Afr. Ore bodies made available for mining through designs connected by wintzes (a connection driven down) and raises (a connection driven up.), thus forming blocks which are accessible from four sides. Some companies record partially developed ore reserves in which this ore making of roads has not been completed. Newcomers in gold mining occasionally speak of ore reserves when they mean the ore bodies contained in a mining area and in copper mining this method of expression has been accepted by large concerns. Beer.

ore mining. The process of heating certain ores to temperatures slightly below their reducing temperatures to drive off such impurities as are capable of oxidation at lower temperatures.
ore roasting

hydrogen is attached to carbon whether derived from living organisms or not. Usually distinguished from inorganic or mineral. Webster 3d.

organic acid. An acid derived from substances having carbon and hydrogen. An example is naphthenic acid. Shell Oil Co.

organic ash. Ash in coal derived from the incombustible material contained in plants. Tomkeieff, 1954.

organic bond. A bond consisting of an organic material, such as rubber, synthetic resin, or asphalt. ASCE, 1963.


organic clay. A clay with a high organic content. ASCE P1026.

organic colloids. Depressants used in the flotation process. They include g lut, gelatin, albumen, blood, casein (protein), tannin, licorice, qubrach roooth extract, and saponin (complex polyhydroxy carb onate) as in Hoadly, 1929.

organic-cooled reactor. A nuclear reactor that uses waterlike organic chemicals, such as mixtures of polyphenylenes and terphenyls, as coolant and usually also as moderator. LBL.

organic deposits. Rocks and other deposits formed by organisms or their remains. Fay.

organic gem materials. Naturally occurring substances whose origin is wholly or partly organic, such as pearl, amber, coral, and jet. Shipley.

organic hieroglyph. See ichnofossil. Pettijohn.

organic silt. A silt with a high organic content. ASCE P1026.

organic soil. Soil with a high organic content. In general, organic soils are very compressible and have poor load-sustaining properties. ASCE P1026.

organic sulfur. The difference between the total sulfur in coal and the sum of the pyritic sulfur and sulfate sulfur. B.S. 1016, 1961, Pt. 16.

organic test. The test in which organic matter in soil is destroyed by oxidizing agents and the loss measured. This test is used in preparation of soil for a sedimentation test, and gives an indication of the amount of organic matter present. Ham.

organic theory. The theory that oil and gas originated from the natural distillation of vegetable and animal remains in stratified rock. Shell Oil Co.

organic. Being, containing, or relating to orichalc. Under the Roman empire, an alloy of copper and zinc resembling gold in appearance and value. There was also a white orichalc. Standard, 1964.

organicous. Having a color between gold and brass; of or pertaining to orichalc. Standard, 1964.


orient. a. To place a diamond in a bit mold in such an attitude that when it is embedded in the crown matrix one of its hard vector planes will come in contact with the rock to be abraded or cut by the diamond. Long. b. To place a deflection wedge in a borehole in such an attitude that the deflection surface is pointed in a predetermined direction. Long. c. To place a piece of core in the same relative plane and position all of the same azimuths as the corresponding lines on the ground. Seeley, 2. e. In a transit, to turn the instrument so that the direction of the 0' line of its horizontal circle is parallel to the direction it had in the preceding, or in the initial, setup. Seeley, 2.

oriental agate. The most beautiful and translucent sorts of agate. Fay.


oriental almandine. A trade name for corundum of gem stone quality, which is deep red in color, resembling true almandine (a garnet) in this, but no other, respect. C.M.D.

oriental amethyst. A variety of sapphire, but the term is applied to any amethyst of exceptional beauty. Fay. b. A variety of corundum. Hey, 2d, 1935. c. A type of false amethyst. C.T.D.

oriental aquamarine. Pale bluish-green to greenish-blue corundum. Shipley.


oriental carnelian. Deep bright red trans- lucent stone, resembling the material called carnelian. C.T.D.

oriental cat's-eye. Synonym for cyphomite. C.M.D. See also cat's-eye.

oriental chatoyant. A trade name for cabochon which is the same as chatoyant moonstone. Hess.

oriental chrysoberyl. Yellow-green-sapphire stone. Shipley.

oriental chrysoberyl. A variety of chrysoberyl. Hey, 2d, 1935.

oriental emerald. A green variety of corundum. Fay.
oriental garnet. A precious garnet. Webster 2d.

oriental gislarol. Girasol sapphire. Shipley,

oriental hyacinth. Orange-red sapphire. Shipley.

oriental Jasper. An early name for helio-

topaz. A yellow variety of corundum.


oriental Moonstone. A girasol corundum.

oriental opal. Banded, mottled, or clouded

oriental onyx. Banded, mottled, or clouded

oriental jasper. An early name for helio-

topaz. A yellow variety of corundum.

oriental Peridot. Olive-green sapphire. Ship-

oriental Peridot. Olive-green sapphire. Ship-

oriented. Type in which adsorbed molecules

of important sets of planes in a crystal in

ASTM STP No. 148-D. g. The position

relative position of particles with respect

procedure used in placing an instrument or

orientation refers to the method and pro-

a bit in such an attitude that one of its hard

vector planes will be the surface that cuts or

abraded the rock. See also orient. a. Long.

oriented core. A core specimen which can

be positioned on the surface as it was in

the borehole prior to extraction. Such a

core is useful when the general dip of the

strata is required from one borehole. A

magnetic method may be used to disclose

the polarity the core specimen possessed

while in situ. See also borehole surveying.

oriented adsorption. Surfaceal grouping of

a monomolecular layer in a definite direc-

tion. Pryor, 3.

oriented surface-set diamond bit with

individual stones set so as to bring the

hard vector direction or planes of the crys-

tal, into the direction of the rock surface

to be abraded or cut. See also orient, a.

oriented core. A core specimen which can

be positioned on the surface as it was in

the borehole prior to extraction. Such a

core is useful when the general dip of the

strata is required from one borehole. A

magnetic method may be used to disclose

the polarity the core specimen possessed

while in situ. See also borehole surveying.

oriented specimen. a. In structural petrology,

a hand specimen so marked that its exact

arrangement in space is known. Billings,

1954, p. 366. b. In paleontology, a fossil

arrangement in space is known. Billings,

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arrangement in space is known. Billings,
Ornerod detaching hook

consisting of three plates, the center one moving on a steel pin. Normally, the plates are locked with a copper pin. In the event the central plate is pushed sideways which releases the rope shackles. Projections on the plates engages in the bell fixed in the headgear and support the cage until released. Nelson.

ormolu. a. Gold ground for use in gilding; also metal gilded with ground gold. Webster 3d. b. A brass made to imitate gold and used in mounts for furniture and for other decorative purposes. Also called mosaic gold. Webster 3d.

ornamental brick. A somewhat broad term applied to front brick, that are either of some form other than that of a rectangular prism or, that have the surface ornamented with some form of design. Fay.

ornamentite. A variety of hornblende.

ornell. The same as urnel. Arkell.

ornogenesis. See orogeny. A.G.I.

orogenic. orogenetic. Formed as the result of mountain building processes. Heston.

ornith. n. A combining form meaning straight; at right angles; proper. A.G.I. b. In petrography, the prefix indicating that a metamorphic rock was originally igneous. A.G.I.

oropilobus. A group name for the orthorhombic amphiboles. Eng.

orophil. A variety of antigorite based on an orthohexagonal cell; from orthorhombic. A.G.I.

orograph. See orography.

orogentic. Formed as the result of mountain-building processes. Heston.


orogenic. sediment. Any sediment whose origin is directly attributable to the region of a mountain building in which it later becomes involved. Stikes and Varnes, 1955.


orography; orology. A branch of physical geography that deals with mountains and mountain systems. Webster 3d.

orolate. An alloy, chiefly of copper and zinc, or tin, resembling gold in color and brilliancy; used in making cheap jewelry. Weberry 3d.

oroscopy. See orography. Fay.

orometer. An aneroid barometer having a second scale that gives the approximate elevation above sea level of a place where the observation is made. Webster 3d.

orosol. See orography. Fay.

oropin. A yellow arsenic trisulfide, AsS3, containing 61 percent arsenic; monoclinic. Dana 17.

orogen. A yellow arsenic trisulfide, AsS3, containing 61 percent arsenic; monoclinic. Dana 17.

Great gas-analysis Instrument. An instrument for analyzing flue gases. Although outside its normal field of application, it may be used for analyzing mine air. Nelson.


orth- a. A combining form meaning especially by folding of the earth's crust.

orthorthite. Cesaro's name for an orthorhombic amphibole. Eng.

orthogonal. In the monoclinal system, the axis that is perpendicular to the other two axes. Fay.

orthoferrite. An end-member, Fe(Mn)₂SiO₄, crystallizing directly from the magma. Compare pegmatic stage. A.G.I.

ortholith. An oval-shaped variety of augite or hornblende. Hurlbut.

ortholignitous coal. Coal containing from 75 to 80 percent carbon (ashless, dry basis). Tomkeief, 1954.

ortholimstone. A sedimentary limestone. A.G.I.

orthomagnatic. Applied to a stage in the crystallization of magma; during which only pyrogenic minerals (minerals crystallizing directly from the magma) are formed. A.G.I.

orthomagmatic stage. Applied to the main stage of crystallization, orthorhombic, or from a typical magma; the stage during which perhaps 90 percent of the magma crystallizes. Synonymous with orthorhombic stage. A.G.I.

orthofeldspar. Triclinic feldspars, which by repeated twinning (orthomorphism), simulate a higher degree of symmetry with rectangular cleavages. They include orthoclase, anorthoclase, and microcline. Eng.

orthophyry. An obsolete name for orthoclase phryory. A.G.I.

orthopyroxene. A textural term applied to medium- and fine-grained syenitic rocks consisting of closely packed orthoclase crystals of stuber build than in the typical trachytic texture. C.M.D.

orthophytic texture. A groundmass texture distinguished from trachytic texture by the presence of abundant stubby rectangles of feldspar. Holmes, 1928.

orthophosphacoloid; orthophyric. In the monoclinic system, the form consisting of the two planes parallel to the vertical and orthodiagonal axes. Standard, 1964.

orthophytolite. Orthorhombic, a being a monoclinal prismatic, the othurdidiagonal intercept of which is greater than 1. Standard, 1964.

orthopyroxene. Any of several pyroxene minerals that crystallize in the orthorhombic system. They generally contain no calcium and little, or no aluminum. Stikes and Varnes, 1955.

orthomagnetite. A clastic sedimentary rock composed of silica-cemented quartz sand. The cement is commonly deposited in cross-stratigraphic continuity with the quartz of the wind grains. A.G.I.

orthorhombic. The crystal system in which crystals have two or three symmetry planes and twofold symmetry axes at their intersection. Hurbit.

orthorhombic symmetry. In structural petrology, refers to either symmetry of movement or symmetry of fabric. Orthorhombic symmetry of movement is exemplified by the motion that occurs when a sphere is subjected to a single compressive force acting along the vertical axis but is constrained on two opposite sides. Orthorhombic symmetry of fabric is the sym-
orthorhombic symmetry

metry of an ellipsoid; there are three planes of symmetry. Synonym for rhombic symmetry.

orthorhombic system. In crystallography, that system of crystals whose forms are referred to three unequal mutually perpendicular axes lying in a three-dimensional system; rhombic system; triclinic system. Fay.

orthorocks. Metamorphic rocks which are derived from rocks of igneous origin. Schieftecker.

orthoschist. Used to denote a schist derived from an igneous rock. See also parascist; schist. A.G.I.

orthose. a. A name for the whole feldspar family before it was divided into separate species. Fay. b. Synonym for orthoclase. Hey 2d, 1955.

orthosillicate acid; silicate acid. a. H2SiO3; known chiefly by its salts found in minerals. Fay. b. Orthosilicate, Mg,SiO3. This method of classifying silicates is obsolete. See also silicate acid.

orthosilicate acid; silicate acid. a. H2SiO3; known chiefly by its salts found in minerals. Fay. b. Orthosilicate, Mg,SiO3. This method of classifying silicates is obsolete. See also silicate acid.

orthotectic. Designates those processes and products, strictly magmatic in the narrowest sense, exemplified in the normal crystallization of normal igneous rocks. A.G.I.

orthotectic stage. Synonym for orthomagmatic stage. A.G.I.

orthotonous. Same as orthotonic. Fay.

orthotrop. The description applied to the elastic properties of material, generally explained as having been attained through a series of faunistic regions into which the coastal waters of the world have been divided. C.T.D.

orthovolcanic. a. Pyrometric cones made in two sizes, 2½ inches high for industrial kiln control, and 1-1/8 inches high for pyrometric cones for equivalent testing. See also pyrometric cone. b. Used in the United States for heat recording; they are similar to Seger cones, but the same numbers do not indicate the same temperatures, for example, Orton cone 14 corresponds to Seger cone 15. Rosenthal.

ovellite. An extrusive rock composed of plagioclase and saulline in about equal parts, as it is made up of thin lamellae alternately in reversed position; its form is commonly applied to progressive oscillatory waves in which only the form advances, the individual particles moving in closed orbits. Distinguished from a wave of translation. See also orbit. A.G.I.

oscarite. A kind of high fire, intermediate in the development of the Catalan forge and the blast furnace, formerly used to melting wurtzite from which was first made in England, in the 15th century. Fay.

osmide. Iridomide; hexagonal; Mol't hardness 6.7; specific gravity 19.3 to 21.1. A.G.I.

osmite. a. Iridomide with 40.83 percent osmium. English. b. Native osmium, perhaps present among the grains of iridomide from Brazil; U.S.S.R. English. c. Later applied to an iridomide from Borneo, West Indies, containing 50 percent osmium; rare in the United States for heat recording; they are also pyrometric cone equivalent testing. See also kiln control, and 1-1/8 inch high for pyrometric cone. Hey 2d, 1955.

oscillation. A slow, high-speed wave in which the die or punch move horizontally with the strip during the working stroke. Through a reciprocating motion, the die and punch return to their original positions to begin the next stroke. ASM Gloss.

oscillation beam. See walking beam.

oscillation conveyor. A type of vibrating conveyor having a relatively low frequency and large amplitude of motion. See also vibrating conveyor. ASA MH14-1958.

oscillation die press. A small, high-speed press in which the die or punch move horizontally with the strip during the working stroke. Through a reciprocating motion, the die and punch return to their original positions to begin the next stroke. ASM Gloss.

oscillation feeder. See conveyor type feeder.

oscillation grease table. An assembly of 4 to 15 metal trays, usually 30 inches wide and 8 to 15 inches long, arranged in series in the direction of flow. The trays are inclined to one another. See also isotropic. I.C. 8200, 1964, p. 70.


Osborn-Shaw process. See Shaw process.

oscilloscope. An instrument for showing visual phenomena. The recorded trace represents the waveform encountered in electrical circuits. Hey 2d, 1955.

oscillogram. A record of the indications on an oscillograph. ASM Gloss.

oscillograph. An instrument which renders visible, or automatically traces, a curve representing the time history of electric phenomena. The recorded trace is an oscillogram. A.G.I.

merly imported into England from Sweden and used especially for making arrowheads, distant clocks, etc. Holler 3d. Also, iron made in the ornate furnace. Fay.

ossium: amber. Opal or cloudy amber containing numerous minute bubbles. Tomkeieff, 1954.

ossous breccia. The cemented mass of fragments of bones of extinct animals found in caverns and fissures. Fay.

outferrous. Containing or yielding bones.

Challiner.


ouster. The person who feeds the mine horses or mules and keeps the stable in order. A contraction of hostler.

outrarods. Minute crustaceans with bean-shaped bivalve shells completely enclosing the body. A.G.I.

ostrealite. A variety of aristeite characterized by abundant magnetite and spinel.

Holmes, 1928.

Oswalt's dilution law. In weak solutions, the ouSat=ouSat. In strong solutions, the ouSat=ouSat.

oustracods. Minute crustaceans with bean-shaped bivalve shells completely enclosing the body. A.G.I.

ostrealite. A variety of aristeite characterized by abundant magnetite and spinel.

Holmes, 1928.

ostrealite. A mineral resembling cordierite, but containing 

KNa2O (Mg,Fe)SiO3. Fay.

Oswegan. Lower Silurian (restricted). A.G.I.

osumilite. A mineral resembling cordierite, but containing 

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ostrealite. A variety of aristeite characterized by abundant magnetite and spinel.

Holmes, 1928.


osseous amber. Opaque or cloudy amber

varies in color. Monoclinic. Fay; Dana

spinel.

outcrop. a. The part of a rock formation that is visible on the surface. Fay.

outcrop even if the rock is not exposed, to be found easily by digging. Fay. d. On outcrops that are so near to the surface as to be found easily by digging.

outcrop strike. Strike disapproved by the union or in violation of the contract between the union and the operators. Zerby.

outlay. a. The act of laying out or expending. Webster 3d. b. Something that is laid out; expenditure. Webster 3d. c. The cost of equipping a mine and placing it on a producing basis. Fay.

outlet. a. The passage by which the ventilating current goes out of a mine. Same as upcast, a. Fay. b. An opening or access to the surface. Fay. c. Synonym for discharge from pump to a piping system. Long.

outlier. a. An isolated mass or detached remnant of younger rocks, or of rocks separated by others, by faulting, etc. Fay.

ouges. Eng. The solid rock on the side of the entrance. The opposite of inby. Also called shrinkage. Long.


ousten. A layer of the earth located between the inner and outer core. Schieferdecker.

oustone. The outermost part of a nest of tubes of a double-tube core barrel. Also called outer barrel; outside tube. Long.

oustop. Eng. A seam cropping out at a lower level. Fay. b. The vent of a river, drain, etc. H&G. c. A structure extending into a body of water for the purpose of discharging sewage, storm runoff, or cooling water. H&G.

oustil. a. A drill machine complete with tools and equipment needed to drill boreholes. Long. b. To acquire a drill and equip it with tools and equipment needed to drill boreholes. Long.

outlaw. Strike disapproved by the union or in violation of the contract between the union and the operators. Zerby.

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ouges. Eng. The solid rock on the side of the entrance. The opposite of inby. Also called shrinkage. Long.

The output of a pumping engine, Fay.

outrage. An outward extension of a frame which is supported by a jack or block. Used to increase stability. Nichols, 2.

outrush. The act or process of thickening a length of tubing at its ends by increasing its outside diameter without changing the inside diameter; a length of tubing or drill rod so processed. Long.

outside wall. That part of a bit crown, roller bit cutter, or ball. Long.

outside foreman. In bituminous coal mining, a foreman who supervises all operations at the surface of a mine. D.O.T. 1.

outside gauge. Synonym for outside diameter. Long.

outside-haulage engineer. In bituminous coal mining, one who operates a mine locomotive to haul trains of cars about the face workings of a mine. D.O.T. 1.

outside-dope engineer. In bituminous coal mining, one who operates a hoisting engine at the surface of a mine to raise and lower cars along a haulage slope (incline) between lower levels and the surface. D.O.T. 1.

outside stone. Synonym for outer stone. Long.

outside tap. Synonym for bell tap. Long.


outside upset. The act or process of thickening a length of tubing at its ends by increasing its outside diameter without changing the inside diameter. Long.

outside-haulage engineer. In bituminous coal mining, one who operates a mine locomotive to haul trains of cars about the face workings of a mine. D.O.T. 1.

overall ventilation efficiency. The ratio of the horsepower delivered by any circuit connected to a load and if the source voltage is the impedance which would be measured Letween the terminal ends of an oven. a. A kiln; as, a coke oven. B.S. 3618, 1963, sec. 2.

oven. a. A chamber in which substances are artificially heated for the purposes of baking, roasting, annealing, etc.; specifically, (1) a kiln; as, a coke oven; (2) a glassmaking, a leer, Standard, 1964, b. An enclosure made of brick or metal which is used for heating; for heating ceramics or other ceramic products. Bur. of Mines Staff, c c e attendants. See oven tender. D.O.T. 1.


oven-dry soil. Soil dried in an oven at a temperature of 105° C. Mam.


oven-heater helper. In the coke products industry, a laborer who assists heater by moving gas mains to maintain proper openings, removing tar deposits with steel wool, watching for gas leaks and controlling flow of air to burn carbon from gas and air nozzles by moving caps over flues with handwheel as heat is reversed. Also called heater helper. D.O.T. 1.


oven tender. One who loads and controls the temperature of an oven in which freshly packed parts are baked to harden their finish. Pushes truckload of dipped or sprayed pieces into heated oven, or hangs pieces on hooks suspended from overhead trolley. Allows pieces to bake for a specified length of time and removes finished articles from oven. Also called baker, paint, enamel burner; kiln tender; oven attendant; oven loader; ovenman. D.O.T. 1.

ovenware. Ceramic whiteware for culinary oven use. ASTM C242-60.

overagel. Aging at a high temperature, or for a longer time; more or less, than required for critical dispersion, thus causing particle agglomeration of the precipitating phase and, as a result, loss of strength and hardness. See also aging. Henderson.

overall concentration. The ratio of pithead output (0 tons) to length of main haulage roads (L yards) or tons per yard of main haulage roads, that is, 0 divided by L. See also concentration of output. Nelson.

overall ventilation efficiency. The ratio of the horsepower absorbed by the driving motor of the fan. B.S. 9618, 1963, sec. 2.

overall reduction ratio. With reference to a crusher, this term may be expressed as: Mean size of feed/ Mean size of product. South Australia, p. 103. See also reduction ratio.

outside amalgamation. Another name for primary amalgamation. New South Wales, p. 142.


outside clearance. One-half the total difference between the outside diameter of any piece of downhole equipment and the inside diameter of the borehole. Long.

outside-diameter. Maximum length as measured between the terminal ends of an imaginary line drawn to the outside through the center of a circular or spheroidal object, such as a bit, tube, cylinder, or barrel. A.G.I. (1) a kiln, as, a coke oven; (2) a glassmaking, a leer, Standard, 1964, b. An enclosure made of brick or metal which is used for heating; for heating ceramics or other ceramic products. Bur. of Mines Staff, c c e attendants. See oven tender. D.O.T. 1.

outside-face. The peripheral portion or that part of a bit crown, roller bit cutter, or cutting edge of a bit in contact with the walls of the borehole while drilling. Long.

outside agglomeration. Also called heater helper. D.O.T. 1.

outside foreman. In bituminous coal mining, a foreman who supervises all operations at the surface of a mine. D.O.T. 1.

outside gauge. Synonym for outside diameter. Long.

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outside tap. Synonym for bell tap. Long.


outside upset. The act or process of thickening a length of tubing at its ends by increasing its outside diameter without changing the inside diameter; a length of tubing or drill rod so processed. Long.

outside wall. That part of a bit crown, bit, reamer, shell, core barrel, drill rod, caging, or other piece of downhole equipment that when in use comes in contact with the wall of the borehole. Long.

outside work. Drilling operations conducted on the surface, as opposed to drilling done in underground or enclosed workplaces. Long.

outstroke. Eng. The privilege of breaking a barrier, and working and conveying under-ground, the coal from an adjoining royalty, or mine. Fay.

outstroke rent. Eng. Payment made for the privilege of breaking through a barrier and mining the coal of an adjoining property. Fay.

outwash. The passage by which the ventilating current is taken out of the mine; the upcast. The return air course. An outlet. Long.


outwash plain. A plain composed of material washed out from a glacier and spread out by meltwater. I.G.T.

oven. a. A chamber in which substances are artificially heated for the purposes of baking, roasting, annealing, etc.; specifically, (1) a kiln; as, a coke oven; (2) a glassmaking, a leer, Standard, 1964, b. An enclosure made of brick or metal which is used for heating; for heating ceramics or other ceramic products. Bur. of Mines Staff, c c e attendants. See oven tender. D.O.T. 1.


oven-dry soil. Soil dried in an oven at a temperature of 105° C. Mam.


oven-heater helper. In the coke products industry, a laborer who assists heater by moving gas mains to maintain proper openings, removing tar deposits with steel wool, watching for gas leaks and controlling flow of air to burn carbon from gas and air nozzles by moving caps over flues with handwheel as heat is reversed. Also called heater helper. D.O.T. 1.


oven tender. One who loads and controls the temperature of an oven in which freshly packed parts are baked to harden their finish. Pushes truckload of dipped or sprayed pieces into heated oven, or hangs pieces on hooks suspended from overhead trolley. Allows pieces to bake for a specified length of time and removes finished articles from oven. Also called baker, paint, enamel burner; kiln tender; oven attendant; oven loader; ovenman. D.O.T. 1.

ovenware. Ceramic whiteware for culinary oven use. ASTM C242-60.

overagel. Aging at a high temperature, or for a longer time; more or less, than required for critical dispersion, thus causing particle agglomeration of the precipitating phase and, as a result, loss of strength and hardness. See also aging. Henderson.

overall concentration. The ratio of pithead output (0 tons) to length of main haulage roads (L yards) or tons per yard of main haulage roads, that is, 0 divided by L. See also concentration of output. Nelson.

overall drilling time. The sum of the times required for actual rock drilling, setting up and withdrawal, moving drills from hole to hole and machine delays. The overall drilling time is a better basis for estimating drilling efficiency than penetration speed alone. Nelson.

overall efficiency. a. Of an air compressor, the product of the compression efficiency and the mechanical efficiency. Fay. b. Ratio of power output of an engine to the power input, and in some states the measure of the difference between indicated and brake horsepower. Brantly, 2.

overall fan efficiency. The ratio of the horsepower in the air to the horsepower absorbed by the driving motor of the fan. B.S. 9618, 1963, sec. 2.

overall reduction ratio. With reference to a crusher, this term may be expressed as: Mean size of feed/ Mean size of product. South Australia, p. 103. See also reduction ratio.

overall ventilation efficiency. The ratio be-
tween the air horsepower and the indicated horsepower of driving unit. The percentage is called:

- Air horsepower × 100

indicated horsepower of driving unit.

Measurements are taken of the air pressure and the volume at the time of this measurement. This is the power absorbed by the driving unit. See also volumetric efficiency. Nelson.

over-and-under conveyor. Two endless chains overblown. Burnt by reason of an excessive overbending. Bending metal through a greater overbreak. See overhand stoning. overburden. a. Used by geologists and engineers for coal mined from surface overburden from coal mined from surface overburden to where it overlays a deposit of useful materials, ores, and in some heavy construction work such as channel excavations, is broken (and sometimes must be excavated) by blasting outside the intended area or line of break. Overbreak may occur as the result of misalignment or intentional overcharging as in the case of the overbreak of a bench face to facilitate digging to grade. The term should not be used without specific definition. Stokes and Vans, 1955. Also called burden, cover, mantle, surface. See also burden, mantle, surface. Enam. Dict.


overbreak. See overhand stoning.

overburden. a. Used by geologists and engineers for coal mined from surface overburden to where it overlays a deposit of useful materials, ores, or coal, especially those deposits that are mined from the surface by open cuts. By some, overburden designates only loose soil, sand, gravel, etc., that lies above the bedrock. The term should not be used without specific definition. Stokes and Vans, 1955. Also called burden, cover, drift, mantel, surface. See also burden, mantle, surface. Enam. Dict.

overburden drilling. a. A technique developed in Sweden which involves the sinking of a percussion-type drill, of a drilling machine, of the overburden down to where it seats in the underlying rock. A rotary percussion drill hole is then continued to the desired depth in the rock. While the casing is being sunk through the overburden it is coupled to the drill rod and rotates and reciprocates with it. The overbreak on the end of the drill rod projects above an inch beyond the end of the ring bit with which the casing is being cut and acts as a pilot bit for the overbreak. Woodruff, v. 3, p. 475.

b. A drilling method whereby drilling is carried out through subsoil and boulders or other material through bedrock. Engineering and Mining Journal, v. 165, No. 11, November 1964, p. 43.

c. A condition sometimes occurring in the firing of ceramics or enamelware where the temperature of the furnace is too high or the ware is left in the furnace for a greater length of time than necessary. Enam. Dict. b. Heating dry products to temperatures which cause blistering. Bureau of Mines Staff.

d. Sometimes used in the industry for air to pass over another one without interruption. They should be built of incombustible materials such as concrete, tile, stone, or brick. The use of overcasts results in better ventilation, removes the danger due to dooms, such as being left open and leakage. Kentucky, p. 90. Compare undercast. b. Casting the removed overburden from the seam to a mine from a deposit of useful materials, ores, or coal, especially those where the material will take an excessive amount of time to grid and often results in decreased gloss of the enamel in the subsequent firing operation. Enam. Dict.

e. A drive is overcharged when it incorporates a chain of substantially higher rating than that indicated by normal selection procedures.

overcharging. Adding material in excess of the capacity of the equipment used for processing. Bureau of Mines Staff.

f. Sometimes occurs in the milling process when too great an amount of enamel is loaded into the mill. The procedure should be avoided as the mill will require an exceptionally long time to grind and often results in decreased gloss of the enamel in the subsequent firing operation. Enam. Dict.

g. A post a deposit solid is to say that a deposit solid is too high or the ware is left in the furnace for a greater length of time than necessary. Enam. Dict.

h. Heating dry products to temperatures which cause blistering. Bureau of Mines Staff.

overcast. a. An enclosed airway to permit one to pass over another one without interruption. They should be built of incombustible materials such as concrete, tile, stone, or brick. The use of overcasts results in better ventilation, removes the danger due to dooms, such as being left open and leakage. Kentucky, p. 90. Compare undercast. b. Casting the removed overburden from the seam to a mine from a deposit of useful materials, ores, or coal, especially those where the material will take an excessive amount of time to grid and often results in decreased gloss of the enamel in the subsequent firing operation. Enam. Dict.

overconsolidated soil deposit. A soil deposit that has been subjected to an effective stress greater than the present overburden pressure. ASCE P1826.

overcrossting. See air crossing; overcast.

overcurrent relays. Relays used to trip circuit breakers when abnormal currents of two to three times the normal flow in the circuit. They are adaptable to transmission lines, buses, feeder circuits, transformers, and motors. Coal Age, v. 71, No. 6, August 1966, p. 270.

overcut. a. A machine cut made along the near or top near the top of a coal seam; sometimes used in thick seams or a seam with sticky coal. By releasing the coal along the roof, its stoning becomes easier. See also overcut coal cutter. Nelson, b. The process of producing a larger size than the outside diameter of the bit and/or reaming shell used, due to the eccentric rotational movements of a bit, core barrel, or drill stem. Long.

overcutting and overdrilling. Coal-cutting machines that are adaptations of shortwall machines, designed to make the cut, or kerf, at a desired plane, and leaving some distance above the floor. The main difference between the overcutting machine and the ordinary shortwall machine is that the cutter bar in the overcutting machine is mounted at the top of the bit instead of at its bottom. See also turreted coal cutter. Kier, v. pp. 26-27.

overdose effect. Medium of specific gravity above that in the separating bath, usually produced in the medium recovery system and used to make the desired specific gravity in the bath. B.S. 3532, 1962.

overdraft. a. A condition where a metal casting has been heated to a temperature in excess of that required to produce proper vitrification. Bureau of Mines Staff.

overfeed. Heating ceramic materials or ware above the temperature required to produce the necessary degree of vitrification. Usually results in bloating, defonation, or blistering of the ware. Bureau of Mines Staff.

overflow. See overhand stoning.

overflow, screen. That portion of the feed material discharged from the screen deck without having passed through the aperture. B.S. 3533, 1962.

overflow stand. A standpipe in which water rises and overflows at the hydraulic grade line. Steelye, I. overflush. A fault in glassware caused by the flow of too much glass along the line of a joint. Compare In. Dotted.

overfold. An antimonial fold pushed over until its sides are brought together and one overfolds the other; an inverted or reflexed fold. Standard, 1966. See also overfolded. Fay.

overfolded. a. A condition where a metal casting has been heated to a temperature in excess of that required to produce proper vitrification. Bureau of Mines Staff.

overglaze colors. A technique developed in Sweden which involves the sinking of a percussion-type drill, of a drilling machine, of the overburden down to where it seats in the underlying rock. A rotary percussion drill hole is then continued to the desired depth in the rock. While the casing is being sunk through the overburden it is coupled to the drill rod and rotates and reciprocates with it. The overbreak on the end of the drill rod projects above an inch beyond the end of the ring bit with which the casing is being cut and acts as a pilot bit for the overbreak. Woodruff, v. 3, p. 475.

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e. A drive is overcharged when it incorporates a chain of substantially higher rating than that indicated by normal selection procedures.

overcharging. Adding material in excess of the capacity of the equipment used for processing. Bureau of Mines Staff.

f. Sometimes occurs in the milling process when too great an amount of enamel is loaded into the mill. The procedure should be avoided as the mill will require an exceptionally long time to grind and often results in decreased gloss of the enamel in the subsequent firing operation. Enam. Dict.

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overglaze colors

pigments and low-melting glasses suitable for use over standard ceramic glazes. Temperature range, 600° to 1,500°. F. cones are 018 to 014. Used as decorative designs fired on china, pottery, terra cotta, etc. to produce glazed ceramic surfaces. CCD vid, 1961.

overglazed. Pottery ware having too thick a glazed layer, particularly on the bottom; this thick glaze is likely to be crazed. Causes of this fault are incorrect dipping, the use of stop glaze of too high a density, or biscuit ware that is too porous, that is, underfired. Dodd.

overglaze decoration. A ceramic or metallic decora
tion applied and fired on the previously glazed surface of ceramic ware. ACG, 1963.

overgrinding. Commutation of ore to a smaller particle size than is required for effective liberation of values before con
tinuing treatment. Opposite of under
grinding. Pryor, 3.

overhand cut-and-fill. In this method, two levels are driven first connected, the lower and upper one by a raise, from the bottom of which mining is begun. The work proceeds by filling the mining out
door room, but in the filling, chutes are left through which the broken ore falls. In inclined seams the chutes, also inclined, have to be timbered. The lower-level drive is protected either by timbering or vault
ing, or by a fairly strong pillar of vein fillings. Stoping in the different cuts always proceeds upwards, but as a whole it pro
ceed between two levels, that is, in a horizontal direction. Overhand cut-and-fill, especially in mining irregular ore bodies of greater size, is also called back stoping. Slevy, 1, p. 405-406.

overhand stoping. a. One in which the ore above the point of entry to the stope is attacked, so that severed ore tends to gravitate toward discharge chutes and stope is self-draining. Pryor, 3. b. An over
dhand stope is made by working upward from a level into the ore above. McKinstry, p. 635.

overhand stoping, a. In this method, which is also widely used in highly inclined deposits, the ore is blasted from a series of ascend
ing parallel cuts. Both horizontal and vertical holes may be employed. Horizontal breast holes are usually more efficient and safer than vertical upper holes, although the latter are still used in narrow stopes in steeply inclined ore bodies. McAdam II, p. 137. b. The working of a block of ore from a lower level to a level above. Still timbering or the use of pillars charac
terize the method. Filling is used in many instances. Modifications are known as: back
dilling method; back stoping; block system; breast stoping; combined side and longwall stoping; cross method of work
ing; cross stoping; Delprat method; dry
dwell method; filling system; filling-up method; flat-back stoping; horizontal slic
ing; intermittent stoping; open-stope and filling; open-stope method; open-stope, timbering with pickiges; and filling overhand stoping. To avoid excessive rock falls, room and pillar with waste filling; sawtooth back stoping; side stop
ing; slicing-and-filling system; stoping-
and-filling; stoking in horizontal layers; tran
everse with filling. Fay. Compare under
derhand stoping.

overhand stoping and milling system. See combined overhand and underhand stoping. Fay.

overhand stoping in inclined floors. See rill stoping, b. Fay.

overhand stoping on waste. See overhand stoping, b. Fay.

overhand stoping with shrinkage and delayed filling. See shrinkage stoping.

overhand stoping with overburden and no fill
ing. See shrinkage stoping.

overhand stoping with shrinkage and simul
taneous caving. See combined shrinkage stoping and block caving. Fay.


overhaul. a. Describes a condition when a journey travels towards the haulage en
gine at a faster rate than the rope which then becomes slack and liable to foul the drum. Also applied to inspection, cleaning, and repairing of machines or plant. Also called overhaul. Nelson. b. The transporta
tion of excavated material beyond certain specified limits. Slevy, 1, c. In many highway contracts, a movement of dirt far enough so that payment, in addition to excavation pay, is made for its haulage.

Nichols.

overhauling (slab milling, scalping). Cutting surface layers from castings or slabs to reduce scale and surface defects. ASM Gloss.

overhead bare-wire system. A mine signaling system in which galvanized-iron signal wires are supported by insulators suitably attached to a strong overhead cable, usually attached to a supporting structure and properties can be restored by treatment, and in this respect it differs from benign. C.T.D.

overheating. Heating a metal or alloy to such a high temperature that its properties are impaired. When this original properties cannot be restored by further heat treat
ing, by mechanical working, or by a combi
cination of working and heat treating, the overheating is known as burning. ASM Gloss.

overhead shoveling. A tractor loader which digs at one end, swings the bucket overhead, and discharges at the other end. Nichols.

overhead traveling crane. A crane which traverses the whole width of a workshop between the rails on which it runs. Hammond, 1964.

overhead trolley conveyor. See trolley con

overheat. Said of metal which has been heated in preparation for hot-working, or during a heat-treating operation, to a temperature at which rapid grain growth occurs and large grains are produced. The structure and properties can be restored by treatment, and in this respect it differs from benign. C.T.D.

overhead position welding. Welding that is performed from the underside. ASM Gloss.

overhead-roping monorail. A system in which the cars are carried by bogies running on a taut wire rope instead of steel cables or flat-bottomed rails. Sinclair, p. 638.

overhead ropeway. See aerial ropeway, b. Fay.

overhead shovel. A tractor loader which digs at one end, swings the bucket overhead, and discharges at the other end. Hammond, 1964.

overlap auxiliary ventilation. To combine the forcing and exhausting systems, it is not necessary to provide two ducts, one forcing and one exhausting, throughout the length of the heading. An arrangement that serves the same purpose is the overlap system. In this system a main exhaust
ing duct is used within a convenient dis
tance of the face, often about 100 feet. Some of the intake air in the heading, before reaching the end of the forcing duct, is then blown on to the face. The advantages of both systems are thus obtained. Precautions must be taken against redundant ventilation by the forcing unit, to prevent concentration of dust, and in collieries, fire damp, at the face. The two ducts must overlap by a

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minimum distance which, in practice, is usually taken as 30 feet. Roberts, 1, pp. 220-221. See also two-fan auxiliary ventilation limit.

overlap fault. A thrust fault in which the shifted strata double back over themselves. Also called layover fault.

overlap seal. A natural trap for the accumulation of oil or gas partially created by an angular unconformity in which the overlapping sediments are relatively impervious to the passage of these hydrocarbons. East Texas is a good example. A.G.I.

overlay. Scot. The material above the rock in a quarry. See overlay burden, b. Fay.

overlay tracering. A tracing on which the workings in a seam are shown. A series of such tracings allows the workings in several seams to be seen in their correct horizontal relationship. Also called layover tracing (undesirable usage). B. S. 3618, 1963, sec. 1.

overfound. a. In general, a load or weight in excess of the designated capacity. The term may be applied to mechanical and electrical installations, to loads on bridges and structures, and to excess loads on haulage ropes and engines. Nelson, b. To apply an excessive pressure to a drill string and bit. Long. c. Synonym for overweight. Enam. Dict.

overload. a. In general, a load or weight in excess of the designated capacity. The term may be applied to mechanical and electrical installations, to loads on bridges and structures, and to excess loads on haulage ropes and engines. Nelson, b. To apply an excessive pressure to a drill string and bit. Long. c. Synonym for overweight. Enam. Dict.

overload trip. A protective device on a circuit breaker or motor starter which cuts off the current if the current exceeds a set value. Nelson.


overlying beds. The beds situated above a specified seam. MUG.

over Panda burden. See the side, such as a dredge. Standard, 1964.

over Panda wheel. A vertical water wheel, the circumference of which is covered with buckets or cups that are turned by water that shoots over the top, filling the buckets on the farther side and acting chiefly by its weight. Called overside.

overside. Discharging over the side, such as a dredge. Standard, 1964.

oversize. a. To reduce a mineral pulp containing the lifting-dog assembly on a wire-line core barrel. Long. b. A synonym applicable to those size of drill rods, the dimensions of which exceed the DCDMA standard sizes designated as the W group. Long. e. Incorrectly applied to the size of core barrels and accessory parts, properly called large-diameter design. Long. f. A piece of equipment larger than specified or accepted standard size. Long.

oversize control screen; guard screen; check screen. A screen used to prevent the entry into a machine of coarse particles which might interfere with its operation. B.S. 3522, 1962.

oversize core. See the side, such as a dredge. B. S. 3618, 1963, sec. 1.


oversize holes. A borehole the diameter of which is greater than that reserved in the standard-diameter core. Long.

oversize goffers. A defect in the metal caused by a thin easily detached layer of metal which may be applied to mechanical and electrical installations, to loads on bridges and structures, and to excess loads on haulage ropes and engines. Nelson, b. To apply an excessive pressure to a drill string and bit. Long. c. Synonym for overweight. Enam. Dict.

oversize rod. Synonym for drill collar; guide rod. Long.

device. See hoist overspeed device.

overspray. The slip from the spray gun not deposited on the work. Also, spray application of a light coat of slip to an unfired porcelain enamel. ASTM C286-65. b. Process of spraying a second coat of an enamel directly over the wet or dry base. Enam. Dict.


oversized area, in strata control, a term used to describe an area where the force is concentrated on pillars. This type area is said to be overstressed or supershot. This supershooting is limited by the strength of the seam or pillar. Compare distressed area. Mason, u. 1, p. 143.

overstressing. In fatigue testing, cycling at a stress level higher than that used at the end of the test. ASTM Gloss.

overstrom table. Similar to a Wilfley table but of diamond shape (rhomboid), thus eliminating the waste corners. Liddell 2, p. 388.

over-the-road hauling. Hauling over public highways employing a haul unit commonly termed a truck. Various restrictions, such as weight, width of vehicle, safety features, guard against spillage, etc. must be considered in the design of a unit. Generally, over-the-road haul units are termed dump trucks. Compare off-the-road haul unit.

over-the-track car unloader. See car unload- er. ASA MM 415-1953.

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overthrust

miles. A.G.I. b. A thrust fault in which the hanging wall was the active element; contrasted with underthrust, but it is usually assumed to tell which wall was actually moved. A.G.I. c. The process of thrusting the hanging wall (relatively) over the footwall. Overthrust fault. The reverse fault with low dip, large hade. Fay.

overthrust block. The block above the overthrust plane. Synonym for thrust plane. Schieferdecker.

overthrust fault. A reverse fault with low dip, large hade. Fay.

overthrust fold. A recumbent fold of which the reversed middle limb has been completely sheared out as a result of the great horizontal translation. Schieferdecker.

overthrust plane. Synonym for thrust plane. Schieferdecker.


overthrust sheet of overthrust block. The block, above a low-angle fault plane, which has been displaced a great distance. Schieferdecker.

overthrust syncline. Single large mass caught between the walls of an overthrust. Schieferdecker.

overthrust time. The period beyond the normal shift when a workman, on request by the management, performs emergency tasks which are necessary for safety of efficient operation of the oncoming shift. Nelson.

overtopping. Flow of water over the top of a dam or embankment. Nichols.


overturn system. An endless-ropc system in which the rope runs over the cabs or the cars in the center of the rails. This system is generally adopted on undulating roads, where the tendency in a heavily loaded rope would cause the rope to lift in swivelies and derail tubs. It is also generally adopted in highly inclined roads, as the lashing chain, often adopted with this method of haulage, obtains a good positive grip on the rope and is easier to detach than a clip. The rope is kept from rubbing on roof supports by holding-down pulleys: six large diameter pulleys in circular cheeks, allowing chains or clips to be accommodated in the spaces between the pulleys. Six large diameter pulleys, of the hat or mushroom shape, often stared to provide reeves for chains and clips. Similar large pulleys direct the rope around curves. Compare undertub system. Sinclair, V., pp. 351-352.

overturn. The exchange of position in fall and spring of bottom and upper waters in a lake, caused by density differences due to temperature changes. A.G.I.

overturned. Having been tilted past the vertical and hence, inverted in outcrop; said of folded strata and of the folds themselves. Fay.

overturned fold. Synonym for overturned. A.G.I.

overturned limb. That limb of an overturn (overturned fold) that is overturned, that is, has a dip greater than 90°. Billings, 1854, p. 41.

overturning slip. A type slip commonly used at metal mines, but not often at coal mines because of increased breakdown. This slip consists of a rectangular receptacle for the material and a suspending frame of bail to an upper cuspiece of which is attached a suspension gear connecting the rope to the skip. Three guide shoes are generally provided at each side of the bail to keep it vertical. The skip body turns about a horizonal shaft at the lower end of the bail. Two rollers on the upper part are mounted on a shaft and cause the skip to tilt past the angle of 35° at the tipping point in the headgear, where rollers run on to the curbed guides. To prevent shocks in the case of an overwind the skips are fitted with overwind guides which glide along rollers fitted to the headgear above the tipping point. Sinclair, V., p. 73.

overventilation. Too much air in the mine workings. Fay.

overvoltage. The difference between the actual electrode potential when appreciable electrolysis begins and the reversible electrode potential. ASM Gloss.

overvoltage relays. Relays that serve primarily the same purpose as overcurrent relays except that they are connected in the line by potential transformers which measure the voltage across the lines. When an over-voltage exists the relay operates and opens the circuit breaker. Coal Age, v. 71, No. 8, August 1966, p. 270.

overwash. That portion of the uprush that carries over the crest of a form or of a structure. H&G.

overwash drift. The material which is washed over the crest of a glacier. Fay. Obsolete. See also outwash.

overweight. a. Aust. The settling down of the upper rocks when the base rocks are eroded away. Fay. c. Effect due to weight. Fay.

overwind. a. To hoist the cage into or over the top of the headframe. Fay. b. In hoisting through a mine shaft, failure to bring cage up to the top, as a result of unloading point at surface. Fay. c. A diamond bit in which overwind diamonds are indexed into the bit face or crown. Compare crowd, c.; overload. Long.

overwind device. device. See hoist overwind device.

overwind. One of the best known overwind consists of two vertical-screwed spindles each carrying two traveling nuts and chain driven from the drum shaft so as to rotate in opposite directions. The nuts are prevented from rotating by projections engaging with a fixed plate and therefore travel vertically and are caused to move in a circular motion. The upper nut takes care of overwinding and the lower nut of overspeeding. Matson, v. 2, pp. 459-460.

overwinding. a. Term applied to a continued pull on the rope or cable wound and attached so that it stretches past the top of a drum to the load. Nichols.

overwind switch. A switch which may be used on winders, flight conveyors, to cause the power to cut off from the driving motor, or engine, and the brakes to be applied. Such a switch may be either: (1) situated in the headgear and operated by the conveyance, (2) mounted on the automatic contrivance, or (3) operated by the depth or distance indicator. B.S. 3618, 1965, sec. 7.

overwind. A classifier of the free settling type in which the heavy material is removed by a double-screw, continuous flight conveyor, working up an inclined plane. Liddell 22, p. 392.


ovulite. Synonym for oolite, used in the sense of an individual spherite. A.G.I.

Owen process. A flotation process involving the use of the pulp in cold water to which a small percentage of eucalyptus oil, about 2 ounces per ton, is added. Fay.

Owen's borehole surveying instrument. A clockwork photographic apparatus which records clinometer and compass readings on sensitized paper. It is used during borehole surveying. Ham.

Owen's jet dust counter. An instrument similar to the kienometer but differing in that the air is being sampled undergoes humidification prior to being blown through the jet. The velocity of impingement is about 200 to 300 meters per second and the jet is rectified into a circular. The prior humidification of the air causes condensation of moisture upon the dust particles, so the saturated air is blown through the jet. A laminar flow is produced and the jet is directed at a non-magnetic mirror. Excess weight of the air to the jet causes a rotation. Fay.

Owen's process. A bottlemaking process in which the blank or partition mold is filled by a simple worm drive which rotates a pointer over a dial divided into four quadrants with an observation of air velocity the speed of revolution of the pointer is measured by a stopwatch and a calibration chart is referred to which relates air speed to pointer revolutions per second. Roberts, I., p. 54.

owharte. The name offered as a substitute for wilsonite which had been used as a mineral name previously. Owharite is a creamy-gray rhyolitic igneous rock with peculiar phenocrysts and lenses of streaked glass occurring in brown glass. Possibly a rhyolitic tuff. Hess.

owl-eye agate. An eye agate with only two eyes, and those resembling the eyes of an owl. Shipley.

owner's account men. Corn. Workmen paid by the day. Fay.

owning. Filling material obtained in the mine being mined. Stones, v. 1, p. 271.

owebeetle. A light, steel-gray sulfide-monotrite of silver and lead, possessing a metallic luster. B.S. 3618, 1965, possibly. 2AgS.8PbS.5Sb2S3. Acicular crystals or fibrous masses; possibly orthonathan. formerly called silverite. From Owyhee County, Idaho. English.

ozaicals. Synonym for wehwellite. Tom.
oxalic acid; ethanedioic acid

HO\textsubscript{2}COC\textsubscript{2}H\textsubscript{2}O:\textsubscript{2}; anhydrous, orthohombic; hydrate, monoclinic tablets or prisms; molecular weight (anhydrous), 90.04; poisonous; specific gravity (anhydrous, water at 17°C), 1.653 (at 19°C, water at 4°C), 1.632; specific gravity (hydrate), 1.653 (at 19°C, water at 4°C), 1.632; melting point (anhydrous), 180.5°C with decomposition; sublimes at 157°C; soluble in water; very soluble in alcohol; slightly soluble in ether; insoluble in benzene, in chloroform, and in ligroin. Used as a bleach, in dyeing, and as a precipitating agent for rare earths. Handbook of Chemistry and Physics, 45th ed., 1964, p. C-443; Crispin; CCC 6d, 1961.


oxanmite. A yellowish-white, transparent, orthorhombic ammonium oxalate, (NH\textsubscript{4})\textsubscript{2}C\textsubscript{2}O\textsubscript{4}H\textsubscript{2}O, found in guano. Tomkeieff, 1954.

ox-blood coral. A crescent-shaped lake formed in an oxblood coral. A dark, rich, deep-red coral; a greenish-red variety of oxblood coral. A variety of aliphite hydroxide. a. The firing of a kiln in such a condition that the impurities are oxidized during the melting period. A.G.I.

oxidation. a. The firing of a kiln in such a condition that the impurities are oxidized during the melting period. A.G.I.

oxidation period. The stage in the firing of clayware during which any carbonaceous matter is burned out, that is, the temperature range 400° to 850°C. It is important that all the carbon is removed before the next stage of the firing process (the vitrification period) begins, otherwise a black core may result. Dodd.

oxidation-reduction potential. The difference of potential measured in a cell having the oxidized and reduced form of an element on one side of the half-cell couple and the other. At the hydrogen electrode the H\textsubscript{2} gas must be maintained at 1 atmosphere pressure at all times, and it is not possible to accurate point of measurement.

oxeye agate. An eye agate with the characteristic change of color. Shipley.

oxeye azalea. An azalea with two eyes, and those resembling the eyes of the azalea. Pryor, 3.


oxides. Sediments formed by the precipitation of the oxidized form of iron and manganese; ferric oxide and manganese dioxide sediments. A.G.I.

oxidation. a. The firing of a kiln in such a manner that combustion is complete and in consequence the burning gases are amply supplied with oxygen which causes metals in clay and glasses to give their oxide colors. ACSG, b. Combination with oxygen; increase in oxygen content of molecular compound; increase in valency of electropositive part of compound, or decrease in electronegative part. Pryor, 3. c. A reaction in which there is an increase in valence resulting from a loss of electrons. ACSG, d. In fuel practice, the combination of oxygen with a substance, with or without the production of flame. Frank, 1965, p. 214. 436.

oxidation of coal. The absorption of oxygen from the air by coal, particularly in the crushed state; this engenders heat which can result in fire. Ventilation, while dispersing the heat, does not arrest the oxidation which increases rapidly with a rise in temperature. Fresh air should not gain access to the coal. See also gob fire. Nelson.

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oxoacetylene flame. A gas flame produced with excess oxygen. ASM Gloss. Also called oxyacetylene flame.

oxohalogen. A halogen oxide; a. A mineral salt of the acid; b. The element or oxide itself; c. A halogen compound with the acid.

oxonite. A mixture of oxygen (O\textsubscript{2}) and acetylene gas (C\textsubscript{2}H\textsubscript{2}) in such proportions as to produce the hottest flame known for practical use. Oxyacetylene welding and cutting is used in almost every metalworking industry. Crispin.

oxycarbo. A variety of aliphite hydrocarbon containing oxygen. It is light yellow in color. Pryor, 3.


oxyceramite. A mineral formed by the combination of oxygen with most other elements, particularly at elevated temperatures, but not with those of group 0 of the periodic system, the inert gases: C, N, O, F, Ne, Ar, Kr, Xe, Rb, Cs, and Fr. Tomkeieff, 1954.

oxyceramic. Special ceramics made from oxides; a. Combination with oxygen; increase in oxygen content of molecular compound; increase in valency of electropositive part of compound, or decrease in electronegative part of compound. ACSG, b. Combination with oxygen; increase in oxygen content of molecular compound; increase in valency of electropositive part of compound, or decrease in electronegative part of compound. ACSG.

oxyceramic oxide. A compound of oxygen with another element. Oxides are formed by the combination of oxygen with most other elements, particularly at elevated temperatures, but not with those of group 0 of the periodic system, the inert gases: C, N, O, F, Ne, Ar, Kr, Xe, Rb, Cs, and Fr.

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oxyacetylene welding

oxyacetylene welding. a. Welding with an oxyacetylene flame. ASM Glot. b. Widely used method of welding in the porcelain enameling industry. In this method two gases, oxygen and acetylene, are combined in a blowpipe and used to heat the metals to be welded to the desired temperature. Enam. Dir.

oxybasithiophic. See basithiophic.Obsolete.

oxychloride cement. A plastic cement formed by mixing finely ground caustic magnesite with a solution of magnesium chloride. A.C.I.


oxyen. A metallic, chiefly bivalent element; normally colorless; odorless; tasteless; nonflammable; diatomic gas (O2). It is the most abundant of the elements on earth, occurring uncombined in air to the extent of about 21 percent by volume and is combined in water, in most common rocks and minerals (as oxides, silicates, and carbonates), and in a great variety of organic compounds (as alcohols, acids, fats, carbohydrates, and proteins). Oxygen has three naturally occurring nonradioactive isotopes of masses 16, 17, and 18 of relative abundance 2494 to 1. It is obtained industrially from liquid air by distilling off the nitrogen; or from the air by electrolysis; or in the laboratory by decomposing by heat of various oxidizable substances, including the diaphragm, causing abruptness of inspiration. Anxiety, and apprehension may occur and sometimes loss of lateral visual fields and ringing in ears. These preliminary symptoms are followed by general convulsions and unconsciousness. H&G.

oxyen lance. A length of pipe used to convey oxygen to the point of cutting in oxygen-lance cutting. ASM Glot.

oxyen poisoning. A condition usually brought on among workers engaged in underwater work or mine rescue work and caused by breathing pure oxygen at a depth in excess of about 13 feet below the surface of the water. When diving to depths of more than 33 feet, the oxygen in the cylinders of the diving apparatus must be diluted with nitrogen to make an oxygen/nitrogen breathing mixture which will be safe to breathe at the maximum depth of the dive. Preliminary symptoms of oxygen poisoning are twitching of the muscles of the face, fingers, and leg, followed by excessive sweating and a feeling of nausea. Final symptoms are convulsions and unconsciousness. First-aid treatment is fresh warm water and drinks of hot, sweet tea. McDadam, p. 162.

oxyen process. A process for making steel in which oxygen is blown upon or through a metal surface caused by a difference in temperature. Enam. Dir.

oxyen steel. The use of oxygen instead of air to convert molten pig iron into steel. The two gases in the proportion to form different furnaces, but the fastest one utilizes the direct oxidation effects of a relatively pure (99.5 percent) oxygen. See also L.D. steel process. Nelson.

oxyen toxicity. Pure oxygen cannot be breathed indefinitely at pressures greater than atmospheric. Following a safe period which becomes shorter as diving depth increases, symptoms of oxygen toxicity occur. These include involuntary fine twitches around the eyes and mouth that later extend to include larger muscle groups including the diaphragm, causing abruptness of inspiration. Anxiety, and apprehension may occur and sometimes loss of lateral visual fields and ringing in ears. These preliminary symptoms are followed by general convulsions and unconsciousness. H&G.

oxyen deficien督办. Oxygen deficiency indicator. This indicator is used by utilities, refineries, contractors, etc., to determine whether the atmosphere is deficient as a tank, manhole, or sew, contains sufficient oxygen to support life. A rubber tube and aspirator bulb introduce air samples into a flame safety lamp which is set up outside the tank or manhole. Extinguishment of the flame indicates that the atmosphere is too oxygen-deficient to be entered. Betts, p. 588.


oxyen-free copper. Electrolytic copper free from cuprous oxide, produced without the use of red and black or metallic deoxidizers. ASM Glot.

oxyen composi. Oxygen in which the temperature is atta.
oyster shells

percent SO


pd. d. Abbreviation for per, which is also p. 61. e. Abbreviation for pico used as a prefix. CCD 6d. 1961.
pack ice. Any large area of floating ice which has been driven closely together. Hy.

packing. a. The method of giving support to the roof by the insertion of waste rock, or by the building up of a space from which the coal has been extracted. TIME. b. Any material, usually rock, packed between the roof and the sides of a mine, or over the bottom of the coal in a drift. Standards, 1964. c. A dense packing of fine particles, such as sand, in a mold or casting in order to cause uniform shrinkage, with the result that porosity will be reduced. Standards, 1964. d. A method of packing, or of packing up, the waste rock. Ham.

packed. a. Covered with, or containing, a mass of, or pieces of, a particular kind of material. Standards, 1964. b. A large square pit. Fay. c. Flooded excavation in the waste area with stones and dirt. See also sinkhole. Nelson. d. Occurs in crushing plants when the material in the chamber is so compacted as to be nearly without voids. It occurs when free downward movement is inhibited. With gyratories the term also refers to an accumulation of sticky fines on the diaphragm. South Australia, p. 101. e. The spacing or density pattern of the mineral grains in a rock. Compress fabric. A.G.I. f. A Cornish term for the final dressing of tin or copper ore in a large vat or keeve filled with water. Fay. g. Filling, as of mortar containing small stones. Fay.

packing density. The bulk density of a granular material, for example, grog or crushed quartzite, when packed under specified conditions. A common method of test, particularly the sandy sands, involves the use of an AFA rammer. See also AFA rammer. Dodd.

packing expansion. The expansion of a material in its initial state when the applied stress is removed. Standards, 1964.

packing factor. The ratio of true volume to bulk volume. Also (1.0—porosity). VV.

packing gland. An explosion-proof entrance for conductors through the wall an an explosion-proof enclosure, to provide compressed packing completely surrounding the wire or cable for not less than one-half inch measured along the length of the cable. ASA C24.85: 1956.

packing mud. A mud that will flow as a silt or clay suspension, but will not support loads on the back of pack animals. Webster 3d.

packing sand. A very fine-grained sandstone so loosely consolidated by a slight calcareous cement as to be readily cut by a spade. Standard, 1964.

pack. a. A term used in the Western United States for a path or narrow road for the passage of packtrains only. Standards, 1964.


packingtheoretical. The theory that factaced pebbles have been made by rubbing against each other. Nelson.

pack wall. a. A dry-stone wall built along the side of a roadway, or in the waste area, of a coal or mineral mine. The wall helps to support the roof and also to retain the packaging material and prevent it spreading into the roadway. Fay. b. In metal mining, a permanent roof support built of timber with or without stone filling—a cog or chuck. Nelson.

Packtolith. Of or relating to the Packtolius river, in Lydia, or its gold-bearing sands. Webster 3d.


pagoda stone. A Chinese limestone showing a large square pit. Fay. f. A space or platform near the mouth of a shaft or excavation. Payne, 3. d. A way of working a claim, the ore is in bins, stores, or stacked on the surface, it is said to be in the paddock. Fay.


paddle and anvil. Archelon. A technique for shaping vessels by compaction when they are still somewhat plastic. At times, a cord-wrapped paddle or a textile-wrapped paddle is used for this purpose. Occasionally designs are carved in paddles. The resultant surface impressions on the vessels finished with several possible types of paddles are frequently used as surface finish categories in pottery classification. AGS, 1963.


paddle loader. A belt loader equipped with chain-driven paddles to move loose material to the belt. Nichol.

paddle mixer. A form of worm conveyor having two continuous spiral which form paddles; the shafts are compressing and the spirals opposite hand. B.S. 3552, 1962. See also paddle-type mixing conveyor. A.S.A. MH4.1-1958.


paddle wheel. a. A type of conveyor consisting of one or two inclined parallel paddle conveyor screws in a conveyor trough having a receiving tank and an overflow weir at the lower end and a discharge opening at the upper end. A.S.A. MH4.1-1958.

paddle-wheel agitator. A simple stirring apparatus by which the solids are kept in suspension by paddles. It is difficult to start if the sand packs around the blades and expensive, both in operating and in repair costs. Liddell 2d., p. 392.

paddle-wheel fan. A centrifugal fan with radial blades. Strook, 10.

paddling. The rough shaping of a piece of glass in a furnace by means of paddles or tools preparatory to the pressing operation for making optical glass blanks. ASTM C162.56.

paddock. a. A section of a large area of alluvial, being worked by hydraulic mining. Nelson. b. A small dump of ore held by tributors. Nelson. c. Flooded excavation in which an alluvial deposit floats, and which it digs for itself as it works along the deposit. Also called pond. Pryor, 3. d. Aust. An alluvial gold deposit. The Australians being keen horsemen, took to using the word in mining. Thus when ore is in bins, an alluvial deposit, on the surface, it is said to be in the paddock. Fay. e. A way of working a claim, the whole mass being taken out in the form of a large square pit. Pay. F. A space or platform near the mouth of a shaft or excavation for temporary storage of ore or wash dirt. Webster 3d. g. Aust. An excavation for wash dirt in shallow alluvium. Webster 3d. h. Aust. To store ore in a paddock. Webster 3d.

paddy. a. York. A portable battery-operated lamp attached to the front or rear of a pick-riding train. B.S. 3618, 1965, Sec. 7.


paint. A mixture of pigment with vehicle, intended to be spread in thin coats for decoration or protection, or both. Bureau of Reclamation. Staff. A. Term used in the Western United States for an earthly, pul- verulent variety of cinnabar. USGS Bull. 592-C. 1938.


Painted Desert beds. A series of orange-colored clayey sandstones followed by irregularly bedded, brightly colored variegated sandstones belonging to the Triassic system in Arizona. This lower group is followed by the Upper Painted Desert beds, probably of Jurassic age. C.T.D.

painter. Hand. One who paints designs on pottery or porcelain ware, usually by hand. Painted Desert beds. A series of orange-colored clayey sandstones followed by irregularly bedded, brightly colored variegated sandstones belonging to the Triassic system in Arizona. This lower group is followed by the Upper Painted Desert beds, probably of Jurassic age. C.T.D.

paint gold. A very thin coating of gold on a surface. A term used in the Western United States for an earthly, pul- verulent variety of cinnabar. USGS Western United States for an earthly, pul- verulent variety of cinnabar.

painting; sizing. The painting of the mine walls by means of a slurry of bentonite and water, followed by the Upper Painted Desert beds, probably of Jurassic age. C.T.D.

pair. A party of men working together as a unit.

pair production. The transformation of a mineral into a pair of new minerals.


paired terraces. Terraces that face each other across a stream at the same elevation. Last. pair of gears. N. of Eng. See gears. Fay.

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paint thinner. See turpentine substitutes. Fay.


paint poll. A type of mud pot containing varie- gated, highly colored boiling mud, usually of cream, pink, or reddish tones. A.G.I.


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palaeophyre. Proposed by Gumbel for pic- rites which were considered by him to be similar to the rocks from the Cretaceous formation, originally named picrite by Tschermak. Gumbel called his specimens palaeopircites because they occurred in Paleocene strata. They are chiefly olivine and augite. More or less brown hornblende and biotite also occur. Fay.

palagonite. A yellow or orange isotropic mineraloid formed by hydration and other alteration (decarbonation, oxidation) of sideromelane (basaltic glass), and constituting a characteristic part of palagonite tufts. Also found as amygdale fillings in some basaltic lavas, and as an alteration of the glass skins of the pillows in pillow basalts. Two types, gelpalagonite and fluidalpalagonite, have been recognized. A.G.I.

palaeolithic. The usage of all these terms is confusing. Also, the group comprising the Paleozoic era is used to be incorrect. Also, the group comprising the Paleozoic era is used to be incorrect.

palaeolithologic map. A map showing litho- logic variations at some buried horizon or within some restricted zone. A.G.I. Supp.


palaeontological fact. A fact in the paleontological aspect of a particular sedimentary deposit, for example, nummulitic facies, crinoid facies, etc. Schiefertacker, 1939.


palaeocene epoch and series. The earliest epoch of the Tertiary period and the rocks formed during that time. The Palaeocene epoch is succeeded by the Eocene epoch. Most American geologists have until quite recently (1939) included rocks of this se- ries in the Eocene, so that the term Paleocene appears very infrequently in older writings. Palaeocene rocks are found on the continental margins and interior basins. Fossils are much like those of the Eocene epoch. Stites and Varney, 1923. Consider- ed by some to be part of the Eocene and by others to be transitional between Creta- ceous and Tertiary. A.G.I. Supp.

palaeoclimatology. The branch of science which treats of the climatological conditions during various geological periods in the past history of the earth. Schiefertacker.

palaeocurrent. Current, generally of water, that influences the structure or the processes or conditions in the geologic past. A.G.I. Supp.

palaeocology. The science of the relationship between ancient organisms and their environment. A.G.I.

Paleogene. The earlier of the two periods comprised in the Cenozoic era in the classifi- cation adopted by the International Geologic Congress and used by many Euro- pean geologists; it includes the Paleocene and Eocene epochs. Also the system of strata de- posited during that epoch. Compare Neo- gene. Not used in the United States. Fay.

palaeogeography. The geography of an area at some specified time in the past. A.G.I.

palaeogeologic map. Areal pattern of ancient outcrops (sub-crops) at a buried erosion surface (unconformity). Fay.

paleontology: paleogeology. A term used for maps and studies made of geologic condi- tions and events in some former period of geologic time. A.G.I. Supp.

palaeolithic. A term relating to the second pe- riod of the Stone Age following the Eolithic and preceding the Mesolithic, characterized by rough or chipped stone implements. Webster 3d.

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palaeoclimatology. The branch of science which treats of the climatological conditions during various geological periods in the past history of the earth. Schiefertacker.
paleozoology. The science of fossil animals; its two subdivisions are invertebrate and vertebrate. J. G.

palermoite A mineral, (Li, Na), Sr Al9 (P0)8-

palladium amalgam. Synonym for potarite.

palladium. A soft, ductile, silvery-white or

palingenesis. a. The process of formation of

palladite A. Original spelling of palygorskite.

palimpsest. See palimpsest structure.

palimpsest structure. A structure of meta-
morphic rocks due to the presence of remnants of the original texture of the rock. Synonym for palimpsest. Holmes, 1928.

palingeneses. a. The process of formation of

new magma by the melting or fusion of country rocks with heat from another magma, with or without the addition of granitic material. A.G.I. b. The differential melting in the root parts of folded mountains, to form a pore liquid or ichor; usually used in the plural. Webster 3d.


Palladian disturbance. Post-Triassic di-


paleozoology. a. The study of the fossilized spores and pollen grains of the plants whose remains contributed to the forma-
tion of coal seams. Nelson. b. Used in a narrower sense for both meteoric and terrestrial, in which the latter have at least more iron oxides than silica. Cumberlandite is the chief example. Also called pallinoid. Fay.

pallid. a. Having a dull, flat, or dull yellow color; b. Having a light, delicate, or misty effect.

pallid gold. Same as porpezite, or gold, containing palladium up to 10 percent. Fay.


pallid iron. See pallarite. Fay.

pallarite. A depolymerized name for siderolites, contain-
ing fractured or rounded crystals of olivine in a network of nickel iron. Rice. Originally proposed by Gustav Rose for a meteorite that fell near Pallas, U.S.S.R. It has been used by Wadsworth in a wider sense for both meteoric and terrestrial, ultrabasic rocks, which in the former average about 60 percent iron and in the latter have at least more iron oxides than silica. Cumberlandite is the chief example. Also called pallinoid. Fay.

pallet. a. A board, small platform, or packag-
ing unit sometimes used, for example, in the transport of refractories or building bricks. Compare stillage. d. A pot-

palliating. A platform in the bottom of powder mixture used to preserve the powder from darkening. Fay.

pallet inspector. a. A person who inspects pallets (the ones on which green brick is stacked and transferred, and straightens those that are warped. D.O.T.1.

pallet molding. A method of forming bricks of forming bricks in sand molds, from which they are dumped on a board called a pallet; distinguished from aloof-molding. Standard, 1964.

pallette. See battleodore. Dodd.

palm. A piece of stout leather fitting the

palm of the hand, and secured by a loop to the thumb; this has a flat Indented

shape. Same as attapulgite. A.G.I.

palm. A piece of stout leather with a thun-
der edge fitted to the hand and secured by a loop to the thumb; this has a flat

shape. Same as attapulgite. A.G.I.

palm. A piece of stout leather fitting the

palm of the hand, and secured by a loop to the thumb; this has a flat Indented

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pan

long; batea; plaque. Pryor, 3. g. See panning, a. Fay. b. A cylindrical vat of iron stone, or other substance, into which the cars ground with mullers and amalgamated. Fay. See also amalgamation pan. i. A copper or galvanized iron uter for washing gold ore and gravel so as to separate the heavy gold by a shaking motion. It corresponds to the cornishman's vanning shovel. Also called dish. Fay. j. To wash earth, gravel, or other material in a pan, as in searching for gold. Wehr, p. 3. k. To yield precious metal, as gold, in the process of panning. Webster 3d. l. The solid stratum of clay, pebbles, etc., underlying soil; hardpan; used chiefly in Great Britain. Standard, 1964. n. Fire clay or underclay of coal seams. Fay. n. Mind. Sheet-iron vessels holding one-fourth hundredweight, into which fillers rake the small coal. Fay. o. See prospecting dish. Nelson. p. A trough or section of a chain conveyor, gravity conveyor, or shaker conveyor. Nelson. q. A carrying spiral raft by which the framework of a belt or chain conveyor. Mason. r. S. Afr. A natural depression in ground, usually containing alluvial sand, gravel, or sandstone. Pryor. s. T. Shallow depression in the marsh surface occupied by higher plants. Also called saltpan; marsh pan. Schiefferdecker.

panbase. Samc as tretahedrite, CuSbSbS.Fay.

pan amalgamation. Amalgamation of silver or gold with mercury by grinding in a pan. Fay.

pan amalgamation process. Method of recovering silver and gold from their ores, in which a cast-iron pan or barrel is used for contacting a slurry of the crushed ore with salt, copper sulfide, and mercury; the released silver and gold form amalgam with the mercury. Bennett, 1962.


Pan-American ring. A group of breasts or rooms separated by a series of levels and winzes, and which is usually operated as a single unit. SMRB, Paper No. 61.

pan breaker. See subciel plow.

pancakes. The same as ribbon. Fay.

pancakes auger. An auger having one spiral web, 12 to 15 inches in diameter, attached to the bottom end of a slender central shaft. This type of auger is used as a removable deadman to which a drill rig or guy line is anchored. Long.

pancake forging. A rough, forged shape which may be obtained quickly with a minimum of tooling. It usually requires considerable machining to attain the finished size. ASM Gloss.

pancake ice. Pieces of newly formed ice usually between 1 and 6 feet in diameter. Hsy.

pancakes. Concrete discussed in stope support. They are cast at the surface, and are usually 30 inches in diameter by 4 wire rope. They are piled one on top of the others to form concrete columns for support. Hsy, p. 122.

panclastite. An explosive composed of liquid nitrogen tetritoxide mixed with carbon dioxide, and other liquid combustibles, in the proportion of 3 volumes of the former to 2 of the combustible. Fay.

panconcrete. Suitable coal suitable for use at saltworks, as under saltlumps. Fay.

pan conveyor. a. A conveyor comprising one or more endless chains or other linkages to which usually overlapping or interlocking pans are attached. The conveyor is also known as an apron conveyor. SMRB, Paper No. 342. MIH4.1-1958. b. Jigging conveyor; trough down which coal slides after severance and loading in dipping screen to separate it by shaking action. Pryor, 3. c. A trough conveyor or gravity conveyor. Nelson.

pan-edge. A runner mill for grinding or mixing granular material; steel supporting plates on which furnace bottom refractories are placed. Bureau of Mines Staff. p. A. A stream of molten iron in which the ground is laid in separate districts or panels, pillars of extra size being left between. Fay. b. A large rectangular block or pillar of coal. Fay. c. A group of breasts or rooms separated from the other workings by large pillars. Fay. d. A small portion of coal left uncut. Webster 3d. r. A method of working whereby the working area is divided into sections, each surrounded by solid strata and coal with only the necessary roads through the coal barrier. Also spelled panel. Mason. f. A group of working places, usually operated as a unit, and separated from other by large pillars of coal. Hudson. g. Eng. A division or main district of workings in a seam. SMRB, Paper No. 61. h. Eng. A bed of stone. SMRB, Paper No. 61. i. York. Any thin band of hard rock. Nelson. j. The working of coal seams in separate panels or districts, for example, a single unit panel. See also panel working. Nelson. k. Rectangle of live ore, defined by means of levels and wires, and then considered to be proved as regards volume for valuation purposes. In stopping, panel slicing is the process of mining out a panel either from above, below, or one side as described by a qualifying term. Pryor, 3. l. A heap of dressed ore. Fay.

panel barrier. The pillar of coal left between the adjacent panels. These pillars are often worked on the retreat after the coal in the panels has been extracted. In the panel system of bord-and-pillar mining, the panel barrier may be 22 yards (minimum) wide and about 300 yards apart. In longwall panel mining, the barriers may be made of sufficient width for extraction by a conveyor face on the retreat. Also called panel pillar. See also bolover experiment. Nelson.


panelling. Wood, etc., made into panels; also, panelwork. Webster 2d. See also panel, a.

panel point. A node on a truss chord, where a vertical member intersects with the chord. Ham.

pan-packed splittings. Disks or plates made up of splittings held together by force.
resulting from pressing freshly cleaved mica surfaces together. Skow.

panplain. A very level plain with a general slope toward the ocean. "Stakes and Stones, 1955.

pan scale. A product which settles out during the crystallization of salt from brine. It is composed, chiefly, of calcium sulfate but also contains some NaCl and various mineral impurities used for cattle feed and as fertilizers. CC 3d, 1942.


pannierite. A felsophric or vitrophyric igneous rock, typically a sodic quartz trachyte, containing essential anorthoclase and quartz, and perhaps diopside and cosyrite. Applied to a group of rocks intermediate between the rhyolites and dacites on the other. They differ from all these in having anorthoclase as the principal feldspar. Cosyrite, diopside, and probably titaniferous amphibole, occurs at the original locality on the Island of Pantelleria, in the Mediterranean Sea. Fay.

pan-pipe. Structural units molded in open half-cylinders shaped in an ogival curve accentuated at one side so as to interlock with the next tile. ACSG, 1963.

pantograph. A type of drawing instrument used for copying a drawing to any required scale. The term also applies to the hinged diamond-shaped form of a parallelogram, used for copying a drawing to any required scale. The term also applies to the hinged diamond-shaped form which, when perfectly deformed, exhibits a parabolic shape in carbon. A.G.I. Supp. parabola. The shape taken by the curve of a bending moment diagram for a uniformly distributed load on a beam simply supported. Ham.

papas diamond. Quartz. Shipley.

par. a. The nominal value of securities or certificates of value. It is also called nominal face par; face par. Webster 3d, b. The value or price at which securities or certificates of value are issued. Webster 3d.

par- or par-. In chemistry, these prefixes indicate: (1) an isomeric or polymeric modification as, paraacid, parakyanite, paraoxide, etc.; (2) a modification or a similar compound that is not necessarily isomeric or polymeric; as, paraphenylene; (3) a benzene di-derivative in which the substituted atoms or radicals are directly opposite each other on the benzene ring; that is, occupying positions 1 and 4; as, para-xylene; or (4) an inactive isomer produced by a combination of its dextro- and levorotatory modifications; as, paratauric acid. Abbreviation, p-. Standard, 1964; Webster 3d, b. A Greek prefix meaning near having a specific gravity of 0.92 to 0.94. In general, (85.6 to 74.1 percent) and having a spg- paraffin oil. b. Lubricating oil made by the refining of paraffin-base petroleum. Crude oil containing paraffin wax in solution; such oil is relatively high in hydrogen and low in carbon. A.G.I. Supp.

paraffin-base petroleum. Crude oil which carries solid paraffin hydrocarbons and practically no asphalt. Borg.


paraffin coal. A light-colored bituminous coal used for the production of oil and paraffin. Fay.

paraffin durt. The paraffin, or sour dirt of the Gulf Coast fields: a yellow, waxy substance resembling beeswax, which has often been regarded as indicating the proximity of an oil or gas reservoir. The term paraffin is probably a misnomer, and many have questioned the supposed relationship with petroleum. BuMines Bull. 201, 1922, pp. 29-30.

paraffin fluxes. The residuals obtained from paraffin-base petroleum are characterized by containing 14½ to 4 percent of hard paraffin scale, consisting to a predominance of saturated hydrocarbons (85.6 to 74.1 percent) and having a specific gravity of 0.92 to 0.94. In general, it may be said that the only a small percentage of residual coke and contain but little sulfur. Fay.

paraffin oil. a. Lubricating oil made by the
paraffin oil

paraffin series. Hydrocarbons having the general formula CnH2n+2, which form a large proportion of American petroleum; chemically inseparable, and flammable. See also butane; ethane; methane; propane. Nelson.
paraffin shale. Another name for oil shale.
paragenesis. A general term for the order of formation of associated minerals in time and space. As used by the geologist, the paragenesis is to trace out in a rock or vein the succession in which the minerals have developed. Fay.
paraepidote. a. In petrology, a geosis formed by the metamorphism of a sedimentary rock. Fay. b. A geosis formed from a sedimentary rock by the intermediary action of an igneous magma to such an extent that a virtually new rock is formed. Fay.
paragonite. a. In petrology, a geosis formed by the metamorphism of a sedimentary rock. Fay. b. A geosis formed from a sedimentary rock by the intermediary action of an igneous magma to such an extent that a virtually new rock is formed. Fay.
paragonite. b. A trade name for a nonrotating rope of 12 x 6 over 3 x 24 construction. Ham.
paragonite. c. A term used, for example, which are to be fired electrically in one circuit. Nelson.
paragons. Deproteinized rubber, gutta percha, rubber, etc. Schieffelkeser.
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the rods to the spires. If a head telephone is placed in the circuit, the absence of sound in the telephone indicates that the two telephones are at the same potential. By this method the equipotential lines can be traced. Lewis, p. 316.

paramagnetic material. A material whose specific permeability is greater than unity and practically independent of the magnetizing force. ASM Gloss.

paramagnetism. a. The magnetism of a paramagnetic substance. That property by which the north pole of a magnet that is magnetized by induction is repelled to 180° by the north pole of the inducing magnet. Standard, 1964. b. The property possessed by a substance of producing a higher concentration of magnetism at some distance than is immediately within it. Portland, 1964. c. Permanent magnetism is practically absent and the susceptibility, which is magnetic susceptibility, is constant at any given temperature, but in most substances it is nearly inversely proportional to the absolute temperature. Compara diamagnetism. Holmes, 1920.

paramelanite. An oxide of copper occurring as a secondary mineral at the Copper Queen mine, Bisbee, Ariz. Dana 7, v. 1, p. 511.

paramagnetic. In crystallography, that rational multiple of the unit length of any crystallographic axis intercepted by a crystal plane which determines its position with reference to the fundamental form. Standard, 1964. A quantity constant in a special case but variable in different cases. A.G.I. standard.

parameter (lattice). In a crystal, the length, usually in angstrom units, of the unit cell along one of its axes or edges; also called lattice constant. ASM Gloss.

parametric equations. A set of equations containing controllable constants which define a set of curves or boundaries. Bumis, 1960, p. 2.


pararaph. A pseudomorph with the same composition as the original crystal, as calcite. Little aragonite.

pararaphomorph. The alteration of one mineral into another without change of composition. This can take place into hornblende in crystallization. It is also used in connection with metamorphism to describe such thorough changes in a rock that its old components are destroyed and new ones are built up. Fay.


paramagnet. In alpine orogeny, applied to folds and nappe structures which can be contrasted by the theoretical and technical features with the sedimentary mantle of an autochthonous massif and which have been relatively little displaced. Schoulerdecker.

pararaphomorph. A mobilized portion of an autochthonous granite which has moved higher in the crust or, more usually, into tectonic domains of lower pressure. The resulting pararaphomorph granite shows variable marginal relations, in some places migmatic, in others characterized by an aureole of thermal type. Schareder.


parawollastonite. Calcium form of CaSiO₃. Monoclinic. Wollastonite, with same composition, has been shown to be triagonal. Found in ejection blocks at Mani- vius, Italy; Crestmore, Calif. English.


parasite. A light-gray, highly phosphoric, extrusive igneous rock, with phenocrysts of leucite and augite (25 percent), in a groundmass of andesine, leucite, augite, orthoclase, magnetite, and apatite. The name is restricted to mesocratic extrusive rocks with more leucite than feldspar and more plagioclase than orthoclase. Johannsen, v. 4, 1938, p. 291.

pararaphomorph. That magma from which some other magma was derived. A.G.I. parent. See main hole. Long.

pararaphomorph. Of soils, the horizon of weathered rock or partly weathered soil material from which the soil is formed. Horizon C of the soil profile. A.G.I.

pararaphomorph. A. The original rock from which sediments were derived to form later rock. A.G.I. b. The rock from which parent materials of soils are formed. A.G.I.

pararausesite. An amphibole including green and bluish-green kinds of hornblende, occurring in stout lustrous crystals, or granular. CuNa₂Mg₃Al₂Si₅O₁₈(Fe³⁺). Monoclinic. Dana 17.


pararaphomorph. The process of applying a coat cement mortar to the back of the facing material or the face of the backing material, sometimes referred to as paring. A.G.I.

pararaphomorph. A fieldspathic, white, semitransparent body resembling Paros marble; usually cut. G.T.D.


parianite. Asphalt from the Pitch lake, Trinidad.

parisite. One of the most famous of ancient statuary marbles; from the island of Paros, Greece.

parkerite. An orthorhombic mineral, Ni₃ B₈S₄, commonly associated with richterite, pyrite, fluorite, albite, microcline, and aegirite. From Paros, Greece. Fay.

parian marble. One of the most famous marbles, fine-grained; described from travelers in Alaska in extreme cold weather. Fay.

parietal. A fine-grained, uncrystalline, sometimesskeletal, with a cream-colored; metallic luster. The Sudbury, Ontario, Canada, found in the Sudbury basin; usually associated with olivine, pyroxene, feldspar, and quartz; often in the form of thin sheets or foliated, and sometimes in the form of lenses or small bodies. Fay.


paroptile. A name given by Hunt to a rock salt in which each retort can be maintained accurately at 600° C (1,112° F). A cooling flask specifically distinguished (in a three-part flask) as top part, middle part, and bottom part. Skow.

part candles. Eng. The use of candles as well as safety lamps in a mine. Fay.

part-face blasts. Blasting a face in two stages when the height of the rock face is too great to blast in one operation. McAdam II, p. 245.

partially fixed. An end support to a beam or a column which cannot develop the full fixing moment is defined as partially fixed. Hy.

partially trimmed mica. Rifted mica that is part-trimmed to any degree, so that part of its width is removed by the relief of a variety of forces. Skow.

partial node. The point, line, or surface in a standing wave system where some characteristic of the wave field has a minimum amplitude differing from zero. Hy.

partial pressure. a. That part of the total pressure of a mixture contributed by one of the constituents. Stroock 10. b. See Dalton’s law. Hy.

partial pyritic smelting. Must furnace smelting of copper ores in which some of the heat is provided by oxidation of iron sulfide in a reverse reaction by combustion of coke. See also pyritic smelting. C.T.D.

partial roasting. Roasting carried out in order to eliminate some but not all of the sulfur in an ore. In copper smelting, the sulfur left after roasting combines with copper and some iron to form a matte. C.T.D.

partial subdivision. Any amount of subdivision which is less than full subdivision; as with solid or strip packing. Nelson.

particle. a. In mineral technology a single piece of solid material which can be defined as regards its size by triaxial measurement; by its mesh if below some 0.25 centimeter in average width and above some 50 microns; and by micromeasurement down to the resolving limits of a given magnifying system. Such a particle is not necessarily homogeneous. Also, in physics, the particle may be a molecule, atom or atomic component. Particle size distribution, assessed by screen analysis of sample through series of laboratory sieves, describes the percentage by weight of each size of particle in the range of screens used. Pryor, J. b. A minute constituent of matter having a measurable mass, such as a neutron, a proton, or a meson. L&L.

particle accelerator. Modern machines which accelerate subatomic particles to such great velocities that as these particles strike atomic nuclei, the nucleus of the atom may be altered or split. Among those now in use are the cyclotron, the linear accelerator, the Van de Graaff generator, the Proton synchrotron, and the Bevatron. H&G. See also accelerator.

particle diameter. The projected diameter is that of a circle which has the same area as the projected profile; the equivalent surface diameter is that of a circle with the same effective surface under stated circumstances and classified as a particle. Nelson.
particle diameter

795

particle size. a. In powder metallurgy, the particle-size reduction. The process of crushing particulated stones. Transparent stones with particulate fluidization. parido. Mex. Division of 'ores between part-

minus 0.2). Pryor, 3.

velocity of Stoke's law (Reynold's No. The Stokes diameter is that of a sphere of the same dimensions of a hypothetical particle such study of powders and defined as the di-

meter is that of a sphere of the same

c. cos. The manner in which a seam parts from its roof or pavement; it is a bad parting when they do not separate readily, a good parting when they do. Fay. d. A side track or turnout in a haulage road. Entry parting, the parting at the begin-

ning of an entry in a slope mine. Inside of wall parting, a parting some distance from the mouth of an entry, from which the cars are hauled out by a special mule or team. Wrong parting, a parting on which trips of cars are collected for hauling out by a rope-haulage system, or electric motor. Fay. e. cost. The line of demarcation between bedding planes. The term is also used to denote a thin layer of

TIME. f. A plane, usually parallel to the bed-

ding, at which a bed readily separates. B.S. 3619, 1964. see. g. A band of waste material dividing the mineral stra-

tratum. Austin. h. A natural, usually smooth, separation between strata. Hudson. i. A lamina, for example, ankerite or fusain, occurring on or at an angle to the bed-

planes, but which have become directions of horizontal beds. Pettijohn.
a peculiar lineargraining on the surface

of horizontal beds. Pettijohn.

parting step lineation. Sub-parallel thin layers occurring on or at an angle to the bed-

planes, but which have become directions of horizontal beds. Pettijohn.

parting slate. A thin layer of a typical linear grain on the surface of horizontal beds. Pettijohn.

parting wheel. See cutting-off wheel. Dodd. parting boy. In a cave, a man in its natural position spanning a passage from floor to ceiling and inclining more than 45° to the horizontal (not a fallen block). Schieder-

dercker. parting size. The separation size correspond-

ing to 50 percent recovery as read from a partition curve. B.S. 3552, 1962.

partition curve; distribution curve. A curve indicating, for each specific gravity (or size) fraction, the percentage of it which is contained in one of the products of the separation; for example, the reject. B.S. 3552, 1962.

partition density; trap cut point. The den-

sity corresponding to 50 percent recovery as read from a partition curve. B.S. 3552, 1962.

partition factor; distribution factor. The per-

centage of a specific gravity (or size) fraction recovered in one of the products of the separation; for example, the reject. B.S. 3552, 1962.

partitioning method. A resistivity method in which a special electrode configuration is used, consisting of five electrodes, instead of the usual number of four, to provide a check on the observations. Schieder-

dercker.

partition size. The separation size correspond-

ing to 50 percent recovery as read from a size partition curve. B.S. 3552, 1962.

partitioning. a. A plane on a pattern or a line on a casting corresponding to the separation lineation. Pat. b.概念 is used to denote a thin layer of

horizontallaminated sandstones. Pettijohn.

parting liquid. Liquids, such as tetrameth-

ylene, ethylene dibromide, pentachloro-

thiane, and trichlorethylene, that are used in the DuPont mineral separation process. See also DuPont process. Mitchell, pp. 475, 478.

parting-plane lineation. Sub-linear parallel

shallow grooves and ridges of low relief (generally less than 1 millimeter) on lami-

nation surfaces. Pettijohn.

parting powder. A powder made from chalk, bone meal, or similar nonsiliceous mate-

rial, suitably waterproofed, which is ap-

plied to objects to prevent them from sticking to the mold (or sand) surface. Fay.

partitioning. c. Thin layer of material dividing the mineral stratum. Pettijohn.

cutting simultaneously

alines. Also

parallel lines or along two lines which bal-

n. Cutting simultaneously

n. Cutting simultaneously

n. Cutting simultaneously

n. Cutting simultaneously

n. Cutting simultaneously

n. Cutting simultaneously

n. Cutting simultaneously

n. Cutting simultaneously

n. Cutting simultaneously

n. Cutting simultaneously

n. Cutting simultaneously

n. Cutting simultaneously

n. Cutting simultaneously
partiveral 796

color pastel

approximately 180° in compass direction, as in the case of a plunging anticline. Stokes and Varnes, 1955.

partly filled stope. See square-set stoping.

parts of line. Separate strands of the same rope or cable used to connect two sets of equipment.

part-swing shovel. A power shovel in which the upper works can rotate through only part of a circle. Nichols.

party. A group of men performing the geophysical field work necessary for a specific project or prospect, ordinarily using a single method, as a gravity party. A.G.I.

party chief. In seismic prospecting, the man who supervises the personnel of the crew and generally is in charge of interpretation of the data. Dobrin, p. 55.

party foreman. In seismic prospecting, the man who supervises the work a field party. Subordinate to a nonresident party chief, who is responsible for the interpretation of the data. A.G.I.

party manager. a. In seismic prospecting, his function is to handle the operational phases of the work, particularly those involving logistics and access in difficult or remote areas, giving the party chief more time for interpretation of the data. Dobrin, p. 55. b. In gravity and magnetic prospecting, the man in charge of the operating field party. A.G.I.


pass. A gap, defile, or other relatively low break in the flat it is called a flatting pass; if on between the rolls. When the bar passes on rolling mills, the passage of the bar becomes controlled. Nichols. e. A treatment of the whole sample in a mixture of glass or frit with white, is passivated and the continental Old Red Sandstone above. G.T.

pass. a. Opening in a mine through which coal (or ore) is delivered from a higher level. The pass may be solid coal (or ore) or more frequently in the waste area. At the lower end the pass may be provided with a chute through which the material is discharged into cars or trams. See also chimney; chute. Nelson. b. A passageway left in old workings for men to travel in from one level to another. Zern. c. A treatment of the whole sample in a sample divider. B.S. 1017, 1960, Pt. II. d. A working trip or passage of an excavating machine in removing overburden, B.G.I. i. In rolling mills, the passage of the bar between the rolls. When the bar passes on the flat it is called a flatting pass; if on the edge, an edge pass. Fay. g. The open space between two grooved rolls through which metal is processed. A.S.M. Gloss. h. The weld metal deposited in one trip along the axis of a weld. A.S.M. Gloss. i. A gap, debris, or relatively low break in a mountain range through which a road or trail may pass; an opening in a ridge. Ord. The interior of the shaft. Fay.

passage beds. The general name given to strata laid down during a period of transition from one set of geographical conditions to another; for example, the Downswana stage consists of strata intercalated (and in position) between the marine Silurian rocks below and the continental Old Red Sandstone above. A.G.I.

pass. a. In magnetic-particle inspection, the material is passivated and the continental Old Red Sandstone above. G.T.

passage. b. In gravity and magnetic operations of a field party. A.G.I. c. An underground tunnel or roadway or in positions like these, the material is passivated and the continental Old Red Sandstone above. A.G.I. d. In gravitation and surface mining, a complete excavator cycle or grading machine. Nichols. e. In magnetic-particle inspection, the material is passivated and the continental Old Red Sandstone above. A.G.I.

passage. a. A cavern opening having greater length than height or width, large enough for human entrance and larger by comparison than a lead. A.G.I. b. See pass. A.G.I. c. An underground tunnel or roadway in metalliferous mines. See also drive, d. Nelson.

passive. a. May be defined in two ways: (1) A metal which is normally active according to its position in the electromotive force series, or an alloy composed of such metals, when it exhibits an appreciably greater resistance to corrosion and behaves similarly to those having a noble potential in the electromotive force series. Chromium and stainless steel are passive in certain environments. H.S.G. b. Passive state of genetic equilibrium. Plastic equilibrium obtained by a compression of a mass. A.S.C.E. p. 1826.

passive resistant. A compound whose output waves are independent of any sources of power controlled by the actuating waves. H.S.G.

passive soil. The method or equipment by which information concerning a distance object is obtained by evaluation of sound generated by the object. H.S.G.

pastel color. sometimes a. Soft paste (pate dure), composed of such metals, when it exhibits a fresh and clean surface. It can occur as a fresh and clean surface. It can occur in certain types of lead or in the absence of a noble potential in a galvanic series. Fay.

pastel color. a. A transition of one mineral into another; for example, the changing of the chemically passive surface of a metal to a much less reactive state. Contrast with activation. A.S.M. Gloss. b. A type of inhibitor which changes the electrode potential of a metal, causing it to become more cathodic or electrolytic. B.U.Mines. Bull. 619, 1964, p. 206.

passive coefficient of earth pressure. The maximum ratio of the major principal stress to the minor principal stress. This is applicable where the soil has been compressed sufficiently to develop an upper limit of the major principal stress. A.S.C.E. 1962.

passive earth pressure. The maximum value of earth pressure. This condition exists when a soil mass is compressed sufficiently to cause its internal shearing resistance along a potential failure surface to be completely mobilized. A.S.C.E. 1962.


passive iron. Iron which has been immersed in concentrated nitric acid. It does not dissolve when subsequently immersed in dilute acid. Bismuth, cobalt, chromium, and nickel also exhibit this passivity to a lesser degree. Returns.

passive metals. Metals on which an oxide film forms, giving the metal a noble potential in a galvanic series, and thus exhibiting this so-called passivity; for example, chromium nickel, iron, and nickel also exhibit this passivity to a lesser degree. Returns.

passive resistance. a. In seismic prospecting, his function is to handle the operational phases of the work, particularly those involving logistics and access in difficult or remote areas, giving the party chief more time for interpretation of the data. Dobrin, p. 55.

passive earth pressure. The maximum value of earth pressure. This condition exists when a soil mass is compressed sufficiently to cause its internal shearing resistance along a potential failure surface to be completely mobilized. A.S.C.E. 1962.


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passive soil. a. Soft paste (pate dure), composed of such metals, when it exhibits a fresh and clean surface. It can occur in certain types of lead or in the absence of a noble potential in a galvanic series. Fay.

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pastel mold. A mold lined with adherent carbon, used wet for blown ware. ASTM C183-66.
paste-blowing machines. A machine for blowing light-walled hollowware. As a good finish is needed, the molds are coated with pastes before each blowing operation. C.T.D.
paste-mold process. See paste-mold blowing machines. C.T.D.
pastillage. Dot and line designs made with colored slip, which is dribbled from a container with a flexible base and a spout. C.T.D.
pasting. The operation of mudcapping. Fay.
pate coal. Scot. The bottom, or lowest, coal.
patapsco formation. The highest division of the Comanchean of the Eastern United States, consisting of brightly colored, often sandy clays with fossil plants. C.T.D.
patch burning. A term referring to special effects obtained in burning the surface of clay vessels. ACSG, 1963.
patent. In brickmaking, to remove the rough paste-mold process. See paste-mold blowing machines.
patent fuel. Eng. The fuel produced by the agglomeration of coal slack into lumps.
patent leveling. The same as stretcher leveling.
patent plate. Plate glass that has been ground and polished on both sides. C.T.D.
patent survey. An accurate survey of a mineral claim by a U.S. deputy surveyor as required by law in order to secure a patent (title) to the claim. Fay.
patent yellow. See basic lead chloride.
pattern. A metallurgical process consisting of a chloridizing roasting, leaching with water to remove base metals (some silver is dissolved and must be recovered), leaching with sodium hypochlorite for silver, and the precipitation of silver by sodium sulfide. The process was first carried out by von Paterna at Joachimsthal (Jachymov), Czechoslovakia. See also Joachimsthal process.
pattern burnishing. A term referring to special effects obtained in burnishing the surface of clay vessels. ACSG, 1963.
patternmaker. In the stonework industry, one who makes sheet metal patterns of shapes to which stone is to be cut for building purposes. D.O.T. 1.
patterns. a. A form of wood, metal, or other material, around which molding material is placed to make a mold for casting metals. ASTM C163-66. b. A full-scale reproduction of a part used as a guide in cutting. ASTM C163-66. c. A regular array of characters, such as an X-ray diffraction pattern. ASTM C163-66. d. As applied to diamond bits, the design formed by spacing and distributing the diamonds in a predetermined geometric arrangement on the crown of a bit. See also concentric pattern, eccentric pattern. Long e. The system followed in spacing boreholes. See also checkerboarded. Long.
pattern shooting. In seismic prospecting, the firing of explosive charges arranged in a definite geometric pattern. A.G.S.
pattinson agitator. An agitator of the Pachucan tank type in which the air is replaced by solution or water, under pressure from a centrifugal pump. Liddell 2d, p. 392.
pattinson process. A process for separating silver from lead, in which the molten lead is slowly cooled so that crystals poorer in silver solidify out and are removed, leaving the melt richer in silver. ASTM C163-66.
patina. Strictly, the green film formed on copper and bronze after long exposure to the atmosphere. By extension, the term is applied to a yellowish, bluish, or greenish film of valuable mineral must be proven beyond reasonable doubt; (4) the matter is taken up with the amalgam, and the proper notices must be published in the papers

patello. a. Mex. Cloth used by miners. Fay. b. Sp. Place where minerals are concentrated. The patio floor is one on which silver and lead is amalgamated. The patio process, dating back to the sixteenth century, was a crude chemical method of reduction, followed by amalgamation. See also arrastre. Pryor, 3.
patio process. A process for the recovery of silver by amalgamation in low heaps with the aid of salt and copper sulfate (magister). Thorough mixing is obtained in the usual form by having horses or oxen trample the mass. Liddell 2d, p. 495.
patouriode. An impure sulfide of vanadium, VSc, found in considerable quantities in Peru, and used as a source of vanadium. Dana 17.
patra. a. Mex. Cloth used by miners. Fay. b. Sp. Place where minerals are concentrated. The patio floor is one on which silver and lead is amalgamated. The patio process, dating back to the sixteenth century, was a crude chemical method of reduction, followed by amalgamation. See also arrastre. Pryor, 3.
pattern. A form of wood, metal, or other material, around which molding material is placed to make a mold for casting metals. ASTM C163-66. b. A full-scale reproduction of a part used as a guide in cutting. ASTM C163-66. c. A regular array of characters, such as an X-ray diffraction pattern. ASTM C163-66. d. As applied to diamond bits, the design formed by spacing and distributing the diamonds in a predetermined geometric arrangement on the crown of a bit. See also concentric pattern, eccentric pattern. Long e. The system followed in spacing boreholes. See also checkerboarded. Long.
pattern shooting. In seismic prospecting, the firing of explosive charges arranged in a definite geometric pattern. A.G.S.
and contain plant remains. C.T.D.

Paul floc test. Paul water test. See floc test.

Dodd.

Paul's diameter. This instrument weighs the air and is quite accurate for a portable instrument. It can be used for finding the amount of air pressure between points at various elevations without checking the setting of the pointer, or it can be checked against a mercury barometer and then used as a portable barometer. It is useful in making a survey of the drop in ventilating pressure throughout a mine. Lewis, pp. 692-693.


Pauling's rule. A principle of mineral chemistry. If the valency of a given positive ion is divided by the number of surrounding negative ions the resulting fraction is the contribution of the positive ion toward satisfying the valency of each negative ion. If a given negative ion is considered, it is found that the sum of the contributions from its neighboring positive ions is equal to, or approximately equal to, its valency. For alternative structures which obey this law remain open to a mineral of given composition and one of these always turns out to be the actual structure. It is often possible to determine the nonexistence of certain types of compounds otherwise possible according to the ordinary laws of valence.

Paul's exclusion principle. No two electrons in an atom can have the same four quantum numbers. Pryor, 3.

Paulite. Same as hypersthene. Shipley.

Pauloppost. A general term applied to changes that take place in igneous rocks immediately after their formation, the changing being a direct consequence of the consolidation of the magma, for example, by crystallization, serpenitization. Synonymous with deuteric. Holmes, 1920.

Paul water test. See floc test. Dodd.

pave. To cover immediately underlying coal or any other workable material. Arkell. b. The floor of a mine. Fay. c. Any construction as composed on a subgrade to reduce loading stresses and to protect it against the abrasive effects of traffic and weather. Nelson. d. Base rock, b. Long.


pavilion facets. The main facets on the pavilion of any cut stone. In the brilliant cut, there are usually five or even five-sided facets although some diamond cutters further distinguish four of these by the name of corner facet, step facet.

pavilion. The underside and corners of the brilliant-cut gem, which lie between the girdle and the collet. Hess.

pavior. A term used for floors. Arkell.

paving block. A stone in the stonework industry, one who splits large blocks of granite into smaller blocks for paving purposes, using an airhammer and drilling bit. Also called blockmaker. D.O.T.1.

paving breaker. An air hammer which does not rotate its steel. Nichols.

paving brick. Usually impure shales and fire clays pressed for this purpose. Desirable qualities in a paving brick are a fair degree of plasticity, good tensile strength, and suitable viscosity characteristics. Found in Ohio, Pennsylvania, Indiana, Illinois, New York, Maryland, Colorado. C.C.D 6d, 1961.

paving flag. A square hard stone slab, 2 inches or more thick, used for surfacing a footway. Hydraulically pressed precast reconstructed stone or concrete slabs are in common general use. Ham.

paving sand. A type of commercial sand which is divided into three general classes, that for concrete pavements, that for asphaltic pavements, and that for grouting. Sand for concrete pavements, according to the U.S. Bureau of Public Roads, should pass through a 1/4-inch screen, 5 to 25 percent should be retained on a No. 10 sieve, from 50 to 90 percent on a No. 50 sieve, and not more than 10 percent should pass through a No. 100 sieve. Not more than 3 percent of the weight should be matter removable by elutriation. For asphaltic pavement small amounts of organic matter are not objectionable in the sand. A sand should pass through a 1/4-inch screen, 95 to 100 percent through a No. 10 sieve, and not more than 5 percent through a No. 200 sieve. Grouting sand should pass through No. 10 sieve, 80 percent through a No. 20 sieve, and 5 percent through a No. 200 sieve. See also building sand, Brady, p. 121.

paving stone. Stone prepared, or suitable, for paving work. Standard, 1964. Usually in large flat slabs, or square blocks, such as Belgian block.


paving. A term applied to clay-fired stock bricks that are not of first quality but are nevertheless hard, well-shaped and of good color. Dodd.

pavonazzo marble. See pavonazzo. Fay.

pavonazzo; pavonazzo marble. A siliceous limestone of various shades of green, blue, or gray alternating with bands of white. Formerly, often used in southern Italy. So called from its resemblance to the plumage of a peacock; also called Phrygian marble. Fay.

pavonite. AgBisSis, monoclinic, for a Bolivian marble. Fay.

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pavonazzo; pavonazetto marble. A siliceous limestone of various shades of green, blue, or gray alternating with bands of white. Formerly, often used in southern Italy. So called from its resemblance to the plumage of a peacock; also called Phrygian marble. Fay.

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pay. a. That portion of a formation which carries the profit of its contents. Fay. See also pay dirt. b. That portion of a vein which carries the profit of its contents. Fay. See also pay dirt. See also pay dirt; pay rock. c. Earth, rock, etc., that yields its valuable contents, A pay is always the weight of the coal, ore, or mineral handled as distinct from dirt, stone, or gangue. Nelson. d. Earth, rock, etc., that yields its valuable contents, A pay is always the weight of the coal, ore, or mineral handled as distinct from dirt, stone, or gangue. Nelson. e. Earth, rock, etc., that yields its valuable contents, A pay is always the weight of the coal, ore, or mineral handled as distinct from dirt, stone, or gangue. Nelson.


pay gravel. A. Gravel containing sufficient heavy mineral to make it profitable to work. Nelson. b. In placer mining, a rich strip or lead of auriferous gravel. Fay.

pay limit. The portion of a vein which carries the profit of its contents. Fay.

pay load. a. In any wind, the portion of a formation in which the mining of ore is considered to become unpayable. There has been much discussion about mining below the pay limit for technical reasons, as a result of taxation, or to conserve natural resources. Beerman.

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payable. There has been much discussion about mining below the pay limit for technical reasons, as a result of taxation, or to conserve natural resources. Beerman.

payable ore. A deposit composed on a subgrade to reduce loading stresses and to protect it against the abrasive effects of traffic and weather. Nelson. d. Base rock, b. Long.

payoff. The portion of a formation which carries the profit of its contents. Fay. See also pay limit; pay rock. Fay.

pay out. To slacken or to let out rope. Fay. Fay.

pay rock. Synonym for pay ore.

pay shoot. A portion of a deposit composed of payable ore. Fay.

pay streak. a. The areas of concentration of gold in placer deposits. Bateman. b. That portion of a vein which carries the profit of its contents. Fay. See also pay dirt. a. The areas of concentration of gold in placer deposits. Bateman. b. That portion of a vein which carries the profit of its contents. Fay.

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pyrometric cone equivalent. V.V.


Pd. Chemical symbol for palladium. Hende-

pea brach. Eng. Grass cloth composed of small, quite pure black and gray pebbles, with little sand, probably only a few feet thick at base of Blackheath beds, Croydon, Surrey. See also anthracite coal.

peach. A dark blue or green altered rock; aggregate of quartz, accessory minor tourmaline, and some ore minerals, often with fluorite. A.G.I.

peach bloom. A glaze effect on pottery produced by the addition of copper oxide to a high-alumina glaze but requires very careful control of the kiln atmosphere. The bloom results from incipient devitrification of the glaze surface. Dodd.


pea coal. In anthracite only, coal small enough to pass through a mesh three-fourths to one-half inch square, but too large to pass through a 3/8-inch mesh. When broken, a coal is made, the size marketed as pea is sometimes larger than the above; known also as No. 6 coal. Fay.

pea gravel. A variant and seldom-used spelling of peen. Long.

pea gravel eyd. A local term used to describe a laminated shaly sandstone roof which has impressions at the laminations or partings, similar to peanut shells. The sizes of the indentations vary from about 1/4 to 2 inches. Hurlbut.

pea ground. Round grains of hydrated peroxide of iron, or silicate of iron, commonly found in cavities of Jurassic limestone. See also bean ore. Fay. b. Limonite occurring in a round grain about the size of a pea. Webster 3d.

pearl. A gem composed of calcium carbonate, formed in the shell of the pearl oyster. Crisius.

pearl ash. Potassium carbonate (K₂CO₃); especially, an impure product obtained by partial purification of potash from wood ashes. Webster 3d.

pearl compass. In determinative gemmology, an apparatus for discriminating between genuine and cultured pearls. A pearl is hung between the poles of a powerful electromagnet. A cultured pearl tends to rotate and is attracted according to the structure of its core, while a genuine pearl tends to remain stationary. Shipley.


pearl diatoms. See variable luster. Fay.

pearl endoscope. See endoscopy. Shipley.

pearl endoscopy. The method of examining material which consists of various diameters and the corresponding estimated weights of fine spherical pearls. Shipley.


pearlite. The lamellar mixture of ferrite and cementite in the microstructure of slowly cooled iron-carbon base alloys occurring normally as a principal constituent of both steel and cast iron. Webster 3d.

pearlite isomorph. A kind of iron. In general, pearlitic iron is gray cast iron consisting of graphite in a matrix of pearlite, that is, without free ferrite. In particular, perlite iron is a German proprietary name denoting an iron of low silicon content, which is caused to solidify gray by the use of heated molds. C.T.D.

pearlitic malleable. See malleable cast iron. ASM Gloss.

pearl mica. Same as margarite, b. Fay.

pearl opal. An opaque, bluish-white, porcelain-white, pearly-splashed, or pearly-splashed variety of opal. Same as cacholong. Fay.

pearl radiogram. The record on a photographic film or plate of X-rays transmitted through a pearl; an X-ray photograph of a pearl. Shipley.

pearl luster. A variety of opal. Fay. Synonym for ankerite.


pearlstone. Same as perlite, a. Fay.

pearl white. See bismuth oxichloride. Bennett 3d.

pea body. Applied to minerals having a luster like a pearl, such as talc, brucite, stibnite, and pyrite.

peafowl. A variety of obusidian. Schaller.

peary luster. A luster like that of a pearl and shown by some easily cleavable minerals. Huntbut.

pearly mixture of ferrite and cementite having a pearly appearance when lamellar. See also pearlite. Fay.

Pearson air elutriator. A downblast type of elutriator and used for determining the fineness of Portland Cement. Dodd.


peastone. Same as pisolithic. Fay.

peas. a. Applied to small pieces of ore, the weight of which may be estimated by the hand. Fay. b. N. of Eng. Lead ore in grain about the size of a pea. Standard, 1964.

peas. There are two types of pea, low moor (Flachmoor) and high moor (Hohmoor) pea. Low moor pea is the most common starting material in coal genesis. It therefore constitutes a causticoholob of low diagenetic degree. Peat is formed in marshes and swamps from the dead, and partly decomposed remains of the marsh vegetation. Stagnant ground water is necessary for peat formation to protect the residual plant material from decay. Peat has a yellowish brown to brownish black color, is generally of the fibrous consistency, and can be either plastic or friable; in its natural state it can be further; it has a very high moisture content (above 75 percent, generally above 90 percent). It cannot be distinguished from brown coal by the fact that the greater part of its moisture content can be squeezed out by pressure (for example, in the hand). Peat also contains more plant material in a reasonably good state of preservation than brown coal, and is a rich source of plant elements, such as roots, stems, leaves, seeds, etc., can commonly be seen in it without the unaided eye. The treatment of peatite waste slimes will make
peat

visible many of these plant tissues. Further, peat is richer in cellulose than brown coal (reaction with Fehling’s solution). Unlike brown coal, peat still contains cellulose, protected by lignin or cutin, which gives a reaction with chlor zinc iodide. Correspondingly, peat shows under the microscopic tissues which have not undergone either lignification, suberization or cutinization; this is not the case in brown coal. The reflectance of peat is low (about 0.3 percent). Microscopic examination is best undertaken with transmitted light. HCP, 1963, part I.

peat bed. An accumulation of peat. Pay.

peat blasting. A method enabling a road to be built above a peat deposit. Hard filling is first dumped over the route to a height equal to the accumulated depth of the peat, into which blast charges are inserted. By the action of blasting the peat is displaced outwards, the hard fillings sink into place and can then be consolidated. Ham.

peat bog. A bog containing peat; an accumulation of peat. Webster 3d.


peat charev. See charred peat. Bennett 2d, 1962, 3d.


peatery. A peat bog or peat bank. Webster 3d.

peat coal. b. A. Small usually round stone, especially when worn and rounded by the action of water. Webster 3d. b. A mass of material obtained in a form resembling pebbles. Webster 3d. c. A. A rock composed of rounded to subangular gravel composed of sand and pebbles. Fay.


peat dryer. A. See charred peat. Bennett 2d, 1962, 3d.

peat formation. A process of decomposition and alteration the bituminous and anthracite coals were formed. See also Hilt’s law. Nelson.

peaty. Resembling or containing peat; having the nature of peat. Standard, 1964.

peaty earth. Soil rich in peat or humus. Tomkeieff, 1954.


peaty pitch coal. Same as pitch peat; doppelite. Tomkeieff, 1954.

peas d’ orange. In ceramics, a decoration resembling that of a cant hook, but has the end armed with a strong sharp spike. Webster 3d.


pebble. A small usually round stone, especially when worn and rounded by the action of water. Webster 3d. b. A mass of material obtained in a form resembling pebbles. Webster 3d. c. A rock composed of rounded to subangular gravel composed of sand and pebbles. Fay.

pebble armor. A. The pebble armor of the desert. It is the first suggestion of the name of armoring (panzerung) of the desert as a result of lighter and finer materials being carried away through deflation or wind transportation, while coarser or heavier fragments are left behind. It was Walther, however, who by full descriptions and many excellent photographs showed the great importance of the process over vast areas in the arid regions. A.G.I. b. A. A pebble beach or bar. A.G.I. Supp.

pebble bag. A pit or quag formed by digging out a peat bog. Webster 3d.

pebble beater. A heat exchanger in which the name of armoring (panzerung) of the desert as a result of lighter and finer materials being carried away through deflation or wind transportation, while coarser or heavier fragments are left behind. It was Walther, however, who by full descriptions and many excellent photographs showed the great importance of the process over vast areas in the arid regions. A.G.I. b. A pebble beach or bar. A.G.I. Supp.

pebble bed. A bog containing peat; an accumulation of peat. Webster 3d.


pebble. A small usually round stone, especially when worn and rounded by the action of water. Webster 3d. b. A mass of material obtained in a form resembling pebbles. Webster 3d. c. A rock composed of rounded to subangular gravel composed of sand and pebbles. Fay.

pebble coal. A. Coal composed of rounded to subangular gravel composed of sand and pebbles. Fay.

pebble coke. A. Coal composed of rounded to subangular gravel composed of sand and pebbles. Fay.


pebble heater. A heat exchanger in which refractory pebbles (which may be made of mullite, aluminosilicate, zircon, or corundum) are used as heat carriers. One type of pebble heater consists of two refractory lined chambers joined vertically by a throat; both chambers are filled with pebbles, which descend at a steady rate, being discharged from the bottom of the lower chamber and returned to the top of the upper chamber. In the latter they are heated by a countercurrent of hot gases; in the lower chamber they give up this heat to a second stream of gas or air.

pebble jack. Zinc blende in small crystals or pebblelike forms not attached to rock, but found in clay openings in the rock. Pay.

pebble line. A physical shape of quicklime. Pay.

pebble mill. Horizontally mounted cylindrical mill, charged with flints or selected lumps of ore or rock. Usually long and high diameter. Priory, 3. See also ball mill.

pebble peat. A. Peat accumulating beneath translucent quartz and chalcedony pebbles embedded in the surface of well-drained soils in semiarid regions. Pebble peat is formed by moss and algae and varies in thickness from a thin film to about one-fourth of an inch. Tomkeieff, 1954.

pebble phosphate. Varieties of natural phosphate that are concretionary or alluvial in origin, hence gravellike. A.G.I.

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pecotile jade

grayish mineral; tough, compact, and fibrous. It has been used as a material and is possibly of Alaskan Monoclinic. Mohs’ hardness, 5; specific gravity, about 2.87. Shipps.

Pedestal. The soil of humid regions, enriched in aluminia and iron. Accumulates in regions of high temperature and humid climate that are marked by forest cover. Compare pedocal. A.G.I.

pedestal boulder. A class of blocks, the mode of occurrence of which requires specific explanation. These are what may be called pedestal boulders, that is, blocks perched on pedestals of limestone or perched boulder. A.G.I. b. Isolated masses or rock above and resting on a smaller base or pedestal. USGS Bull. 790, 1927, p. 1.

pedestal riveter. A jam riveter and fixed dolly which are carried respectively on opposite side of a frame mounted on a stand. Ham.

pedestal rock. A residual mass of weak rock consisting with bedrock. See also pedestal boulder, b. A.G.I.

pedestrian-controlled dumper. A small dump truck controlled by a man walking alongside it. Ham.

pedal class. In crystallography, the class without any symmetry. A.G.I.

pediment. a. Steep rock slopes having roughly triangular shapes resembling architectural pediments. A.G.I. b. Gently sloping plains, ended by the foot of steep rock cliffs. A.G.I. c. A planed rock surface adjoining a rugged-faced mountain mass, part of an explanation. These are what may be called pedestal boulders. A.G.I. d. A smooth rock plain which forms part of the margin of intrusive masses. A.G.I. e. That portion of the surface of a receding slope, which is underlain by rocks of the upland and is either bare or mantled by a layer of alluvium not exceeding in thickness, the depth of steam during flood; it is essentially a surface of transportation, experiencing neither marked vertical downcutting nor lateral deposition, and displays a longitudinal profile normally concave, but which may be convex at its head in later stages of development. The formation may be found in regions of rising, stationary, or lowering base level. A.G.I. f. A sloping plain which lies at the foot of mountains not covered by alluvium material. See also mountain pediment; rock pediment. A.G.I. g. Gentl.

pedimentation. The bending of erosion surfaces followed in bedrock and generally veneered with fluvial gravels. They occur between mountain fronts and valley or basin bottoms and commonly form extensive bedrock surfaces over which the erosion products from the retreating mountain fronts are transported to the basins. A.G.I.

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pediment passes. The narrow, flat-topped tongs, which stand back from the general pediment, but still penetrating along the mountain sufficiently to meet another pediment slope extending into the mountain from the other side. A.G.I.

pediplane. Broad, rock-cut, thinly alluviated surface formed by the coalescence of adjacent pediments and desert domes. A.G.I.

pedon. The actual possession of a piece of land to the extent needed to give the owner room to work and to prevent probable breaches of the justice, but not necessarily to the extent of a mining claim. Fay.


pedon-genesis. The formation of soil from parent materials. A.G.I.

pedochemical prospecting. Synonymous with geochemical soil survey. Hauk. See also complex pegmatite.

pedology. The science which treats of soils, their origin, character, and utilization. A.G.I.

pedosphere. The part of the earth in which soil-forming processes occur. Schieber.


pegmatite. Those igneous rocks of coarse grain found usually as dikes associated with a large mass of plutonic rock of finer grain size. The absolute grain size is of lesser consequence than the relative size. A.G.I.

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Pelagic limestone. A rock formed chiefly by the accumulation of the calcareous tests of pelagic or floating organisms. Normally, pelagic limestone is the product of calcium carbonate accumulation in relatively deep water (though not necessarily abyssal). A.G.I. Supp.


pelagic sediments. Pelagic sediments are found in deep water, far from shore. They are generally fine grained and range in color from white to a dark reddish-brown. These sediments may be either inorganic or organic in origin. Those which contain less than about 30 percent of organic remains are called red clay; those which contain more than about 30 percent of organic remains are known as ooze. Mero, pp. 106-107.

pelagic. A name given to certain manganese nodules obtained in deep-sea soundings. A.G.I.

pelagochthonious. A term applied to coal deposits formed from sub-pesident threads and driftwood. Tomkies, 1934.

Pelitian-Cretaceous process. A continuous process of dissolovg silver or gold or cyanide solution and simultaneously precipitating the precious metals with mercury in the same vessel, an electrical current assisting precipitation. Liddell 24, p. 495.

Pelitian furnace. A furnace for the calcination of fine pyritic or other sulfide ores. A.G.I.


pellete. A hypersthene-labradorite dacite similar to the lava of A.G.I. Supp.

Pelte type. In volcanology, activity characterized by production of a crater dome and an expanding cloud of gas and rock fragments. Hess.

Pelt's tears. Small drops of volcanic glass (generally basaltic) with pendant threads, or pairs of drops arranged in dumbbell fashion, thrown out during eruptions of fluid lava. American Geologist.

pelmicrite. Limestone similar to pelsparite except that the ratio of fossils and fossiliferous material is changed. A.G.I. Supp.

pelmorion. A variety of bitumen partly soluble in organic solvent and fusible at 120° C. It may be considered as a variety of polyelaterite. Tomkies, 1934.

pel-mell structure. Coarse deposits of water-worn materials in which there is an absence of bedding. A.G.I.

pelodie. Water-laid sandy clay, usually staked out by hand. A.G.I.

pelodie clay. Northumb. Pure and tough clay, of a variety resembling oolite; it is often called ball clay. Arkell.

pelodie coal. See pellis. A name proposed by W. F. Petty for a bituminous coal (Pelion coal) resembling English coal from near Monte Pelion, Tasmania. A.G.I.

pelite. A general term for clastic sediments composed of clay, minute particles of quartz, or rock flour. A volcanic ash of corresponding grade is called peltic tuff. Holmes, 1928.

pelitic. Pertaining to, characteristic of, or formed of pelite; composed of fine argillaceous sediment or clay. A.G.I.

pelitic granite. A granite rock derived from the metamorphism of argillaceous sediments. C.T.D.

pelitic hornfels. A fine-grained, nonfoliated metamorphic rock derived from a pelitic aluminous sediment. See also hornfels. A.G.I.

pelitic schist. A schistose metamorphic rock derived from a pelitic aluminous sediment. See also schist. A.G.I.

pelitic phyllite. An aggregate of calcite grains with a maximum diameter of millimeters in size. A.G.I.

pellon. A. A sandstone dike. Pettijohn.


pellon deposits. Those deposits found in deep water not far from shore and may be predominantly either organic or inorganic in origin. They are light-colored, reddish or brown, fine-grained, and generally contain some skeletal remains of planktonic organisms. The inorganic deposits are referred to as red clay and the organic deposits as ooze. Mero, pp. 72-73.

pellon division. A primary division of the sea which includes the whole mass of water. This division is made up of the neritic province which includes the water shallower than 200 meters, and the oceanic province which includes the water deeper than 200 meters. A.G.I. Supp.

pellon limestones. Rock formed chiefly by the accumulation of the calcareous tests of pelecypod or floating organisms. Normally, pellicaceous limestone is the product of calcium carbonate accumulation in relatively deep water (though not necessarily abyssal). A.G.I.


pellon wheel. An impulsive water turbine with buckets bolted to its periphery which are struck by a high velocity jet of water.
Pelton wheel

This turbine is most efficient under a head of from 900 to 1,000 feet or more. See also impulse turbine. Hem.

pencil. Pencils are composed of more or less finely powdered aluminum silicate with which are mingled other small particles of various minerals. Webster defines the term pencil as a rod, or a piece of that rod, used of fine mud. Rosenbush states that Naumann referred to pencil as those sediments composed of the finest detecting portion, in which are clay, in others calcareous, and in still others are mixtures of clay and calcareous materials. Synonym for pencil; mudstone. A.G.I.

pen. a. Scot. In longwall working, a narrow airway, more particularly an airway formed along the solid coal. Fay. b. A device to dam the water in a stream; a dam. Webster 3d.

pen. Sp. A large stone or rock in its natural state. Rock; cliff; a term used in Southwestern United States. Fay.

penalty. In connection with a contract for purchase of mineral concentrates by custom smelter, deduction from agreed price for failure to reach agreed assay value on or to eliminate specified contaminants; charged at so much per unit of mineral or metal contained in the concentrate, a penalty clause is one which imposes a penalty for failure to complete work to agreed specifications, such as purity. C. M. D.

pencil. A crystalline limestone which contains trinitite and calcite in approximately equal molecular proportions. C.T.D.


pencil. b. Metal composition used as a pencil core; consists of 70 parts lead, 30 parts bismuth, and 8 parts mercury. Cumm.


pencil. A term used for those sediments composed of the finest detecting portion, in which are clay, in others calcareous, and in still others are mixtures of clay and calcareous materials. Synonym for pencil; mudstone. A.G.I.

pencil. The process of rounding the edges of flat glass. Dodd.

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pencil. A device for indicating or calibrating the apparent sensitivity of a radiographic technique. It usually consists of a strip of material of a thickness equal to a specified percentage of the thickness of the material under examination and containing holes of diameters having a specified relation to the thickness of the strip. A.S.M. Gloss.

pencil. A method of nondestructive testing for determining the existence and extent of discontinuities that are open to the surface in the part being inspected. The indications are made visible through the use of a dye or fluorescent chemical in the liquid employed as the penetrating medium. A.S.M. Gloss.

pencil. a. In mechanical mining, the arm which extends between the fullcram jack and the swivel or angle trough or turn. Jones. b. A swinging instrument used for measuring differences in the earth's gravitational field. The pendulum is very seldom used in geophysical prospecting, its chief application being in geodetic and scientific surveys to determine the absolute value of the earth's gravity field. Nelson. c. A body so suspended from a fixed point as to swing freely and for under the combined action of gravity and momentum. Also called a physical pendulum. A.G.I. A vertical bar so supported from below by a stiff spring as to vibrate to and fro under the combined action of gravity and the restoring force of the spring. Also called an inverted pendulum. A.G.I.

pencil. In Vermont, large wooden blocks covered with felt pads that are propelled forward by means of a crank and pitman. Used for polishing monumental stone. Fay.

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penetration per blow

or penetrometer is driven into the forma-
tion being tested by each blow delivered
by a specifc-size driverhammer allowed
to fall a given distance.

penetration rate. a. The actual rate of pene-
tration of drilling tools. B.S. 3618, 1963,
see. 3. b. See heat rate. Long. c. See drill-
ing rate. Frangsten.

penetration resistance; standard penetration
resistance; proctor penetration resistance.
a. Tn number of blows of a hammer of
specified weight falling a given distance
required to produce a given penetration
into soil of a probe or instru-
ment. ASCE P1826. b. The unit load
required to maintain constant rate of pene-
tration into soil of a probe or instru-
ment. ASCE P1826. c. The unit load
required to produce a specified penetra-
tion into soil at a specifed rate of a probe
or instrument. For a proctor nee
dle, the specifed penetration is 2/3 inches
and the rate is 1/2 inch per second. ASCE
P1826.

penetration resistance curve; proctor pene-
tration curve. The curve showing the rel-
ationship between the penetration resis-
tance and the water content. ASCE
P1876.

penetration speed. The speed at which a drill
can cut through rock or other material.
It depends on (1) the hardness of the rock
or soil, per blow, or rota-
tion, of the drill; (3) number of blows per
minute or speed of rotation; (4) the dis-

tance of the bit; and (5) the type and sharpness
of the bit. Hand-
held and air-percussive drills (200
inches per minute) require a speed of
2 feet per minute in soft to medium Coal
Measures rocks, and about 1 foot per
minute in medium to hard rocks. A drill
rig (3-inch-diameter bore) will give
about 2 feet per minute in medium to hard rocks. See also overall drill-
ing time. Nelson.

penetration. A test to determine the rel-
ative resistance of the rocks. Nelson.

penetration twin. A twin crystal in which the
two parts interpenetrate each other. Com-
pare contact twin. Fay.

penetrometer. a. A cone penetrometer having
the assemblage of a deflection dial indi-
cator mounted inside a proving ring,
which is coupled to the drill rod project-
ing above the ground. Force is applied
to the top of the proving ring, and the
amount required to drive the cone into
the formation being tested is recorded,
ina funnel, on the dial indicator. See also
cone penetrometer. Long. b. An instrument
which automatically records the depth
penetrated and the penetration rate. B.S.
3618, 1963, sec. 3. c. A test or an instrument for meas-
uring the consistence of semisolids (as pitch or grease) from the depth to
which a probe was driven, under gravity condi-
tions, or (2) a penetrometer. Webster 3d.

penetrometer, coal. An instrument to assess
the strength of a coal seam, its relative
workability, and the influence of roof
pores. Nelson. 

pentaborane. A liquid, BH5, with a hearing
point of -71° and a boiling point of 277°.
It is a flammable, non-toxic, organoborane.
Nelson.

pentacalcium trislumbstc. A compound for-
med by action of sea water on ancient shales in Laurin, Greece; Sierra
Gorda, Chile. American Mineralo-
 gist, 26, No. 4, April 1941, p. 293.

pentacalcium triolinate. See also triolinate.

pentacalcium trisulphstc. A compound for-
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Gorda, Chile. American Mineralo-
 gist, 26, No. 4, April 1941, p. 293.

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pentachloroethane; pentaline

pentachloroethane. Pentane. Dense, high-boiling; colorless; liquid; CHCl₃CCl₃; specific gravity 1.685 (at 15°C, referred to water at 4°C); boiling point, 159.5°C; freezing point, -22°C; refractive index, 1.505 (at 24°C); insoluble in water; used as a solvent for oil and grease in metal cleaning and for the separation of coal from impurities by denitrifying. See. C.C.D. Ed. 6, 1961, p. C.449.


pentagonal dodecahedron. In the isometric system, a form of pyritohedral symmetry, enclosed by five-twelve faces, each parallel to one axis and cutting the other two axes at unequal distances; a pyritohedron; pentahedron.

pentahydrate. Magnesium sulfate pentahydrate, MgSO₄.5H₂O, triclinic, artificial, but crystallizes in a less perfect form in which it can be distinguished by its octahedral cleavage. Also called nicopryte. C.T.D.; Dana 17.

pentane. A liquid hydrocarbon, C₅H₁₂, of the pentane system, a form of pyritohedral symmetry, enclosed by twelve five-sided faces, each face enclosed by two axes at unequal distances; a pyritohedron; pentahedron.

pentagonal marble. One of the most famous of the statuary marbles; from Nova-Alexandria, Poland. English.


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lodged. A boulder, believed deposited by a glacier, lying in an unstable position.

A.G.T. Not ground water. Ground water separated from an underlying body of ground water by unsaturated rock. A water table.

A.G.I. A water table usually of limited area maintained at a higher level than the water table. See ASCE P1826.

saturated water. Water percolating through unsaturated rock. A water table usually of limited area maintained at a higher level than the water table. See ASCE P1826.

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pervious stratum. A water table usually of limited area maintained at a higher level than the water table. See ASCE P1826.

unpermeable stratum. A water table usually of limited area maintained at a higher level than the water table. See ASCE P1826.

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periblinité

of perblain. It consists of cortical tissue almost jellified in bulk but still showing indications of cell structure under the microscope. A.G.I. b. A distinction of teli- nite, a botanical origin (cortical tissue). A.G.I.

periclase. Natural magnesium oxide. MgO, found in some marble. Easily alters to brucite. Colorless to grayish white, yellow, brown, green to black; luster vitre- ous; hardness 3.5; specific gravity 3.5. Found in California, New Mexico; Euro- pe. Used in refractories (especially pref- phlegon). C.C.D. 6d, 1967.

periclinal. Dipping in all directions from an elevated center. See also quasiversal.

periclinal structure. Dipping on all sides from a central point or apex. Synonym for dome; quasieurial A.G.I. b. Beds dipping radially outward from or inward towards a center, to form a dome or basin. A.G.I.


pericline law. Triclinic crystal system twinning. The developing pinacoids of the twins are parallel, the crystallographic b axis acting as the twinning axis. Hess.

pericline twinning. Usually arranged in orthogonal pattern parallel and trans- verse to current direction with wave length up to 100 units and up to 30 centimeters high. Pettijohn.

pericline twin. A twin crystal, in the mono clin cleavage. Fay. a. The outer boundary of any plane figure. Peripheral objects, such as radial or circular object travels, expressed in feet per second; sometimes incorrectly called li- near travel by some drillers. Also called surface speed. Long. b. The speed at which any point on the face of a wheel is traveling when the wheel is revolving, expressed in feet per minute. A.S.C.G., 1963. c. That of particle or point at ext- reme radius of system as part of which it rotates, for example, ball in mill, tip of impeller. Fryor. d. See cutting speed. A.G.I. G.M. 6d.

peripheral-turbine pump. This pump—some- times called a regenerative pump—is clas- sified with centrifugal pumps, but is de- signed to develop several times the head obtained from a centrifugal pump having the same diameter impeller and speed. The maximum head developed does not have the same relation to the impeller diameter and speed of the centrifugal, and involves raising and backing of the im- peller vanes, fluid channels, and other factors. Pit and Quarry, 53rd, Sec. E, 1960.

peripheral ventilation. A mine ventilation system in which the upcast shaft for taking out the air is placed on the limits of the mining field or away from the downcast shaft. Also called transtional or one-way ventilation. Story, v. 1, p. 329.

dur. To diastegrate as a result of slow hydration on exposure to moist air; calcined dolomite diastegrates in this manner if stored for more than a short period. A.G.I.

perikelf. A whitish, adularialite albite, slightly iridescent. Fay.


peritite. An isotermal reversible reaction in which a liquid phase reacts with a solid phase to produce another solid phase on cooling. A.S.M. Glass.

peritectic reactions. The reactions between solid phases and still unsoftened por- tions of the liquid melt. Rice.

peritectol. An isotermal reversible reaction in which a solid phase reacts with a second solid phase to produce yet a third solid phase on cooling. A.S.M. Glass.

perikléwic method for preventing kiln scum. A process in which clay bricks, prior to their being set in the kiln, are coated with a combustible, for example, tar or a mixture of gelatin and flour; should sul- fur compounds be used on the bricks during the early stages of firing, the deposit will fall away when the combusti- ng gas passes through the unburned top of the kiln. A.S.C.G.

perikléwic. An imperfectly fired brick; a place brick. Fay.

perikleitos. A name from the Greek word for dark, and proposed by Turner as a col- lective term for the rocks usually called pyroxenites and amphibolites, which, more properly, are seen to be for the most part periodic arrangements the elements.

period. a. A major, worldwide, standard geologic time unit corresponding to a system. An interval of time characterized in some particular way. A.G.I. Supp. c. Time required for a re- current motion or phenomenon to com- plete a cycle and begin to repeat itself. A.G.I. Supp. d. The duration of one complete cycle of a periodic function; the reciprocal of the frequency of such a function. The independent variable is limited to time. A.S.M. Glass. c. The ele- ments between an alkali metal and the rare gas of next highest atomic number, inclusive, occupying one (a short period) horizontal row or two (a long period) horizontal rows in the periodic system. C.T.D. The time required for the power level of a reactor to change by the factor 2.718, which is known as e. L.S.L. periodic arrangement. An arrangement of elements in the order of their increasing atomic numbers. As a result of this ar- range ment the elements fall into nine natural groups (though group VIII), the members of each resembling each other very strongly. Crispin. See also periodic law; periodic system; periodic table.

periodic drier. A drier in which ware is fired, cooled, and unloaded to complete the cycle. The kiln is started and unloaded in contrast to a continuous drier. A.S.C.G., 1963.

periodic kiln. A kiln filled with ware, fired, and cooled; the cycle is repeated again; or any type of kiln which must be loaded, fired, cooled, and unloaded to complete the cycle. The kiln used for this type of kilns are updraft and downdraft. A.S.C.G., 1963.

periodic law. a. A law in chemistry dis- covered by Mendeleev. The physical and chemical properties of the elements are periodic functions of their atomic weights. Webster 3d. b. The physical and chemical properties of the elements depend on the structure of the atom and are for the most part periodic functions of the atomic number. Webster 3d. See also periodic arrangement; periodic system; periodic table.

periodic reverse. Pertains to periodic changes in direction of flow of the current in electrolysis. It applies to the process and also the machine which controls the time for both directions. Symbol, PR. A.S.M. Glass.

periodic system. A classification of the ele- ments, in nine groups (group O through VIII), which demonstrates that the physi- cal and chemical properties of an ele- ment and its compounds vary periodic- ally with the atomic number of the element. The system was perfected, as far as possible, from 1869 onwards, by Meyer and Mendeleev. C.T.D. See also periodic arrangement; periodic law; periodic table.

periodic table. An arrangement of elements based on the periodic law and proposed in various forms that are usually either short with only short periods (as in Mendeleev's original table) or long with long periods (as in most modern tables). Webster 3d See also periodic arrangement; periodic law; periodic system; periodic table.

periodic time. See period, d.

peripheral clearance angle. See clearance angle. A.S.M. Glass.

peripheral faults. Faults along the periphery of a geologically elevated or depressed region. A.G.I.
the perlites consist chiefly of zoanno-
clinopyroxene and amphibole with sub-
ordinate orthorhombic pyroxene, olivine,
and plagioclase. They are lower in aluminas and alkalies than the dior-
ites and gabbros, and lower in magnesia
and alkalis than the dior-
ites and gabbros. Found in Cali-
ifornia, Colorado, New Mexico, Nevada,
Oregon. Used as lightweight concrete ag-
gregate; as insulation for liquid fuels; cata-
vast support. CDC 6d, 1961.

perlite iron. See pearlite iron. C.T.D.

perlite. A volcanic glass having numerous
perlitic structure. A structure produced in
perlite iron. See pearlite iron. C.T.D.

permanent deformation. See set, z. Ro.

permanent adjustment. The adjustment of a
permafrost drilling. Boreholes drilled in sub-
permanent hardness of water. Water hard-
ness which cannot be removed by boil-
ing. See also hard water. Nelson.

permanent hard water. Hard water, which
cannot be softened by boiling; water con-
taining magnesium sulfate or calcium sul-
fate. Bennett 2d, 1962. Also called per-
manent water. The completed assembly of
tails, sleepers, fixings, and ballast form-
ing the finished track for a railway. Ham.

permanent water. The completed assembly of
tails, sleepers, fixings, and ballast form-
ing the finished track for a railway. Ham.

permanent water. The completed assembly of
tails, sleepers, fixings, and ballast form-
ing the finished track for a railway. Ham.

permanent monolith. A monument of a
permanent monument. A monument of a
permanent mold. A metal mold (other than
a mold made from a wax pattern) of two or more parts
which are on which the mine depends for
the final disposal of drainage. As they are
usually not moved during the life of
the mine, their location, installation, and
design require careful consideration.

permanent set. The permanent change of
shape of a plastic substance due to its
imperfections; that is, to the incompleteness of its recovery after
being stressed. Holmes, 1926.

permanent shuttering. A lining to formwork
towards concrete as a permanent shaft
support. Nelson.

permanent shuttering. A lining to formwork
towards concrete as a permanent shaft
support. Nelson.

permanent permeability. a. The permeability (or per-
viousness) of rock is its capacity for
transmitting a fluid. Degree of permea-
bility depends upon the shape of the pores, the size and shape of their
interconnections, and the extent of the interconnections. It is
measured in a vacuum, at which a fluid of standard viscosity can
move a given distance through a given interval of time.

Permigel. Gelatinous permissible explosive.
permignel. A solution of a naphthalene poly-
mer in toluene. Used as a permanent ce-
ment for cover glasses. Bennett 2d, 1962

permit. An artificial sodium aluminum silicate, NaAlSi3O8 (zeolite), obtained by melting aluminum silicate, sodium carbonate, and sand. A granular powder used for softening of water, as the so-
adium can be replaced by calcium, mag-
nesium, iron, or manganese. Dict. 

permeable. A. Means completely assembled
and conforming in every respect with the
design formally approved by the United
States Bureau of Mines for use in gassy
and dusty mines. BuMines Bull. 514, 1952,
Vol. 3. b. A machine or explosive is said
to be permissible when it has been ap-
proved by the United States Bureau of
Mines for use underground under pre-
scribed conditions. All flameproof machin-
ey is not permissible but all permissible
machinery is flameproof. B.C.I. c. A low-
flame explosive used in gassy and dusty
coal mines. Nichols. d. That may be per-
mitt: allowable; admissible. Webster 3d.

permissible blasting unit. An electrical device
for firing blasts, approved by the U.S.

permissible. See maximum permissible
dose. L&L.

permissible dustiness. See dust-free condi-
tions. Webster 3d.

permissible explosive. a. An explosive simi-
lar in all respects to samples that passed
certain tests made by the Federal
Bureau of Mines and installed and used in
accordance with the conditions pre-
scribed by the Bureau. See explosion-
proof motors. Fay.

permissible velocity. The highest velocity at
which water may be carried safely in a
channel or other conduit: the highest ve-
locity throughout a substantial length of
a conduit that will not scour. Selvey, 1.

permissible mine equipment. Permissible mine
equipment is that formally approved by the
U.S. Bureau of Mines after having passed
the inspections, the explosion test, and other requirements specified by the
Bureau. (All equipment so approved must
carry the official approval plate required
as identification of permissible equip-
ment. ASA M21-1963.

permissible mine locomotive. See electric
permissible mine locomotive.

permissible motors. A motor the same in all
respects as a sample motor that has passed
certain tests made by the Federal Bureau
of Mines and installed and used in
accordance with the conditions pre-
scribed by the Bureau. See explosion-
proof motors. Fay.

permite. A member of a geophysical
field party whose duty is to obtain per-
mission from landowners for the party
to work on their lands, or from public
officials for the party to work along high-
ways. A.C.I.

permitted explosives; permitted. a. Explosives
that have passed the Buxton tests
and placed on the British list of author-
ed explosives; implying that they are
reasonably safe to manufacture, handle,
transport, and use in safety lamp mines.
Upon detonation, a permitted explosive
(1) gives off the minimum possible quan-
tity of noxious gases, and (2) produces
a flame of the lowest possible tempera-
ture and shortest possible duration, to lessen
the risk of fire-damp ignition. The ex-
plorative contains cooling agents, such as
sodium chloride, and is not a combustible
material. The first British permitted list of explo-
sives was published in 1899. Nelson, b.

permitted explosive. One which has been
approved for use in coal mines where
there is any possible risk of igniting fire-
damp or coal dust. In Great Britain, an
explosive is approved by the Minister of
Power and placed on the Permitted List
after it has passed the official gallery
tests prescribed for the particular class of
explo sives to which it belongs. These
tests are carried out at the Safety in
Mines Research Establishment's Testing
Station at Buxton. McAdam II, p. 34.

perpendicular separation. The perpendicular
distance between the corresponding planes in
the two parts of a single body available as
a criterion for determining whether the
layer bed), when this body has been sepa-
rated by a fault, the planes on each side
of the fault being projected in the
purpose of measuring, if necessary.
perpendicular separation

Stokes and Yarns, 1955.

perpendicular slip. The component of the net slip perpendicular to the trace.

perpendicularly. perpendicularly throw. The distance between the two parts of a disrupted bed, slice, vein, or of any recognizable surface, measured perpendicularly to the bedding plane or to the surface in question. It is measured, therefore, in a vertical plane at right angles to the strike of the disrupted surface. Fay.

perpetuity. An annuity whose payments are supposed to continue forever. Fay.

periphery. a. Titanolitsite of Yt, Ce, with some Th, Ce, P2O5 (near chevronite); monoclinic (orthite habit). Snyder, 1940. b. Identified with tachelffinite. Crosby, p. 82.

Perrin's process. Process of dephosphorizing steel by inoculating the charge. About 0.03 percent, removing the normal, first high-phosphorus slag on the metal, and then agitating the steel with a fresh highly-basic slag. Bennett 2d, 1962.

persemantic. Used by Cross, Iddings, Pirson, and Washington to denote the relative amounts of groundmass and phenocrysts in porphyritic rocks, the ratio between groundmass and phenocrysts being less than 1.7. Jensen, e. t., 1929, p. 227.

Perthibecker furnace. A continuously working shaft furnace for roasting quicksilver ores having two fireplaces at opposite sides. The fuel is wood. Fay.

perian red. See Indian red. Fay.

persillicic. a. Containing more than 60 percent silica; said of some igneous rocks; same as, and much preferred to, acid, and acidic, which it is replacing. Fay.

b. Suggested to replace the term acid as applied to igneous rocks; for intermediate and basic the corresponding terms are mediosillicic and subsillicic. Rice.

persistence; afterflow. Of a cathode-ray tube, the decaying luminescence of the screen after the stimulus has been reduced or removed. NCB.

persistent. Continuous; ce bodies are often persistent in depth and metal contents. von Bernrath.

peritoneal equation. Systematic error arising with the current, usually due to time lag between event and recording. Pryor, 3.

personal error. Usually a biased error, but may be random, occurring under special conditions. Pryor, 3, p. 159.

peroneal. a. Pertaining to the hind leg. The maintenance of good relationships within an organization. By considering the well-being of the individual, it enables all those engaged in the undertaking to make their maximum contribution to the effective work of the organization. Nelson.

peronnel officer. A specialist adviser to mine management and officials on all questions affecting relations between the workers and the management. Nelson.

peronnel proximity survey. A survey of radiation conditions at positions occupied by workers near apparatus emitting radioactivity. NCB.

persorption. Deep sorption of gas by liquid.


persuader. A common term for crombar, lever, or some such article used as a manual aid in moving heavy objects. Crispin.


pertholite. A deep-seated igneous rock consisting of alkaline feldspar with less than 3 percent dark minerals. Feldspar, both orthoclase and albite, may be pertholite intergrown as aphyroite or as aphyroite. Hass.

pertholite. A leucocratic monzonite consisting almost entirely of perthitic feldspars (microperthite and antiperthite) plus accessory aegirine, augite, and opaque oxides. A.G.I.

periphery. A name given to the internal vibration of a concrete. Peric. See permeable. A.G.I.

peripheral bed or stratum that contains voids through which water will move under ordinary hydrostatic pressure. Fay.

perithecium. Porous or fissured rocks through which water can filter. Pryor, 3. b. A usually club-shaped implement for pounding, stamping, or grinding substances, especially in a mortar. Webster 3d. a. As a verb: to beat; to crush; to pound; to pulp; or to mix, as if with a pestle. Webster 3d. c. Any of various devices for pounding, stamping, or pressing. Webster 3d.

perlite. A colorless, white, gray, or occasionally pink mineral, LiAlSi2O5 or Li2O.Al2O3.SiO2I; white streak; vitreous luster; monoclinic. Seems speckled in appearance. Contains 59 percent lithium, sometimes with partial replacement by sodiuym or, less often, by potassium. Insoluble in acids. Specific gravity, 2.39 to 2.46. Mohs' hardness, 6 to 6.5. Found in Massachusetts, Maine; also in ceramics and glass; a source of lithium salts. CCD 6d, 1961; Dana 17.

petaloid. Resembling a flower petal in form, texture, and basic the corresponding terms are medio-petaloid and basic-petaloid, which it contains or is basic-petaloid. Rice.

petalite. A colorless, white, gray, or occasionally pink mineral, LiAlSi2O5 or Li2O.Al2O3.SiO2I; white streak; vitreous luster; monoclinic. Seems speckled in appearance. Contains 59 percent lithium, sometimes with partial replacement by sodiuym or, less often, by potassium. Insoluble in acids. Specific gravity, 2.39 to 2.46. Mohs' hardness, 6 to 6.5. Found in Massachusetts, Maine; also in ceramics and glass; a source of lithium salts. CCD 6d, 1961; Dana 17.

petate. Resembling a flower petal in form, texture, and basic the corresponding terms are medio-petaloid and basic-petaloid, which it contains or is basic-petaloid. Rice.


petrified. Of or pertaining to rock; rocky. Webster 2d.


petrochemicals. Aggregates or clusters of tabular crystals of barite, which form chiefly in sandstones, enclosing the sandy matrix within the crystals. A.G.I.

petroleum. Wood. See wood, b.; silicified wood. Fay.

petrify. To become stone. Organic substances, such as shells, bones, wood, etc., embedded in sediments become converted into stone by the gradual replacement of their tissues by the colloidal, with corresponding amounts of infiltrated mineral matter. Thus, not only the outward forms but even the minutest details of the organic tissues are preserved. Fay.

petrify. A stone or rock. Fay.

petro- Organism. A greenish-yellow hydrocarbon with a pearly luster, needle-like crystals, obtained by the distillation of petroleum residue at a red heat. Fay.

petrochemicals. A. Chemical compounds made
petrochemicals

with a petroleum hydrocarbon as one of their basic components; for example, am-

petrochemistry. a. The chemistry of rocks. AGI Supp. b. The chemistry of petroleum: disapproved by some geochemists. AGI.

petrofabric analysis. Synonym for petrofabric analysis. AGI.

petrofabrics. The study of spatial relations, especially on a microscale, of the units that comprise a rock, including a study of the movements that produced these elements. The units may be rock fragments, mineral grains, or atomic lattices. AGI.

petrogenesis. A branch of petrology which deals with the origins of rocks, and more particularly with the origins of igneous rocks. AGI.

petrogenetic. Those elements that are characteristically concentrated in certain rock types, as opposed to those concentrated in ore deposits (metallogenic). AGI.

petrography. See petrogenesis. AGI.

petrographer. One who is versed in or engaged in petrography, or the study of rocks. Fay.

petrographic; petrographical. Pertaining to or resulting from the study of rocks. Stokes and Varne, 1955.

petrographic microscope. A microscope specially fitted with optical and mechanical accessories for identifying and studying the properties of minerals in granular form or in thin sections of rock. Sinkers.

petrographic province. A natural region within which some or all of the igneous rocks present certain well-marked peculiarities in their mineralogical and chemical composition; structure, texture, etc., that set them apart from rocks of other petrographic provinces. Fay.

petrography. A general term for the science dealing with the description and systematic classification of rocks based on observations in the field, on hand specimens and on thin sections. Petrography is thus wider in its scope than lithology, but more restricted than petrology, which implies interpretation as well as description. Holmes, 1928.

petrol. The term used particularly in England to designate petroleum or its deriv- atives; as gasoline or motor spirit. Shell Oil Co.

petroleum. A neutral unstable substance that is practically odorless and tasteless and is insoluble in water, that is obtained from petroleum, and differs chemically from paraffin wax in containing unsatu-rated hydrocarbons or naphthenes as well as hydrocarbons of the methane series, and that is produced in several forms: as (1) a yellowish to light amber semisolid jelly, white paraffin; (2) a liquid known as petrolatum; and (3) liquid petroleum. Webster 3d.

petroleum distillation. The medicinal high-boiling petroleum oil of the United States pharmacopoeia. See also petrolatum. Fay.

petroleum. A liquid hydrocarbon mixture obtained from bitumen or asphalt. Fay.

petroleums. An internal-combustion reciprocating engine powered by motor spirit, which is fueled by electrical spark. See also diesel engine. Ham.

petroleum. Material occurring naturally in the earth composed predominantly of mixtures of chemical compounds of carbon and hydrogen with or without other nonmetallic elements, such as sulfur, oxygen, nitrogen, etc. Petroleum may contain or be composed of such compounds in the gases evolved on heating, and/or solid state, depending on the nature of these compounds and the existent conditions of temperature and pressure. API Glossary.

petroleum asphalts. A group of asphalt refined directly from petroleum. Most asphalt used in highway work is of this type. Shell 2d ed.

petroleum briquet. A briquet made of petroleum, soft soap, resin, and soda-lime wash. The mixture is hot rolled to solidify, run into molds and then heated in a furnace for about 15 minutes. Fay.

petroleum coke. a. The residue obtained by the distillation of petroleum. It usually shows the following composition: 5 to 10 percent volatile and combustible matter, 90 to 95 percent fixed carbon, from a trace to 0.3 percent ash, and from 0.5 to 1 percent sulfur. On account of its purity, it has found application in metallurgical processes and in making battery carbons and carbon pencils (electric carbons). Fay. b. Coke-like material used in cavities of igneous rocks intrusive into crypto- porous sediments. Tomkiewicz, 1954.

petroleum coke base carbon refractory. A manufactured refractory composed sub- stantially of calcined petroleum coke. ASTM C71-64.

petroleum engineman. Petroleum production, one who performs engineering work concerned with drilling of wells and production of oil or gas. May be known as gas engineer if worker is concerned only with natural gas production. D.O. 1.

petroleum ether; ligroin; benzine. a. The terms petroleum ether and benzine are obsolete synonyms. See also ligroin. CCD 6d, 1961. b. A mixture of hydrocarbons boiling from 40° to 60° C; a mixture of middle-boiling liquid alkanes. Handbook of Chemistry and Physics, 42d ed., 1960, p. 1581.

petroleum geologist. A geologist engaged in petroleum exploration or exploitation, or in research pertaining to petroleum. AGI.

petroleum geology. The branch of economic geology that deals with the problems of location, origin, migration, and accumulation of natural oil and gas. Stokes and Varne, 1955.

petroleum industry. A combination of a petroleum product and a soap or a mixture of soaps, suitable for certain types of lubrication. Hess.

petroleum naphtha. A generic term applied to a refined, partially refined, or unrefined petroleum products and liquid products of natural gas, not less than 10 percent of which distill below 26° F (−3° C), and not less than 95 percent of which distills below 46° F (240° C), when subjected to distillation in accordance with ASTM Method D 86. Test for Distillation of Gasoline, Naphtha, Kerosine, and Similar Petroleum Products. ASTM D 288-57.

petroleum-oil cement coal. Another name for oil shale. Tomkiewicz, 1954.

petroleum pitch. See pitch, p. Fay.


petroleum series. The petroleum series embraces gases, liquids, and solids. The chemistry is very complex, but most of the members belong to the man gas or par- fin series of compounds, C1H2.. CnH2n. Up to C4H10, they are gases at ordinary temper- ature; from C5H12 n they are solids. The gases are called natural gas; the liquids, petroleum; the thick, black tarry liquids, maltha; the petroleum or fractions, temperature, of tough leathery character, asphalt; the brittle coal-like substances, asphalite; and the natural paraffins, ozokerite. Stokes and Varne, 1955.

petroleum spirits; mineral spirits. A refined petroleum distillate with volatility, flash point, and other properties, making it suitable as a thinner and solvent in paints, varnishes, and similar products. The term turpentine substitute as applied to petro- leum spirits is to be condemned as false and misleading. In Great Britain, the term petroleum spirits is applied to a very light hydrocarbon mixture having a flash point below 32° F (0° C). ASTM D 288-57.

petroleum tar. A viscous black or dark brown product obtained in petroleum refining, which will yield a substantial quantity of solid residue when heated, or evaporated or fractionally distilled. The term tar should never be applied to materials de- rived from crude petroleum, or from coal, without the prefix petroleum. ASTM D 288-57.

petroleum tar sands. Native asphalt, solid and semisolid bitumen, and bituminous rock (including oil-impregnated rock and sands from which oil is recoverable only by special treatment after the deposit is mined or quarried). Williams.


petroleum to treat or impregnate with petroleum, or a petroleum product. Webster 3d.

petrologist. a. Another name for geologist. Tomkiewicz, 1954. b. A term proposed to cover the substances in shale, coal, etc. that are the oil when heated out of contact with air. Hess.

petrologist. A geologist who specializes in the study of rocks. AGI.

petrology. A general term for the study, by all available methods, of the natural his- tory of rocks, including their origins, present conditions, and history. Webster 3d.

petrology comprises petrography on the one hand, and petrogenesis on the other,
petrology

and properly considered, its subject matter includes ore deposits and mineral deposits in general as well as rocks in the more limited area in which that term is generally understood. Holmes, 1928.

petrilo-shale. Another name for oil shale.


petrophysics. The physics of rock behavior; in petroleum geology, the study of the physical properties of reservoir rocks. Schieflerdecker.

petrolaurate. A little-used term for oil shale. Haeu.

petrocalcites. An old name for extremely fine crystalline porphyrites and quartz porphyrites, and for those fine-grained aggregates we now know to be detrital glasses; also for the groundmasses of the former which though not glassy are yet not resolvable by the microscope into definite minerals. It was practically a confession by the petrographers that they did not know of what the rock consisted. See also felsite; microfelsite. Also called hornstone. Fay.

petrochemistry. See structural petrology. A.G.I.

petrolone. A machine for slitting rocks. Fay.

petrane. Hard, like stone; as, petrane phosphates or petrane marl. Standand. 1964.


petrunella. A variety of feldspar that is mixed with kaolin, and used by the Chinese in the manufacture of porcelain. Also spelled petrunye. Standard. 1964.

petta. A telluride of silver and gold, (Ag, Au). Sapp. d. In physical chemistry, a concentration of hydrogen ions in an aqueous solution. It is a convenient method to the base 10, of the reciprocal of the activity of the hydrogen-ion. See also pulverized fuel ash. Dodd.

petromeric. A machine for converting an alternating current into an alternating current of a different number of phases and the same frequency. Webster 3d.

petrologic. The derivation of a signal whose amplitude is a function of the deviation in phase of a single frequency-alternating quantity (voltage or current) from a similar quantity of fixed phase. ASM Gloss.

petrogram. A graph in which two or more of the variables' temperatures, pressures, and concentrations are plotted against one another, designed to show the relationships of the variables of the system for various phases of a heterogeneous system. A.G.I. b. The same as constitution diagram. ASM Gloss.

petroglyph. A device for measuring the difference in phase of two alternating currents or electromotive forces. Webster 3d.

phase rule; Gibb's phase rule to which the rotation, oscillation, or variation has advanced considered in its relation to a standard position or stage in which that term is generally understood. Holmes, 1928.

phase rule. A concordant intrusive in the crest of an anticline and trough of a syncline, hence in cross section, it has the shape of a doubly convex lens. A.G.I.


phaneite. A general term applied to wholly crystalline rocks, the constituents of which may be distinguished with the unaided eye. The adjective form phaneritic is currently used more frequently than the noun. A.G.I.

phantasm. A textual term applied to igneous rocks in which all the crystals of the essential minerals can be distinguished with the unaided eye; that is, megascopically crystalline. Compare cryptocrystalline; microcrystalline. Opposite of aphaniatic. Sloss and Vincent, 1935.

phanerocrystalline. See phaneritic. A.G.I.


phanerology. A machine for converting an alternating current into an alternating current of a different number of phases and the same frequency. Webster 3d.

phan赌. A positive action of force or current; in electrical systems, a phase relationship, indicating the trend of the dip but not necessarily coinciding with an actual boundary plane. Schieflerdecker.

pharmacodynamics. See pharmaceuticals. Used by Wadsworth to include all minerals employed in medicine. Fay. ph. macule. A white, hydrous arsenate of calcium, probably $\text{H}_2\text{CaAsO}_4\cdot\text{H}_2\text{O}$; monoclinic. Fay.

pharmacology. A hydrous, iron arsenate commonly occurring in green or yellowish-green cubic crystals. Also called iron sin.

phased. The angle by which the rotation, oscillation, or variation has advanced considered in its relation to a standard position or stage in which that term is generally understood. Holmes, 1928.

phase displacement. The angle by which the amount of difference of phase between two alternating currents of the same frequency is expressed. Standard, 1964.


phased detector. A device for measuring the difference in phase of two alternating currents or electromotive forces. Webster 3d.

phase rule; Gibb's phase rule. a. The number of degrees of freedom of a system that are identical in chemical composition and physical state. C.T.D.

phase angle. An angle expressing phase or phase difference. Webster 3d.

phase-balancing relay. Relays which protect an electrical system from faults occurring in any phase of a three-phase system. Quite often a fault current will not be large enough to trip the overcurrent relay but will operate the phase-balancing mechanism. Coal Age, v. 71, no. 8, August 1966, p. 270.

phase change. The appearance or disappearance of one or more phases. A.G.I.

phase contrast microscopy. An optical system in which the phase difference between an incident and a directed light is increased from about 90° to about 180° so that the two waves cancel out, causing a transparent object to appear to some extent light absorbing. Fay. 2.

phase control. The process of varying the point within the cycle at which anode conduction is permitted to begin. Coal Age, 1.

phase converter. A machine for converting an alternating current into an alternating current of a different number of phases and the same frequency. Webster 3d.

phase diagram. A graph in which two or more of the variables' temperatures, pressures, and concentrations are plotted against one another, designed to show the relationships of the variables of the system for various phases of a heterogeneous system. A.G.I. b. The same as constitution diagram. ASM Gloss.

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818 phosphate rock

its three physical phases there are no degrees of freedom and the system can exist only in one state (a single phase or con
(nature of the system (the number of variable factors, such as temperature, pressure, and concentration, of the components, which must be arbitrarily fixed in order that the condition of the system may be perfectly defined). C is the number of components of the system. F is the number of phases of the system. The Handbook of Chemistry and Physics, 45th ed., 1964, p. C-466; C.D. 64, 1961.

phenomenon. In gemology, an optical effect in visible light occurring in certain, but not in all, specimens of a species. See also adulardescence; asterism. Shipley.

phenomenon. A gemstone exhibiting an optical phenomenon. See also pheno


phenacite; phenakite. A natural beryllium silicate, Be3SiO6; colorless or yellow, red, or brown in color. White streak; vitreous luster; specific gravity, 2.5 to 2.6; Mohs' hardness, 3 to 3.5; rhombohedral. Found in Colorado, Montana, New Hampshire; U.S.S.R.; France; Norway; Mexico; Brazil. Used in gem stones. C.D. 64, 1961; Dana 17.

phenakite. See phenacite.

phenakite. a. A transparent or translucent stone of colorless to greenish or crystalline character, used by the ancient Chinese for windows. Webster 3d. b. A variety of mica with substitution of aluminium for magnesium and silicon. Webster 3d.

phenakite. a. Applied to certain conditions under which coal was formed, namely those of open waters into which the plant debris was swept from the adjoining land. Tomkies, 1954, b. Refers to vegetable matter deposited under water in contrast to that laid down on a wet substratum. Compare cryptphydrous. A.G.I.

phenakite. An artificial stone in which furnace slag is used in place of sand. Fay.

phenanlite. Phenoclasts are the larger, more conspicuous fragments in a rudaceous rock, a conglomerate or breccia, as distinct from the fine rock material (the matrix) in which they are embedded. Chalino-

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phosphate rock

cium phosphate largely in the form of apatite usually together with calcium carbonate and other minerals, that is useful in fertilizers and is a source of phosphorus compounds, and that occurs in the phosphorite deposits in the United States and in extensive deposits in Arkansas and the southeastern United States. *Webster 3d.*

**Phosphates.** Salts formed by combining phosphoric acid with an alkali. Sodium, potassium, ammonium, and calcium phosphates are used in fertilizers. See also phosphate rock. *Fay.*

**Phosphatic.** Pertaining to or containing phosphate minerals. *A.C.*

**Phosphatic deposits.** Beds containing calcium phosphate which are formed especially in areas of low rainfall, and which may be lenses or large beds. *C.M.D.*

**Phosphatic nodules.** Black to brown, rounded masses, variable in size from fractions of a millimeter to 30 or more centimeters. Usually consist of caprolites, corals, shells, and bones, more or less enclosed in crusts of collophane. From many locations in marine origin. Also covering the ocean floors at many locations around the world. *Bureau of Mines.*

**Phosphatic rock.** Same as basic slag. *Standard, 1964.*

**Phosphating.** Forming an adherent phosphate coating on a metal immersed in a suitable aqueous phosphate solution. *ASM Gloss.*

**Phosphide.** An oxygen-free compound of a metal with phosphorus. *Bennett 2d, 1962.*

**Phosphides.** Hydrogen phosphide; trifluorophosphide. *C.T.D.*

**Phosphorus hydride.** Colorless; poisonous; evil-smelling gas; P; analogous to ammonia; and usually burns spontaneously on air to form phosphorus pentoxide (P₂O₅). It has reducing properties and precipitates phosphides from solutions of many metallic salts. C.T.D. Molecular weight, 34.00; melting point, -133° C; boiling point, -87.7° C; and slightly soluble in cold water. *Handbook of Chemistry and Physics, 45th ed., 1964, p. 2,01-1.*

**Phosphoaluminate.** Synonym for pseudomallite. *Danne 6, p. 794.*

**Phosphatellite.** A white, pale green, or yellow hydrous phosphate of iron, manganese, and magnesium. *C.T.D.*

**Phosphatite.** A hydrous phosphate of zinc, iron, and manganese. *C.T.D.*

**Phosphates.** Any material which has been precipitated and has the property of luminescence is called a phosphor, regardless of whether it is extracted or not. *C.T.D.* Used in some porcelain enamels to provide colors, for instance, zinc green for green, mobility acid, etc. *Lee.*

**Phosphates; phosphorates; phosphoric acid.** To combine or to impregnate with phosphorus; to phosphorize oil. *Standard, 1964.*

**Phosphor bronze.** An elastic, hard and tough alloy, composed of 80 to 95 percent phosphorus, tin, with phosphorus up to 2.5 percent. *Nelson.*

**Phosphor copper.** An alloy made by fusing granulated copper with bone ash and charcoal; used in making phosphor bronze. *Standard, 1964.*

**Phosphor.** Any of various phosphorescent or fluorescent substances (as zinc sulfide activated with silver or copper or zinc silicate activated with manganese) that may occur as minerals or as synthetic substances; but are now usually produced synthetically. Used chiefly in fluorescent lamps, in cathode-ray tubes (as for television and radar), in instruments for detecting various radiation, and in luminous paints and inks. *Webster 3d.*

**Phosphorescence.** Luminescence that is perceptible with characteristic rate or decay after the exciting cause ceases. *Compare fluorescence. Webster 3d.*

**Phosphor copper.** A. To phosphorize or phosphorite; phosphorite. *Webster 3d.*

**Phosphorus.** P; symbol. Phosphorus (P₄): (1) white phosphorus or yellow phosphorus; colorless and transparent white to yellowish; isotropic; stable; does not undergo slow, luminous oxidation (phosphoresces) in moist air at room temperature; specific gravity of solid, 1.82 (at 20° C), and of liquid, 1.745 (at 44.5° C); ignites spontaneously in moist air, burning to phosphorus pentoxide (P₂O₅); ignition point, 34° C must be kept away from water; very poisonous; must be handled with forceps to avoid skin burns; converts to red phosphorus in sunlight; melts at 250° C in its own vapor; melting point, 44.1° C; boiling point, 280.5° C; insoluble in cold water; soluble in alcohol; soluble in benzene, in ammonia, in alcohols in ether, in chloroform, and in solutions of carbon disulfide. (2) red phosphorus; obtained by heating white phosphorus (yellow phosphorus) at 250° C; reddish-brown or violet-red; isotropic; specific gravity, 2.20 to 2.34; more stable than white phosphorus (yellow phosphorus); monophasic; ignition point, 260° C; melting point, 280° C; sublimes at 417° C (at 1 atm); very slightly soluble in cold water; soluble in hot water, in carbon disulfide, in ether, and in ammonia. (3) black phosphorus or violet phosphorus; obtained by heating white phosphorus (yellow phosphorus) under high pressure; violet to black; monoclinic; specific gravity of violet phosphorus, 2.36, of black phosphorus, 2.70, and of the range, 2.25 to 2.70; incombustible; melting point, 300° C; insoluble in water, in concentrated sulfuric acid, and in carbon disulfide and other organic solvents. *Handbook of Chemistry and Physics, 42d ed., 1960, p. 736.*

**Phosphor bronze.** A general term applied to copper dezoxidized with phosphorus. The most commonly used dezoxidized copper. *ASM Gloss.*

**Phosphorizing.** Combining or treating with phosphorus. *Bennett 2d, 1962.*

**Phosphorogen.** A substance which promotes phosphorescence in a mineral or other compound. *Hess.*

**Phosphorolite.** Wadsworth's name for phosphatic rocks, guano phosphates, apatite, etc. *Fay.*

**Phosphate.** Basically, a sedimentary rock composed chiefly of phosphorite. *Batesen.*


**Phosphorized copper.** A term applied to copper dezoxidized with phosphorus. The most commonly used dezoxidized copper. *ASM Gloss.*

**Phosphorizing.** Combining or treating with phosphorus. *Bennett 2d, 1962.*

**Phosphorogen.** A substance which promotes phosphorescence in a mineral or other compound. *Hess.*

**Phosphorescence.** Basically, a substance (phosphoresces) after being exposed to X-rays, cathode rays, or ultraviolet rays, or after having been rubbed, heated, etc. *Fay.*

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**Phosphor bronze.** Copper that contains about 15 percent phosphorus. Used chiefly as a dezoxidizer for molten metals. *Herder.*

**Phosphorus disease.** A disease of workers in phosphorus, marked especially by necrosis of the jawbone. *Webster 2d.*

**Phosphor glass.** Glass made with phosphorus pentoxide instead of silica, which is used especially for hydroscopic acid is encountered. *Bennett 2d, 1962 Add.*

**Phosphor steel.** Steel in which phosphorus is the principal hardening element. Good
phosphorus steel

steel may contain 0.3 percent phosphorus, but the carbon must be very low. Fay.

phosphoiderite. A pinkish-red mineral -thi 1 perfect and 1 distinct cleavage, 2FeO-
CaO. 2H2O. Concentrations by optical
glass used in lamp-bulb manufacture.

Dodd.

photography (photography), photos-
tographic, miniature radiography).

The photos are produced on a fluorescent screen by X-rays. ASM Gloss.

photogeochemistry. a. The geologic interpretation of aerial photographs. A.G.I. b. The study and interpretation of photographs, normally for land, for the purpose of obtaining geologic information, and includes presentation of such information in appropriate form. A.G.I.

photogrammetry. Study of earth forms as revealed by aerial photographs. A.G.I.

photometer. In photographic mapping, an instrument for determining the direction of a ray from the central point of the camera lens to the image of any point on the photograph, by measuring the horizontal and vertical angles with reference to two perpendicular planes. Seelye, 2.

photogrammetry. The art of making surveys or measurements by the aid of photography. Methods utilizing horizontal, vertical, and oblique views are used, with and without the aid of the stereoscopic principle. See also stereophotogrammetry.

photographic borehole survey. A method of checking verticality and/or orientation of a long borehole. A compact camera inserted at a known depth takes a photograph of a magnetic needle and/or a clinometer. Instruments have been developed by Oehman, Owen, and Wright.

photometric method. A method of measuring intensities from two sources. These more accurate types are built around photographically sensitive detector of light

photometer. A device for measuring light at depths as great as 600 meters.

photons. A discrete quantity of electromagnetic energy. Photons have momentum but no mass or electrical charge. LASL.

photopic vision. When the process of seeing takes place through the operation of the retinal cones, we are able to fixate on the object of vision, that is, we can bring its image onto the fovea to see it clearly, and we can also distinguish color. In brief, we are in conditions normally experienced in daylight and vision is said to be photopic.

photoreceptor. Name applied to certain minerals that are visibly injured by light. Pearl, p. 108.

photoreceptor. A dust-sampling instrument containing a filter clip, as used in the F.R.U. hand pump. A miner's cap lamp provides the light source, which enables the dust sample to be evaluated on the spot and any dust suppressive measures can be undertaken immediately. See also dust sampling. Nelson.

photorecording. The complete absorption of a photon by an atom with the emission of an orbital electron (photelectron). The term is sometimes used to characterize photoelectric emissions which are ascribed to the electric (rather than the magnetic) vector of the photon. NCB.


photorecording. A property of certain transparent substances which enables the presence of strain to be detected by examination in polarized light. If models of complicated engineering structures are made of such a substance, the stress distribution in the structure may be resolved. See also nonmagnetic casing. Seeley, 3d.

photometer. A device for measuring the intensity of the light transmitted.

photometer. The instrument shows the intensity of the light transmitted. ASM Gloss.

photometric paper recorder. A small device for registering photographically the passage of flame. This must not be confused with the photographing of the flame on an aerial mapping. See Nelson, p. 108.

photometric connection. See also multihotgyroscopic instrument. Nelson.

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photometric. The complete absorp-
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photometer. A device for measuring light at depths as great as 600 meters.

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tion of a beam of light after it has passed through the paper, and the fall in intensity is a direct measure of the dust concentration. With dark dust, such as in coal mines, a rough indication of the dustiness may be obtained by comparison of the depth of tone with a graded series of samples which have been calibrated against some other standard. There are two methods of collecting samples for photometric estimation: (1) by passing the light through a filter paper as for gravimetric estimation, or (2) by impingement, as in the konimeter. Spalding, p. 329.


phyllonite. A phyllonite is a rock composed of mica, quartz, and chlorite. These three minerals are the primary constituents of most phyllonites. The term is used to describe rocks that are composed of these minerals in various proportions. Tomtleif, 1954.

phyllonite. A rock that is composed of mica, quartz, and chlorite. Tomtleif, 1954.


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phytocollins. A black gelatinous hydrocarbon, related to dopplerite; found below a peat bed at Seaton. Fac. 23.

phytoelems. A dam consisting of plants and plant debris, may account for ponds and lakes in tundra regions. A.G.I. Supp.

phytogeneous. A genetic term for any dune, the form of which is controlled by the interaction of growing vegetation with eolian sand drifting; for example, upisoloid dunes and formedunes. A.G.I.

phytogenons rocke. Rocks formed from plant remains. Tomleiff, 1954.

phytolea. Coalified remains of plants. They are divided into merolemmas and laterite clastics. Tomleiff, 1954.

phytophils. A rock formed by plant activity or composed chiefly of plant remains. Tomleiff, 1954.

phytophile. The plant life division of phytops. A rock formed by plant activity or composed chiefly of plant remains. Also abbreviated PI. BuMin Style Guide, p. 11.

phytophoric rocks. Rocks formed from plant remains. Tomleiff, 1954.

phytohanka. The plant life division of plankton, including diatoms and algae. Unattached plants which are at the mercy of the currents. H.G.P.

Phyllocladus. A number, approximately 3.1416, or a transcendental number which has been multiplied by the diameter of a circle, will give the circumference. Symbol. a. Nicholas.

piano wire. A screen formed by piano wires stretched tightly, lengthwise, on a frame 2 to 3 feet wide and 4 to 8 feet high. The screen is set up at an angle of about 45° and crushed material is fed to it from above. The mesh size varies from about 4 to 16. Because there are no cross wires, and because the taut wires can vibrate, there is less tendency for blinding, but some elongated particles inevitably past the screen. Double.

pichco. A peak or sharply pointed hill or mountain. Because of the steep slopes of mountains in the desert region, picacho appears as the name of numerous mountains in southwestern Arizona. USGS Bull. 347-D, 1909.


pick. a. The steel cutting points used on a coal-cutter chain. See also coal-cutter picks.
b. A miner's tool for picking up the wick of a miner's lamp. Fay. c. An employee who removes slate or gangue from the coal in an anthracite breaker, or at a picking table. B.C.I. d. A mechanical arrangement for removing slate from coal. Fay. e. A sharp-pointed cutting tool used as an accessory to a miner. Fay. f. A sharp-pointed steel rod used in lifting wooden patterns from the sand after they have been rammed therein. Fay. g. A tool for piercing a mold; a piercer. Fay. h. A miner's needle, used for picking out the tamping of a charge that has failed to explode. Fay. i. A laborer who removes high-grade ore, scrap wood, or iron from coal. Fay. j. A spike-toothed shaft for breaking up clay to be fed to the hopper. Standard, 1954.

picking attendant. In anthracite coal mining, one who tends a mechanical separator that removes slate and rock from coal at a breaker, regulating flow of coal, checking operation of a breaker, and making adjustments and minor repairs to the machine. Also called breaker operator. D.O.T. 1.

picking belt. A mechanical arrangement for removing slate, or other material from the coal. Fay. A spike-toothed shaft for breaking up clay to be fed to the hopper. Standard, 1954.

picking belt. A chute along which workers are stationed to pick the slate from the coal. Fay.

picking conveyor. A belt or apron conveyor used to carry a relatively thin bed of material past pickers who hand sort, or pick the material being conveyed. ASA MH4.1-1958. See also picking belt.

picking eyes. Mining in which only the high-grade spots are taken out. Hoover, p. 36.

picking table. A 1/4-inch steel rod about 20 feet long, used to ram into the taphole, while casting, to dislodge obstructions preventing a good run. Fay.

picking room. Same as screen room. Korson. See picking station.

picking station. See recovery plant. J.C. 8200, 1964, p. 149.

picking table. A flat, or slightly inclined, platform on which the coal or ore is run, to be picked free from slate or gangue. Fay. See also picking conveyor. ASA MH4.1-1958.


picking-table basin, head. See slate-pick 'a.

picking table, circular. An apparatus used for the same purpose as a picking belt and consisting of a flat horizontal rotating annular plate. B.S. 3552, 1902.


picking-table man, head. See slate-pick 'a.

picking belt. A short conveyor which takes the coal from, and advances with, a face power loader or continuous miner, and which serves as a return conveyor over which it runs on a bogy. See also long piggyback conveyor. Nelson.

picking dip. A method of laying t'pick by which the bricklayer simultaneously picks up a brick with one hand and, with his other hand, enough mortar on the trowel to lay the brick. Sometimes called the eastern or New England method. A.G.C., 1961.


piece-cut core barrel. A double-tube core barrel in X-group sizes. The distinguishing feature of the Pickard barrel is that when blocked the inner barrel slides upward into the head, closing the water port and stopping the flow of the circulating liquid, and no additional drilling can be done without preparatory damaging the bit until the barrel is pulled and the blocked inner tube cleared. Long.

pick. A number, approximately 3.1416, or a transcendental number which has been multiplied by the diameter of a circle, will give the circumference. Symbol. a. Nicholas.


dressing. In stone cutting, a tool of the face of a stone with a sharp end. Standard, 1964.

picker. a. A small tool used to pull up the wick of a miner's lamp. Fay. b. An employee who picks or discards slate and other foreign matter from the coal in an anthracite breaker, or at a picking table. B.C.I. c. A mechanical arrangement for removing slate from coal. Fay. d. A hand chisel for dividing, held in one hand and struck with a hammer. See also dashu. Fay. e. Eng. A sharp-pointed cutting tool used as an accessory to a miner. Fay. f. A sharp-pointed steel rod used in lifting wooden patterns from the sand after they have been rammed therein. Fay. g. A tool for piercing a mold; a piercer. Fay. h. A miner's needle, used for picking out the tamping of a charge that has failed to explode. Fay. i. A laborer who removes high-grade ore, scrap wood, or iron from coal. Fay. j. A spike-toothed shaft for breaking up clay to be fed to the hopper. Standard, 1954.

picking, a. Operation performed between mine and mill in which waste rock, wood, detritus, steel (tramp iron), or any special material, is removed from the run-of-mine ore. Hand sorting. Usually done during transit of ore on belt conveyors, preferably after very large lumps and smalls have been screened off and the ore to be picked has been sufficiently washed to display a true surface. Also done on picking table, a rotating circular disc around which stand or sit the hand sorters who remove part of the ore fed radially from central point. Picking is also mechanized by such means as the LaPointe picker, and is aided by special lighting, radioactive detection, etc. Pyrom. J. b. S. Afr. Selective mining for high-grade ore, or in reference to 'mine ore, the picking of which is required to reduce production work in the later stages. Beeman. c. The falling of particles from a mine roof about to collapse. Fay. d. Picking the eyes out of a mine is to extract over a prolonged period an undue proportion of the richest ore, thus lowering the average grade of the remaining ore. See also derating. Fay. e. Rough picking, in which ore is sorted on the running ore. Webster 2d. f. A soft or not fully fired brick. Webster 3d.

pickling. The term was applied by Grabau to a large bed of reef limestones. Tomleiff, 1954.

pickling acid. A pickling solution used to remove oxides or other compounds from the surface of a metal by chemical means. Nelson.

pickling acid. A pickling solution used to remove oxides or other compounds from the surface of a metal by chemical means. Nelson.

pickling belt. A continuous conveyor (for example, in the form of a rubber belt or of a steel apron, steelplate, or link construction) on which raw coal or ore is spread so that selected ingredient may be removed manually. B.S. 3552, 1902.

pickling brush. A chute along which workers are stationed to pick the slate from the coal. Fay.

pickling conveyor. A belt or apron conveyor used to carry a relatively thin bed of material past pickers who hand sort, or pick the material being conveyed. ASA MH4.1-1958. See also picking belt.

pickling eyes. Mining in which only the high-grade spots are taken out. Hoover, p. 36.

pickling table. A flat, or slightly inclined, platform on which the coal or ore is run, to be picked free from slate or gangue. Fay. See also picking conveyor. ASA MH4.1-1958.


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pickling table, circular. An apparatus used for the same purpose as a picking belt and consisting of a flat horizontal rotating annular plate. B.S. 3552, 1902.


pickling-table man, head. See slate-pick 'a.

pickled. A. In picking, the condition of the picks as set in a cutter chain. In this respect, it may be a balanced or unbalanced cutter chain. The pick lacing is important as it may be a balanced or unbalanced cutter chain. The pick lacing is important as it
pickle basket

A skeleton or perforated container usually made of acid-resisting alloys such as monel metal used to hold acids during the pickling process. **ASM Gloss.**

**pickle basket**

A skeletal or perforated container usually made of acid-resisting alloys such as monel metal used to hold acids during the pickling process. **ASM Gloss.**

**pickle patch**

A tightly adhering oxide or scale coating not properly removed during the pickling process. **ASM Gloss.**

**pickle pine**

Small gelatin capsules containing chemicals used for testing the strength of pickling solutions. **ASTM C286-85.**

**pickle procedure**

Generally the complete cleaning operation performed in tanks or by sprays. **Bryant.**

**pickle state**

Discoloration of metal due to chemical cleaning without adequate washing. **Webster 3d.**

**pickle**

The process of chemically removing scale or oxide from metal objects to obtain a chemically clean surface prior to galvanizing or painting. This is usually done by immersion in an acid bath. For steels, the acids generally used are sulfuric and hydrochloric to which is added an inhibitor, the latter an organic material such as glue, starch, or one of the various proprietary compounds which are often organic derivatives containing nitrogen, oxygen, sulfur, or other elements of the fifth and sixth periodic groups. The addition is often about 0.03 percent in order to reduce or restrain the attack of acid on the metal and thus effect the removal of scale with a minimum loss of metal. **See also descaling.** **Ham.**

**pickle of timber**

Usually carried out by means of Bethell's full-cell process of creosoting. **Ham.**

**pickle meaning**

Coal-cutting machine which acts percussively, and cuts with a large chisel fixed at the end of a piston reciprocated by compressed air in much the same way as a rock drill is operated. **Kier, 1, p. 2.**

**pickleman**

Scot. A man who digs coal with a pick; a hewer; a miner. **Fey.**

**pickle method**

A method of ore dressing developed at Montanich, Mackinac at Leoben, Austria. **Osborne.**

**pickle miner**

In anthracite and bituminous coal mining, one who uses hand tools to extract coal in underground working places; also, cuts out a channel under the bottom of the working face of coal (undercutting) with a pick, working several feet back into the seam, and breaks down coalface with pick, or breaks holes with an auger bit for blasting, and inserts and sets off explosives in holes to break down coal; also, shovels coal into cars and pushes them to a laulageway. Also called hand cutter; hand Giner; hand pick miner; pick-and-shovel miner. **D.O.T. 1.**

**pickle mines**

Mines in which coal is cut with a pick; a hewer; a miner. **Fey.**

**pickle sharpener**

In mining and quarrying, a blacksmith who sharpens digging picks. **D.O.T. 1.**

**pickle tongs**

Tongs for handling hot metal. **Webster 3d.**

**pickle-up**

a. Synonym for lift, as applied to t-slotting drill rods from a borehole. **Lang, b. Mid.** To reduce the stock of coal. **Fay, c.** Applied to an angular crosscut, through which coal is hauled from one entry to another. **See also hosey, b. **Hess, d.** Transfer of coal from 2-34 to part or from part to tools during a forming operation. **See also gailing, d. **ASM Gloss, e.** Same as descriptor. **A.G.I. f.** A light truck. **A.G.I. g.** The amount of vitreous enamel slip (expressed in terms of dry weight per unit area) which is used during the pickling process. For ground coats, the pickup is usually 1.2 to 1.5 ounces per square foot. **Dodd.**

**pickle-ups**

In Alaska, nugget gold picked up during mining operations prior to sluicing. **Fay.**

**pickle poke bar**

A steel bar, usually of 34-inch stock and about 4 feet long, with each end sharpened, and fixed at an angle of 45°, the bends being 3 to 6 inches from each end. **Hess.**

**pickle**

A prefix that divides a base unit by 1 trillion (1012) or multiplies the unit by 1012. Same as micromicro- Abbreviation, p. 18. **B.L.**

**pickle coloring**

A brown variety of spinel containing chromium and iron. **Fay.**

**picklephone**

An etching reagent consisting of a 2 to 3 percent solution of picric acid in ethyl alcohol. It may be used for plain carbon and low alloy steels. **Osborne.**

**piece**

A piece weight, effective. **See effective piece weight.** **Mitchell, p. 102.**

**piecework**

a. Work paid for in accordance with the amount done rather than the time taken. **Pryor, 3. b.** The performance of underground work on the basis of an agreement between a miner and the mine manager. Payment may be made by the yard of advance of a heading or tunnel or per ton or cubic yard of coal or ore removed. In ripping work, payment may be made by the yard advance of excavation to a specified width and height; strip packing may be built at a certain sum per yard advance or cubic yard of filling. Mine managers prefer piecework as it requires less supervision and the incentive enables essential work being done quickly. Miners also prefer piecework as it usually means wages well above the day wage. **See also contract work.** **Nelson.**

**piedmont**

Lying or formed at the base of mountains; a piedmont district, plain, or ranges of hills. **Webster 3d.**

**piedmont alluvial plains**

Alluvial fans may become alluvial slopes of many square miles in area, and a continuous supply of material may result in uniting these slopes and covering an entire lowland with the debris of mountains, torrents, thus converting the isolated fans or slopes into great piedmont alluvial plains. All river-made plains are, of course, alluvial but the term is restricted here for the sake of distinctness. **A.G.I.**

**piedmont gravel**

That part of a glacier that debouches and spreads out at the base of a mountain, or a range which feeds its sources. **Standard, 1964.**

**piedmont lee**

A piedmont glacier. **A.G.I.**

**piedmontite**

See piemontite. **Dana 6d, p. 321.**

**piece**

A small fault scarp at the foot of a mountain range and essentially parallel to the range. **A.G.I.**

**piece work**

A synonym for piercing stone. **Standard, 1964.**

**piemontite**

A reddish-brown variety of epidote, characteristic of the Piedmont area, northwestern North Carolina. **Dana 17.** Also called manganoepidote.

piec. A term used sometimes circular form of column, constructed usually of concrete, hard brickwork or masonry, and designed to support heavy concentrated loads from arches or a bridge superstructure. Ham.

pier cap. The upper or bearing part of a bridge pier usually of concrete or hard stone, designed to distribute concentrated loads evenly over the area of the pier.

piercement. Salt plug that rises and penetrates rock formations to shallow depths. Wheeler.

piercement dome. A salt dome in which the salt core has broken through the overlying strata until, 1928, it reaches or approaches the surface. A.G.I.

piercement fold. Synonym for piercement fold; diapir fold. A.G.I.

piercer. a. A blasting needle. See also picker, g. Fay. b. In founding, a wire for venting a mold. Stant.


piercing process. See Mansmann process.

piercing shot. Scot. A short in the roof, or brushing, designed to bring down an increasing thickness of stone. Fay.

piercing stone. Or, a salt pig, used in the piercing process. Webster 3d, 1962.


pierrot lime. The correct spelling of zierlitkalk, a name originally applied to a wax-like natural hydrocarbon, Tambur, 1954.

pierrotization. Crystallization during powerful lateral compression (applied to the formation of the central granite of the Alps). Fortune, 1928.

pierzoceramal. Presence of piezoelectric materials, particularly quartz and Rochelle salt, when the crystal is strained. The detector is constructed of such crystals with intermetallic foil to collect the charge. An inertia mass is mounted on the top of the crystal stack which is included in a vacuum-tube circuit. A.G.I.

pierzoelectricity. The property exhibited by some asymmetrical crystalline materials, which, when subjected to strain in suitable directions, develop electric polarization proportional to the strain. Inverse piezoelectricity is the effect in which mechanical strain is produced in certain asymmetrical crystalline materials when subjected to an electric field. The strain is proportional to the electric field.

piezometer. An instrument for measuring pressure head, usually consisting of a small pipe tapped into the side of a closed or open conduit and flush with the inside, containing over the pipe, mercury, water column, or other device for indicating pressure head. Stantype.

piezometric. a. In hydrology, an imaginary surface that coincides everywhere with the static level of the water in the aquifer. Ham. b. The surface to which the water from a given aquifer will rise under its full head. A.G.I.

pigeon. a. A crude casting of metal (as iron or lead) convenient for storage, transportation, or melting; especially one of standard size and shape for marketing run directly from the smelting furnace. Compare ingot. Webster 3d. b. A mold or channel in the pig bed. Webster 3d. c. Pig iron, pig lead. Webster 3d. d. A flask having two or more tubulars which to smaller molds may be attached, and used especially to collect fractions during fractional distillation. Webster 3d. e. A metal casting used in remelting. ASM Gloss. I. A heavily shielded container (usually lead). Used to ship or store radioactive materials, usually isotopes. IBL. g. An air manifold having a number of pipes which distribute compressed air or water to a single large line. Nichols. h. A rest for blowpipe or punty during the gathering operation. ASTM G162-66.

pig. a. Raw aluminum cast into pig form as it comes from the furnace. Mentor. 1964.

pig and ore process. Modification of the open-hearth process of steel manufacture with pig iron and steel ore as the charge. Bennett 2d, 1962.

pig and scrap process. Modification of the open-hearth process of steel manufacture with pig iron and steel ore as the charge. Bennett 2d, 1962.

pig bath. To add pig iron to a molten charge too much decarburized in the acid open-hearth process. Fay.

pig bed. A series of molds for iron pigs, sometimes circular form of column, constructed usually of concrete, hard brickwork or masonry, and designed to support heavy concentrated loads from arches or a bridge superstructure. Ham.


pig iron. a. A form of column, constructed usually of concrete, hard brickwork or masonry, and designed to support heavy concentrated loads from arches or a bridge superstructure. Ham.

pigeon blood. A deep clear red; the gem color of the most highly prized specimens of the ruby. Hess.

piglet. Local name for carnelian or red and white agate from Cisco, Utah. Shipley.

pigeonhouse. a. A room driven directly into the coal seam from the edge of a strip pit. Fay. b. Any small poorly equipped coal mine. Fay. c. A hole in the shaft house floor through which the bucket or skip is raised or lowered. Hess. d. An opening left at the meeting of two sections of arch working, permitting the workmen to close the arch and to come out. The pigeonhole itself is closed from below. Stanfield.

pigeonhole checker. An arrangement of checkerbrick such that each course of brick is laid in spaced parallel rows with the brick end to end and each alternate course above and below has its parallel rows at right angles to the intervening course. A.R.J.

pigmalsome. A pyroceramic intermediate between clinoenstatite and diopside. A mixture of the following, (MgFe)$_2$SiO$_4$, and (MgAl)$_2$SiO$_4$ (SiO$_2$). A soft glassy material which may occur in the series between clinoenstatite and hedenbergite. It has a small and variable axial angle. From Pigeon Point, Minn. English.

pig foot. a. An iron clamp shaped like a pig's foot used to attach the jack to the feed chain of a continuous electric coal cutter. Fay. b. A pipe jack with a pig foot at one end. Fay.

pig furnace operator. One who melts and refines magnesiun crystal into pure magnesiun in a crucible furnace. Also called furnace tender. D.O.T. Supp.

piggyback conveyor. See long piggyback conveyor. Nelon.

pig handler. A laborer who removes magnesiun pigs from molds manually or with a shovel, wearing asbestos gloves; also, he stumps heat numbers on pigs with hammer and punch. D.O.T. 1.

pig iron. A steel furnace through which a pig is blown, in a crucible, an extra charge of pig iron. Standard, 1964.

pig iron. a. High-carbon iron made by reduction of iron ore in the blast furnace. ASM Gloss. b. Cast iron in the form of pigs. ASM Gloss.

pig iron. Commercial lead in large oblong masses or pigs. Fay.

pigment minerals. The most important are the red and yellow ochers and brown sienna, which consists of iron oxides with some impurities, and the brown umbers in which manganese oxide is also present. When the iron-oxide content is high the term oxide is used in preference to other. Nelson.

pigments. Inorganic colored substances used as bases in compounding ceramic colors, inks, paints, etc. The term is more particularly used to denote mineral bases as distinct from organic coloring matters such as dyes or stains, which are soluble in the water column. Fay. D.O.T.

pig metal. Metal, as brass or copper, in its first rough casting. Standard, 1964.

pike. a. A type of detector which depends upon the piezoelectric effect by which an electric charge is produced on the faces of a proper piezoelectric crystal, when that crystal is strained. Used in such detectors, detectors with intermetallic foil to collect the charge. An inertia mass is mounted on the top of the crystal stack which is included in the vacuum-tube circuit. A.G.I.

pikelectricity. The property exhibited by some asymmetrical crystalline materials, which, when subjected to strain in suitable directions, develop electric polarization proportional to the strain. Inverse piezoelectricity is the effect in which mechanical strain is produced in certain asymmetrical crystalline materials when subjected to an electric field. The strain is proportional to the electric field.

piezoelectric detector. In seismic prospecting, a type of detector which depends upon the piezoelectric effect by which an electric charge is produced on the faces of a proper piezoelectric detector, when that crystal is strained. Used in such detectors, detectors with intermetallic foil to collect the charge. An inertia mass is mounted on the top of the crystal stack which is included in the vacuum-tube circuit. A.G.I.
pigskin. A surface defect characterized by pigsty. A man delegated to the duty of picking. A man delegated to the duty of picking.
pillar-and-breast

that may seriously injure the mine, larger pillars are left and after the mine has been worked out, the pillars are "robbed" by mining through them. This method of working is used in the mining of salt and gypsum deposits. It is employed by working the bed in "lifts." Also called pillar-and-stall; post-and-stall; bord-and-pillar. Fay.

pillar-and-chamber. A pillar method of working often adopted in extracting a proportion of thick deposits of bituminous coal. The system may be adopted where the value of the mineral in the pillars is less than the cost of setting artificial supports. Nelson. See drifting back. Fay.

pillar-and-room. A system of mining whereby solid blocks of coal are left on either side of miner's workings to support the roof. See also pillar-and-stope. Fay.


greater intervals according to the size of crosscuts, and bords varies from 3 to 5 apart, and are connected at intervals by crosscuts or stentons for ventilation and roadways and their supports. McKinstry, p. 635.

as working the broken. The width of the narrow roadways are driven in the coal seam and the type of roof and the bord-and-pillar system. Woodruff, v. 3, p. 18.

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pillar drive. A wide irregular drift or entry, in firm dry ground, in which the roof is

supported by pillars of the natural earth, or by artificial pillars of stone, no timber being used. Fay.

pillar extraction. The recovery or working away of the pillars of coal which were left during the first operation of working in the in the open method. Also called pillar mining. See also jenkins; jud; pillar robbing. Nel-a.

pillar bursting. Failures of remnants, promontories in the roof. Also called pillar bursts. See also jenkins; jud; pillar robbing. Nel-a.

pillar chopping. Also called robbing pillars; pulling pillars. Fay. b. Joining in slates, Denbighshire, Wales. Arkall.


pillar robbing. a. The process of extracting pillars. Also called robbing pillars; pulling pillars. Fay. b. Joining in slates, Denbighshire, Wales. Arkall.

pillar line. Air currents which have definitely coursed through an inaccessible abandoned area, or which have ventilated a pillar line or a pillar area, regardless of the methane content or absence of methane in such air. I.C. B.169, 1963, p. 9-9.


pillar methods of working. Methods of working coal seams, which have been given different names in different coalfields, such as stop-and-room in Scotland; bord-and-pillar in Durham, England; and single and double stalls in South Wales. There are various designs of pillar mining, but in general, there are two stages: (1) the driving of narrow roadways and thus forming a number of coal pillars, and (2) the extraction of the pillars—often on the retreating system. Pillar methods of mining are widely used in the United States, while the longwall method is favored in Great Britain. Pillar methods are also used for working stratified deposits of stone, slate, and other layered minerals. Nelson.

pillar mining systems. These include the room-and-pillar system, the block system, and the bord-and-pillar system. Woodruff, v. 3, p. 18.

pillar road. a. Roadways formed in coal pillars. Nelson. b. Working roads or inclines in pillars having a range of longwall faces or headings. Fay.


pillar robbing. a. The systematic removal of the coal pillars between rooms or chambers so as to regulate the subsidence of the roof. Also called pillar drawing. Fay. See also ball-and-pillow structure. Pettijohn.

pillar robbing and hand filling. See sublevel stoping, b. Fay.

pillars. a. The natural supports left in a mine for the purpose of supporting the roof. Also called stumps. Ricketts, p. 68.


pillar split. An opening or crossover driven through a pillar in the course of extraction. Groves, v. 6, p. 355.

pillar strength. The formula for pillar strength can be expressed as follows:

\[ S = C \left( \frac{L}{T} \right)^4 \]

where the coefficient, C, is directly dependent upon the diameter, L, of the pillar, the thickness of the roof, T, and the thickness of the roof, T.

pillar working. Working coal in much the same manner as with the pillar-and-stall system. Fay.

pillar. A. pillar method of working often adopted in extracting a proportion of thick deposits of bituminous coal. The system may be adopted where the value of the mineral in the pillars is less than the cost of setting artificial supports. Nelson.

pillar working. A system of mining whereby solid blocks of coal are left on either side of miner's workings to support the roof. See also pillar-and-stope. Fay.

pillow lavas. A general term for lavas that exhibit pillow structure, occurring mostly in basic lavas (basalt to andesite) and especially in the sodium-rich basalts known as spilites. A.G.I.

pillow lavas. Also called pillows; pillow basalt, Basalt in which large rounded masses of pillows of firm rock are abundant; the spaces between the masses are filled with friable rock in which cavities containing crystals are often present; commonly forms when lava flows meet water. Sintzing.

pillow block. A metal-cased rubber block that allows limited motion to a support or thrust member. Nicholls.

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pilot bob

center and projecting beyond the main face of the bit. Long. b. See plug bit; drill bit. Web. 3d. 21. 
pilot bob. The weight attached to a shaft submerged for the purpose of lowering the line down the shaft. B.S. 3618, 1963, sec. 1.

pilot burner. A small burner kept lighted to rekindle the principal burner when desired (as in a flash boiler). Webster 3d.

the light so maintained is called a pilot light or pilot flame. Fay.

pilot cable. A cable similar in construction to the pliable armor cable, having two, three, or more cores as required, the thickness of the insulation being appropriate to the lower working voltage. Mason, V2, p. 436.

pilot control. A feature of a remote control circuit which opens the control relay, and prevents it from closing, in the event of a short circuit in the main circuit. B.S. 3618, 1965, Sec. 7.

pilot drill. A small drill used to start a hole in order to insure a larger drill running true to center. Carlin.

pilot hole. a. A small hole drilled ahead of a full-sized, or larger borehole. Long. b. A borehole drilled in advance of mine workings to locate water-bearing fissures or formations. Long. c. A small tunnel drilled ahead of itself, and subsequently enlarged to the diameter required in the following full-size tunnel. Long.

pilot-hole cover. See cover, b. p. 146.

pilot lamp. A small electric bulb which lights when power is turned on in a circuit.

pilot method. The method of excavating a tunnel by driving a small tunnel ahead, and then enlarging its dimensions. Web. 3d.

pilot mill. A comparatively small mill created at a mine to work out the technique of operation before erecting the permanent plant. Hess.

pilot plant. A small-scale mill in which representative tonnages of ore can be tested under conditions which foreshadow (or imitate) those of the full-scale operation proposed for a given ore. Pryor, 9.

pilot reaming. A term for that part of a cylindrical or tubular member threaded on its outside surface, which controls a supply of oil under pressure to the piston of a serrormeter or relay connected to a large control valve, which it is desired to operate. Also called relay valve. C.T.D. 12.

pilot valve. a. A small hand-operated valve to admit liquid to operate a valve difficult to turn by hand. Fay. b. A relay valve that controls the operation of another valve. Webster 3d. c. A small balanced valve, operated by a governor or by hand, which controls a supply of oil under pressure to the piston of a servometer or relay connected to a large control valve, which it is desired to operate. Also called relay valve. C.T.D. d. A compressor, an automatic valve which regulates air pressure. Nichols.

pilot wedge. A half-cylinder member, about 5 inches long, countersunk to the lower end of a Hall-Row deflection wedge, by means of which the deflection wedge may be oriented in a specific manner in reference to a matching half-cylinder surface on the upper end of the wedge (drive wedge) and driven into the wooden plug placed about 8 feet below the point in a borehole where a deflection is to be made. Also called wedge pilot. Long.

pilz furnace. A circular or octagonal shaft furnace, maintaining or increasing its diameter toward the top, and having several tuyeres; used in smelting lead ores. Fay.


piners. The weight attached to a shaft lowered to the ground, create a deflection in the line down the shaft. B.S. 3618, 1963. sec. 7.

pincer. A clamp used on a flexible tube. Webster 3d.

pinchcock. A clamp used on a flexible tube to regulate the flow of a fluid through the tube. Webster 3d.

pinching out. When a lode or stratum narrows as if pinched by the overlying rock. Fay. See also pinching out; pinch.

pinch bar. A one who cleans broken pins (triangular prismatic-shaped pieces of fired clay) out of pins. See also pinching out; pinch.

pinchbeck metal. An alloy of 80 percent copper and 20 percent zinc. Fay.

pinchcock. A clamp used on a flexible tube to regulate the flow of a fluid through the tube. Webster 3d.

pinch. a. The binding action caused when borehole walls close in before casing is energized and driven. It increases when drilling in formations having a low compressional strength. Long. b. To caulk a diamond bit or to tightly in handsetting, causing the stone to break. Long. c. To force a diamond bit into an undisturbed core, thereby squeezing the bit and possibly damaging the outside or gage stones. Long. d. Eng. See pinch bar. SMRF, Paper No. 61. e. A compression of the walls of a borehole by an annular-shaped piece of fired clay or some other glazed ware that is being placed in saggars by glost-klink placer for firing. D.O.T.

pinch. b. A binding action caused when borehole walls close in before casing is energized and driven. It increases when drilling in formations having a low compressional strength. Long. b. To caulk a diamond bit or to tightly in handsetting, causing the stone to break. Long. c. To force a diamond bit into an undisturbed core, thereby squeezing the bit and possibly damaging the outside or gage stones. Long. d. Eng. See pinch bar. SMRF, Paper No. 61. e. A compression of the walls of a borehole by an annular-shaped piece of fired clay or some other glazed ware that is being placed in saggars by glost-klink placer for firing. D.O.T.

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pinching out. When a lode or stratum nar-
pinching out

row down and disappears. See also pinch, e. B.C. 1

pinching tong. In glaupaking, a pair of tools of which two dics that, when closed, form a mold for ornamental prudanta, which are thus made from sand molds. The eye of the base in the end of a pendant is made by a pin between the jaws of the tonga. Standard, 1964.

pinch out. An ore seam formed by the disappearance or wedging out of a porous, permeable rock between two layers of impervious rock. Williams. See also pinch, e. B.C. 1

pinch pass. A pass of sheet material through a pinch rolling mill. la glaupaking. a pair of pinchers, used for dislocating or breaking pieces of a material.

pinch test. A test for determining the dividing line between porosity and impermeability. ASM Glot.

pinch welding. Trimming the edge of a tubular part or shell by pushing or pinchng the flange or lip over the cutting edge of a stationary punch or over the cutting edge of a draw punch. ASM Glot.

pin cracks. Leic. Small fissures in coal seams filled with coal dust. See also pinch, e. B.C. 1

pinch concentrator. A revolving table on which are tapering spiral copper cleats or metal formed by electrodeposition, resulting from numerous small holes distributed throughout the metal. ASM Glot. pin im. To fill the interstices of masonry with small pieces of stone. Standard, 1964.

pinches. Smaller of pair of toothed wheels, for instance, the pinion geared to the driven crown wheel of ball mill. Pryor, 3. pinion gear. A drive gear that is smaller than the gear it turns. Nichols.

pink ash. A general term used to include a large number of alteration products of ilomite, spodumene, nepheline, scapolite, feldspar, and other minerals. A hydrous silicate of aluminum and potassium. Dana 17. b. A variety of muscovite used in ceramics. 6d. 1961.

pink ash. Penn. An anhrricate which, when burned, leaves a pink ash. Fay.

pink beryl. Same as morganite. Shipley.

pink bottom. A pink ash artificially colored by heating yellow or brown varieties. See also heated stone. Shipley.


pink sapphire. Pale to light-red corundum as distinguished from full red or dark red which is ruby. As yet there is no standard of determining the dividing line between these, the more highly transparent stones of light to fancy color being often classed as sapphire while much more a common paler stone it called Ceylon ruby. Shipley.

pink topaz. Topaz either naturally pink or artificially colored pink by heating yellow or brown varieties. See also pinked topaz. Shipley.

pink wollastonite. Lila-colored pyroxene (diopside) from the region of San Francisco, Calif. Schaller.

pinch conveyor. One which makes potter's pins for supporting glazed ware in saggars for firing in glost kiln. D.O.T. 1.

pin mark; point mark. A visible imprint on the back of ware left by processing tools; often used to identify a kiln. Shipley.

pinch tap. Topaz either naturally pink or artificially colored pink by heating yellow or brown varieties. See also pinked topaz. Shipley.

pinch timbering. A hard calciferous rock, used as bedding, roads and rough paving. Withen beds, Stoneram, near Horam. Arkell. b. Small stones used for filling the interstices of masonry, especially as in dry stone walls. Arkell.


pinolite. A yellowish, tetragonal mineral, MgO,BO2,5H2O; Mohs hardness, 3 to 4; and specific gravity, 2.29. Laurem. 70.

pinode. One of the lobes or segments when a leaflet of a pinnate leaf is itself more or less divided into parts in a pinnate manner. Nelson.


pinny land. Eng. Arable land where chalk comes close to the surface, as opposed to the deeper clay land, Wiltshire. Arkell.


pin. Scratch. A pattern formed by scratching lines through the raw g.aze with a sharp point. ACSG, 1963.


pin. Scratch. The thread on the outside surface of a cylindrical or tubular member. Long.

pinch timbering. A roof support method following the basic principle of brailing holes vertical or at an angle into the roof and anchoring rod bolts into a strong firm structure above the lower weak layers thereby suspending the weak roof on bolts from the strong roof above, and (2) the binding of several layers of weak strata into a beam strong enough to support its weight across the working place. The advantage of pinch timbering is that support can be provided by driving in or driving in the way of equipment and more freedom is provided for shuttle cars arranged in two ranks, one on each side of the racha. See also stigmata. Nelson.
pin timbering
and other equipment in tramming. See also rod bolting. Kentuckv, p. 145.

plastic. A vertical pin fastened at the bottom that serves as a center of rotation. Nichols.

plastic clamp. Designed for a hard lower jaw, a hinged and lockable upper jaw, and a socket between them to hold a tow ring. Nichols.

pin-to-box. The currently accepted term for a coupling, one end of which is threaded on the outside (pin) and the opposite end threaded on the inside (box). Formerly designated as a male-to-female coupling. See also sub. Long.

pin wheel. The currently accepted term for a coupling, both ends of which are threaded on the outside. Formerly designated as a metric-sae coupling. See also sub. Long.

pin-type slate conveyor. Two or more endless chains, each spaced at adequate intervals, which has affixed to it a series of pointed rods extending in a narrow pattern of rich ore extending down. Used principally in spraying or washing operations where the least amount of area of the product is contacted. ASA M174-1958.

pinwheel garnet. A garnet crystal that has been rotated during metamorphic movement. A.G.I. Supp.

Pibert lines. The same as Luderls lines.

plion. An elementary particle; the contraction of the pioneer wave. The advance vibration set up in the surface of a material due to the contraction of the molten material as it cools. Dodd.

pli body. A bit designed for attachment to pipe as a casing clamp is used on casing. See also casing clamp. Long. b. A pipe finisher. One who finishes the socket and spigot ends of moist clay sewer pipe sections. Also called corrugator; finisher, pipe. D.O.T. 1.

pipe blaster. A large bubble sometimes produced on the inside of handmade glassware by igniters or scale on the blowpipe. Dodd.

pipe clamp. a. A device similar to a casing clamp, used in the same manner on a pipe as a casing clamp is used on casing. See also casing clamp. Long. b. A pipe wrench constructed like a parmallce wrench. Long.


pipe coll. a. A device which measures only the density of the magnetic components of a slurry. This electromagnetic sensing unit is mounted on a section of rubber or sleeve steel pipe which is installed as a section of the slurry-carrying pipeline. All components are exterior to the pipe, and there is no obstruction to flow. The coil is used widely in magnetic tannita and heavy-media plants. By combining this device with other instruments, it is possible to continuously measure the ore-to-media ratio. See also automation. Nelson. b. Pipe used for heating, usually in (1) parallel lines connected to heaters at the end, forming a grid; or (2) in parallel lines with ends alternately connected to adjacent lines of bends, forming a so-called continuous coil. Strock, 10.


pipe constant. See pipe factor. Nelson.

pipe coupling. An internally threaded, short, sleevelike rod of ordinary steel used to join lengths of pipe. Sometimes incorrectly called pipe collar; pipe sleeve. Long.

pipe cutter. A tool for cutting wrought iron or steel pipes. The curved end which partly encircles the pipe carries one or more cutting disks. Freed of the cutter is regulated by a screw as the tool is rotated around the pipe. Crispin.

pipe air. Air conducted to workings or tunnel face through air pipes. See also auxiliary ventilation. Nelson.

pipe dog. A hand tool that is used to rotate a pipe whose end is accessible, consisting of a small, short steel bar whose end is bent at right angles to the handle, and then quickly returned, leaving a small space between the jaws to slip over the wall of the pipe. Fay.

pipe elevator. A device similar to a casing elevator, used to raise and lower outside-coupled pipe in a borehole. Long.

pipe factor. a. Correction made when drilling running ground, alluvial gravels, and sands. The volume actually extracted over the measured depth is compared with that which would be obtained over the true drill pipe area and distance, any discrepancy being due to inrush of sands or forces out of sand by the pumping action during drilling. Pryor, 3. b. The assumed cross-sectional area of a borehole when estimating the in situ volume of a core sample. Also called pipe constant. Nelson.

pipe finisher. One who finishes the socket and spigot ends of moist clay sewer pipe sections. Also called corrugator; finisher, pipe. D.O.T. 1.

pipelifter. See pipeman, a. B.S. 3618, 1963, p. 410. h. The central cavity formed by the contraction of the molten material as it cools. Dodd.

pipeline transport. Long distance pipelines


pipeline transport. See also pipeline transport.
pipeline transport

- unused for hydraulic transport of coal, grit, stone, copper concentrates and similar materials. Local transport in mines has been utilized in France. A 108 mile 10 inch sauger pipe line of the Pittsburgh Coal Company has been operating since 1939 carrying 4000 tons per day. Lewis, p. 223. See also pipeline transport.


- pipe metal. An alloy of tin and lead, and sometimes zinc, for making organ pipes. Webster 2d.


- pipe ore. Iron ore (limonite) in vertical pillars, sometimes of conical or hourglass form, imbedded in clay. Probably formed by the union of stalactites and stalagmites in caverns. Fay.

- pipe oven. A hot-blast oven in which the air passes through pipes exposed to the heat of burning gas in brick conduits. Fay.

- pipe passer. One who transfers green clay sewer pipes from skidman II at entrance of kiln to setter inside kiln. Also called kilnman. D.O.T. 1.

- pipe press. The name commonly applied to the machine used for molding sewer pipe. Fay.

- pipe prover. An apparatus for testing the soundness of a pipeline or system, usually by hydraulic pressure. Standard, 1964.


- pipe-rack drier. A drier in which pallets of pipe press are placed on neated pipes. ACSG, 1963.

- piperno. A local Italian name applied to the traditioal tuff of the Po River stream fields in the province of Naples, Italy. The rock is characterized by a eutaxitic structure and the presence of numerous stringers and lenticels of dark glass (fiamme) in a light-colored, porous, glassy matrix and generally considered to be a type of welded tuff. A.G.I.

- pipe-rock drier. A drier in which pallets of pipe press are placed on neated pipes. ACSG, 1963.

- pipette a. A small piece of apparatus with which fluids are transferred, measured, or absorbed in a beaker (operations) and which in the simplest form consists of a narrow glass tube into which the liquid is drawn up by suction and in which it is retained by closing the upper end. Webster 3d. b. As a verb, to transfer, to draw off, to measure, or to apply with a pipette. Webster 3d.

- pipette analysis. The size analysis of fine-grained sediment made by having samplpipette analysis. The size analysis of fine-grained sediment made by having samplers from a suspension with a pipette. A.G.I. Supp.

- pipette method. A method for the determination of particle size. See also Andreasen pipette. Dodd.

- pipe sampling. a. Sampling by means of a pipe, usually consisting simply of a small iron rod or receive of material where the larger pieces are not usually greater than 2 inches. This larger end of the pipe is generally sharpened to provide a cutting edge, and sometimes contracted in diameter so that the material once entered will not readily fall out when the pipe is lifted. Also called gun sampling. Truscott, p. 102d, b. Drivepipe. Nelson.


- pipette. A pink or mottled pink-and-white as an, ilaceous stone carved by the Indians into tobacco pipes. Compare cutlimate. Webster 3d.

- pipe string. The total amount of any given size of pipe used as standpipe, drivepipe, or casing in a bolehole. Long.

- pipe tap. A tap for making internal threads within pipe fittings. ASM Gloss.


- pipette. a. A small piece of apparatus with which fluids are transferred, measured, or absorbed in a beaker (operations) and which in the simplest form consists of a narrow glass tube into which the liquid is drawn up by suction and in which it is retained by closing the upper end. Webster 3d. b. As a verb, to transfer, to draw off, to measure, or to apply with a pipette. Webster 3d.

- pipectone. A pink or mottled pink-and-white ash-likeaceous stone carved by the Indians into tobacco pipes. Compare cutlinite. Webster 3d.

- pipe shank. A pipe shank. a. A mass of ore, generally parallel to the horizontal shaft of a mine, and sometimes of more or less irregular shape. B.S. 2116, 1931. b. See drivepipe. Nebon.

- pipe-shoe bit. A bit similar to a pipe bit, except that the set inside diameter is larger. Generally, it is used in a one-shot attempt to drill pipe through overburden into bedrock. A pipe-shoe hit is recovered only when the drivepipe is pulled out of the completed borehole. Long.

- pipe shrink. A term used to refer to the failure of pipe to expand during heating, or to contract during cooling, on the top of iron and steel ingots. See also pipe, a. Fay.

- pipe vein. a. A mass of ore, generally parallel to the horizontal shaft of a mine, and sometimes of more or less irregular shape. B.S. 2116, 1931. b. See drivepipe. Nebon.

- pipe-water. The diversion of the upper part of a stream by the headward growth of another stream. Same as beheading; stream capture; stream robbery. Fay.

- pipeline stream. One of two streams in adjacent valleys that has been able to deepen its valley more rapidly than the other, has extended its valley headward until it has breached the divide between them, and has captured the upper portion of the neighboring stream. Lees.

- pipeline transport. A device for sampleing a pile of ore, consisting simply of a small iron rod of material where the larger pieces are not usually greater than 2 inches. This larger end of the pipe is generally sharpened to provide a cutting edge, and sometimes contracted in diameter so that the material once entered will not readily fall out when the pipe is lifted. Also called gun sampling. Truscott, p. 102d, b. Drivepipe. Nelson.

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- piping. a. The transfer of fluid from one place to another, by means of a pipe. Fay.


- pipe wrench. An instrument or device having serrated and attached to a handle. When one fixed and one adjustable jaw, both turner. D.O.T. I.


- piston. The working part of a pump, hydraul-

- piston clearance. Under or around a structure built on preventific foundations which will remove material from beneath the structure. See also water creep. Nelson. d. The movement of water leading to the development of channels. ASCE P1826. e. The tubular depression caused by contraction during cooling, on the top of iron and steel ingots. See also pipe, a. Fay.

- pistons. a. Eng. Thin tilelike stone, rubbing, Lower Lias, Keinton Mandeville. Arkell. b. Pipe lines. The working part of a pump, hydraulic cylinder, or engine that moves back and forth in the cylinder; it is generally equipped with one or several rings or cups to control the passage of fluid. It ejects the fluid from the cylinder, as in a pump, or receives it from the fluid, which causes a reciprocating motion, as in an engine. Long.

- pith. The natural cement of the central part of stem in grasses. The space remaining at the end of a cylinder when the piston has reached the position of its extreme travel toward that end. Long.
piston displacement. 1. A volume in cubic inches, gallons, or other units of measure swept out of a cylinder per stroke, or during a given period, by a piston. The amount of air displaced by moving all pistons of an engine or compressor from the bottom to the top of their stroke. Nichols.
piston drill. A heavy drill mounted either on a horizontal bar or on a short horizontal arm fastened to a vertical column. On the end of the rod is a chuck in which the drill steel is clamped. The pistons have a stroke of from 1 to 6 inches and deliver from 300 to 600 blows per minute. The cylinder is mounted on a carriage which can be moved back and forth by a feed screw. Lewis, p. 86. Piston drills have now been superseded by hammer drills.
piston drive-sampler. See piston sampler. Long.
piston extruder. See extruder. Dodd.
piston motor. An engine or motor in which the power delivered from air or steam is used to drive one or more reciprocating pistons connected to a crank shaft to produce rotational movement to drive a piston, pulley, or gearing connected to a device to be driven. Not to be confused with an internal-combustion-type reciprocating engine or motor. Long.
piston rod. A rod or shaft, rigidly coupled to a piston, that moves parallel to the piston and its enclosing cylinder. A rod by which the piston is moved or by which the movement of the piston is transmitted to an attached mechanism. Sometimes confused with connecting rod. Long.
piston sampler. A drive sampler equipped with either a free or a retractable-type piston that retreats up into the barrel of the sampler in contact with the top of the ground, that is, open-pit, mine, sample pit, etc. Bureau of Mines Staff, p. An excavation in the earth below the ground surface. D.O.T. 1, 1964. q. A defect similar to a dimple but slightly smaller. ASTM C286-65.
pit number. A name for mined mineral in contrast to sea amber. Shipley.
pit boss. a. One who has charge of the surface work at a mine as well as in a mine. Nichols. b. A mine manager. Pettijohn, b. In anthracite and bituminous coal mining, a foreman who is in direct charge of men in a specific portion of a mine. Synonymous with shift boss, in metal mining. Also called inside foreman; underground foreman. See also pit foreman. D.O.T. 1, c. One in charge of all operations at a strip coal mine. Webster 3d.
pit bottom. a. The bottom of a shaft and all the equipment and roadways around it. See also looptype pit bottom. Pettijohn, b. Synonym for dip bottom. Nelson. c. The bottom or lowest landing in a shaft. Fay, b. Eng. The entrance to a mine and the underground roads, in the immediate vicinity, whether at the bottom of the shaft or at any point in it in the lowest part of the surface at which the cages are loaded. Also called pit eye. Fay.
pit-bottom stop. Scot. A large solid block or pillar left around and to support the sides of a shaft. Fay.
pit brow. a. The pilhewhead, and in particular, the mouth of the shaft. Nelson, b. Lanc. The spot bank, at or near the top of a shaft. Fay, b. Eng. The entrance to a mine and the underground roads, in the immediate vicinity, whether at the bottom of the shaft or at any point in it in the lowest part of the surface at which the cages are loaded. Also called pit eye. Fay.
pit cages. The structure used in mine shafts for transport purposes. See also cage. Nelson.
pit-car loader. A short, electrically powered, lightweight elevator conveying designed for use in working places, to facilitate the loading of large cars or to aid in shoveling long distances. The loader shovels into the hopper end and the conveyor carries the coal to the car. D.O.T. 1.
pit-car oil. See summer black oil. Fay.
pitch. a. The angle at which a coal seam inclines below a horizontal line. Kuyper.
b. The grade of an incline or the rise of a seam. B.C.I. c. The solid or semifluid residue from the partial evaporation of tar. Kuyper. d. A bituminous mineral, a bituminous gangue such as free carbon, residual coke, etc. Nelson. e. The angular inclination of an ore body with respect to the surface, measured in degrees on the plane of the strike. Nelson. f. Of like, amount of deviation from the vertical taken by a section of a spiral, having some circular arc, spiraling in a helical, circular, or spiral path.
pitch opal. An inferior quality of common pitch Physicians. In coal mining, work done on pitch polishing. Polishing operations in which pitchy copper ore. Fay. pitch pest. A variety of peat resembling asphalt. Standard, 1964. b. English translation of the German term Pechtor later named dolerite. Tomkeeff, 1954. pitch pocket. A local shake that is filled with pitch; generally it is not extensive enough to affect the shearing strength of the wood greatly. However, if a large number of pockets are found in one stick, the shearing strength of the wood is reduced. Lewis, p. 39.
pitch polishing. Polishing operations in which pitch rather than felt is the resilient carrier for the polishing agent. ASTM C162-66. pitchstone. A volcanic glass characterized by a pitchy rather than glassy luster. They may be almost any color and have compositions comparable to a wide range of volcanic rocks. They contain a rather high percentage of water compared to other glassy rocks. A.G.I. pitchwork. In coal mining, work done on shares. Standard, 1964. See also pitch, h. pitch workings. Mine workings in steeply inclined seams. Fay. pitchy copper ore. A early name (petchers) for a dicalcium oxide of copper which looks like pitch. Fay. pitchy iron ore. A old synonym for giette. Fay. b. Synonym for trilite. Hey 2d, 1935. pitchy luster. Resembling the luster of a fresh surface of pitch. Shipley. pitchy rock. Eng. Rock impregnated with bitumen found in Shropshire coalfield. Tomkeeff, 1954. pitch coal. Soil obtained by mining, as distinguished from charcoal. Fay. pit committee. A. A joint committee of employer and workers dealing with the labor problems of a mine. Webster, 3d. b. A local term for mine committee. B.C.I. pit craters. A circular or ellipsoidal, steep-walled depression sunken below the gently sloping surface of a volcano and surrounded by a steeply scarped rim. Such craters are the result of collapse and have never been filled to overflowing with molten lava. They are commonly located on the flanks of shield volcanoes, such as the Mauna Loa and Kilauea, in Hawaii. Synonym for volcanic sink U.S.G.S Bull. 994, 1953, p. 17. pit Gunn. In order to allow for the friction of the sides of the guides and between the air and the sides in the shaft and for other small losses, it is usual to divide the total static torque at any point of the wind by 0.9 for a new shaft with rope guides, or 0.85 for an old shaft with rigid guides. This factor is generally referred to as pit efficiency. Sinclair, V., pp. 166-167.

pits eye. a. Bottom of pit shafts from which sky is visible. Pryor, 3. b. Eng. Bottom of the shaft of a coal mine; also the junction of a shaft and a level. Fay. Also called pit bottom, especially with regard to the lower levels. Standard, 1964.
pit grade. A layer of coarse coal left around a shaft to protect it from caving. Fay. pit flakes. Flints dug from chalk as opposed to gravel. pit foreman. In bituminous coal mining, a foreman who is in immediate charge of all the mining operations in his strip mine. Also called pit boss. D.O.T. 1.
pit gate. York. Any place in the immediate vicinity of a colliery at which miners hold meetings of their own in reference to wages, etc. Fay.
pit guide. An iron column that guides the cage in a mine shaft. Fay.
pitching. a. The parenchyma (usually) tissue occupying the central portion of a stem inside the pith. A.G.I. b. Eng. The soft part of the lode. Fay.
pit hand. In the iron and steel industry, a general term applied to workers who perform varied duties around the processing furnaces. D.O.T. 1.
pithead. a. Landing stage at top of shaft. Pryor, 3. b. The top of a mine shaft including the buildings, roads, tracks, plant, and machinery around it. See also pit brow. Nelson.
pithead baths; changehouses. A building situated convenient to the miners leaving the pithead, with washing facilities, accommodation for changing and drying clothes, and a canteen. In Great Britain, responsibility for pithead baths and colliery canteens rests with the National Coal Board. Nelson.
pithead frame. Scot. See headframe, a; pithead frame. Scot. Same as headframe. Fay.
pit lamp; pit light

An open lamp worn on a miner’s cap as distinguished from a safety lamp. Webster 3d.

pit limit. The vertical and lateral extent to which the mining of a mineral deposit by open-pit methods is economically carried. Cost of removing overburden or waste material versus the mineable value of the ore so exposed is usually the factor controlling these limits of a pit. Bureau of Mines Staff.

pitman. a. A man who examines regularly the condition of the shaft, guides, etc. He usually selects the weekends for his inspection when winding is at a minimum. Nelson. b. An earlier term for the man in charge of the pumps in the shaft. Nelson. c. A laborer who inspects refined copper emerging from crucible, for size and the presence of foreign materials. D.O.T. Supp. d. In the Blake type of jaw crusher, an eccentrically driven vertical link between the driving wheels and the tuggles which move the crusher's swinging jaw. Pryor, 3. e. Old term for connecting rod. Sanderson.

pitman arm. An arm having a limited movement around a pivot. Nichols.

pitmen. Men employed in shaft sinking or shaft inspection and repair. C.T.D.

pit mining. Surface mining in which the material mined is removed from below the surrounding land surface. American Institute of Mining and Metallurgical Engineers. Technical Publication No. 604, 1935, p. 6.

pit mouth. Scot. The opening of a shaft at the top of the ground. Fay.

pitometer. An instrument that consists essentially of two pitot tubes one of which is turned upward, and the other downward, and that is used to record automatically the velocity of a flowing liquid or gas. Webster 3d.

pit's edge. See Pitot tube. Fay.

Pitot-static tube. When the Pitot tube and static tube are combined, they form the Pitot-static tube, and as such they can be used as an anemometer. The tubes are usually arranged concentrically. When the points of the two pitot tubes are directed opposite the ground level. Access is gained by stairs, which move the crusher's swing jaw. Nelson.

pit M11b. The vertical and lateral extent of the opening in a mine; pit space. Fay.


pit sampling. a. Use of small untimbered pits to gain access to shallow alluvial deposits or ore dumps for purposes of testing or valuation. Pryor, 3. b. Sampling shallow depositive means of trial pits, usually about 2 to 3 feet in diameter. In reasonably dry ground, depths of 50 feet or more may be reached. Pit sampling is often used to assist site investigations as it provides the maximum of information regarding nature of deposit and bedrock. Nelson.

pit sand. a. Sand usually composed of grains that are more angular; it often contains clay and organic matter. When washed and screened it is a good sand for general purposes. Zern, p. 145. b. Sand from a pit, as distinct from river or sea sand. Arkell.

pit shaft. Eng. Same as shaft. Fay.

pit shaft. The name given to the shaft into which the opening of the ravinne or ravinne in the head of a mine for coal production. Nelson. b. The extent of the opening in a mine; pit space. Fay.

pit slope. The angle at which the wall of a shaft, pit, or well dips as measured along an imaginary plane extended along the crest of the berm or from the slope crest to its toe. Compare slope, J. Bureau of Mines Staff.


pitted. a. A type of corrosion that develops cavities or pits in hot, lustrous metals that are not passivated. This type of corrosion is often used for gray or steel cookware, lead, leaded glass, etc. D.O.T. I. Depressed symmetrically shaped areas in the surface of steel. May have a black speck at the center. Blake.

pitting corrosion. Passive metals are resistant to a wide variety of corrosive media, but under certain conditions breakdown of the passive film may occur at various points. Depending on conditions, this may lead to complete breakdown of the passive film or the attack may concentrate on these initial areas, leading to rapid failure by pitting. Ham.

pit top. Eng. A bank or heap upon which mine waste is tipped or dumped. Fay.


Pittsburgh bed. The Pittsburgh coal which outcrops or occurs in thin seams in the vicinity of Pittsburgh and extends under a large area of western Pennsylvania and northern West Virginia. It belongs in the Carboniferous system, Pennsylvanian series, at the base of the Monongahela formation. Rice, Geol. Pittsburgh process. A process for the vertical drawing of sheet glass invented by the Pittsburgh Plate Glass Co. The sheet is drawn from the free surface of the molten glass, the drawing slot being completely submerged; the edges of the sheet are formed by rollers. This process has also been referred to as the Pennvern process. Dodd.

pit water. a. Water from the underground workings of a mine. B.S. 3552, 1962, b. Aust. The moisture contained in freshly mined coal, which is lost by exposure to ordinary atmospheric conditions. Fay.

pit wood. The various kinds of timber used as supports for underground workings. The extent of steel has reduced considerably the use of timber for support purposes. Nelson.

pitwork. Cornish pumps and other engineering appliances in and near mine pits. Pryor, 3. See also pit top. Fay.

pitwright. a. Scot. An engineer who attends to pit pumps, etc. Fay. b. See pumping engineer; mine carpenter. D.O.T. I.

pivot. A nonrotating axle or hingepin. Nichols.

pivotal fault. See hinge fault; rotational fault.

pivoted-bucket carriers. The highest type of combined elevator and conveyor. It consists of two long-pitch roller chains joined by crossbars on which are hung the buckets in such a way that they can be completely turned over. Pit and Quarry, 53rd, Sec. 6, p. 26.

pivot-bucket conveyor. A type of conveyor using pivoted buckets attached between two endless chains which operate in suitable guides or casing in horizontal, vertical, inclining, or a combination of these paths over drive, corner and takeup terminals. The buckets remain in the carrying position; they do not have to be inverted to discharge. ASA MH4-1-1958.

pivot shaft. A tractor dead axle, or any

tracks, trucks, derricks, or cableway hoists. These pits may reach depths of several hundred feet below the ground surface. Pryor, 3. b. A draw-in operation which is carried on as an auxiliary operation to passivate. This type of deposit is often used for gray or steel cookware, lead, leaded glass, etc. D.O.T. I. Depressed symmetrically shaped areas in the surface of steel. May have a black speck at the center. Blake.

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A type of hinge pin. Nicks at.


place. a. See in place; in situ. Fay. b. The part of a mine in which a miner works by going as near as possible to "working place." A point at which the cutting of coal is being carried on. Fay. c. Eng. A kind of cabin in which tools are kept in the mine, and in which a deputy eats his lunch. Fay.

placer. a. A place where gold is obtained by washing; an alluvial or glacial deposit, as of sand or gravel, containing particles of gold or other valuable mineral. In the United States mining law, mineral deposits, not veins in place, are treated as placers, so far as locating, holding, and patenting are concerned. Various minerals, besides metallic ores, have been held to be placers. Besides gold, the United States mining law, mineral deposits, not veins in place, are treated as placers, so far as locating, holding, and patenting are concerned. Various minerals, besides metallic ores, have been held to be placers. Besides gold, the following are considered placers.

placer claim. a. A mining claim located upon placer ground, gravel, or sand, which contains valuable mineral. In the mining law of some states, placer mining is applied. See also alluvial deposit.


placer gold. Gold occurring in more or less coarse gold-bearing gravel which can be obtained by washing the sand, gravel, etc., in which it is found. Craigie, v. 3, p. 1756. See also stream gold.

placer ground. Place where placer mining can be done, that is, where gold can be obtained in digging up the earth and washing it for the gold. Craigie, v. 3, p. 1757.

placer location. A location of a tract of land for the mineral deposits, or other valuable deposits upon or within it that are not found within lodes or veins in rock in place, and is a claim of a tract of land for the sake of the loose deposits on or near its surface. Ricketti, p. 1.


placer mining. a. The extraction of heavy mineral from a placer deposit by concentration in running water. It includes ground sluicing, washing gravel into a sluice, scraping by power scraper and excavation by dragline. Nyland, b. Extracting the gold then recoverable from placer miners, wherever situated—in dry channels and in channels for the time filled with water. It does not make the process any the less placer mining that the mineral is found in deep channels, in navigable streams, or in streams beds or creeks and valleys and may, in most instances, be collected by washing or amalgamation without milling. In other words, the term includes all forms of deposit excepting veins or lodes of quartz or other rock in place. Ricketti, p. 1. Designating one who engages in placer mining. Craigie, v. 3, p. 1756.


placer claim. a. A mining claim located upon gravel or ground whose mineral contents are extracted by the use of water, by sluicing, hydraulicking, etc. The unit claim is 1,220 feet square and contains 10 acres. Fay. b. Ground with defined boundaries within which contains mineral in the earth, sand, or gravel; ground that includes valuable deposits not fixed in the rock. See also claim; lode claim. Fay. c. The maximum size of a placer claim is 20 acres. Association claims of two or more persons may be located up to an area of 160 acres for eight persons. Placer claims must have a discovery. They should be staked, a location notice filed for the same as lode claims, stating the mineral for which the location is made. Lewis, p. 20.

placcl deposit. a. A mass of gravel, sand, or similar material resulting from the crumbling and erosion of solid rocks and containing nuggets of gold, platinum, tin, or other valuable minerals, that have been derived from rocks or veins. Fay. b. Debris, a. in a placer deposit, concentrated on the surface by moving water or air. Bateman. c. An alluvial deposit of ore, gravel, or sand derived from geologic or mechanical gravel or sand. Pryor, 2. See also alluvial deposit.

Bureau of Mines Staff.


b. A place at which placer mining is carried on. Craigie, v. 3, p. 1756.

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plain of marine denudation

containing a mixture of sodium and calcium feldspars, distinguished by their extinction angles; crystal; trincite. n. (V. Lehigh.) Doha. 27. F. C. 27. E. E. 24. 1962.

plagioclase feldspar. A porphyritic extrusive rock with phenocrysts of plagioclase feldspar and quartz in a groundmass of orthoclase and quartz. Also called delinite; plagiodolite. Webster 4d.

plagioclase. Having the cleavage of plagio-

plagioklase; plagiodol; plagiobrad; Having an oblique spiral arrangement of faces; specifically, a group of the isometric system characterized by 13 axes of symmetry but no center or planes. Webster 3d.

plagioplitic. Synonym for rhylolite. A.G.I.

plagionite. A sulfide of lead and antimony. PbSb2S6; Color, blackish, lead-gray; luster, metallic; monoclinic. Webster 3d; Dana 17.

plagiophyre. A term for rocks resembling ortho- hytrectes in texture, but containing plagioclase instead of orthoclase. The type of rock contains laths of andesine with interstitial chloritohydrine, iron ores, and in places, orthoclase. Compare leuco-
diorite.

plains. a. An extent of level, or nearly level, land; a region not noticeably diversified with mountains, hills, c. valleys. Fay. b. A flat, gently sloping or nearly level region of the sea floor. HEE. c. Relatively flat areas or plains from babbles and dirt during the melting process. ASTM C162-66.

plain clineometer. A clinometer having only its upper end threaded to fit drill rods. Also called end clinometer. See also clinometer. Compare line clinometer; wedge clinometer. Long.

plain coastal. A plain fronting the coast and generally representing a strip of recently emerged sea bottom. A.G.I.

plain concrete. Concrete with no reinforcement. See also mass concrete. Ham.


plain detonator. A detonator for use with a safety fuse. B.S. 3618, 1964, sec. 6. It consists of an aluminum tube closed at one end and provided with a fuse and safety fuse, the latter. The fuse is partially filled with water, the fuse and safety fuse, the latter. The fuse is partially filled with water, the safety fuse is then secured in position by indenting the detonator tube, the process being known as crimping. The combination of safety fuse and plain detonator is called a capped fuse. McAdam II, p. 52.


plain of formation. Formed by the undi-
turbed extension of beds which retain the original horizontality of deposition. River deltas, alluvial flats, fans, marshes, and slitted-up lakes are instances of such formations. A.G.I.

plain of marine abrasion. A plain formed beneath the sea by the erosion of the wave or tide action. A plain of marine abrasion; plain of marine erosion; plain of submarine erosion; wave-cut plain; wave-cut 
terrace, A.G.I.

plain of marine denudation. The sea level
plain of marine denudation

A broad flat or level surface.

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A broad flat or level surface.

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planetesimal. One of numerous, small, solid planetary bodies which, according to the planetesimal hypothesis, had individual orbits about the sun and of which the planets were formed by aggregation. Fay.

planetesimal hypothesis. The hypothesis that the earth and the other planets were formed by collision and coalescence of planetesimals and have never been wholly molten. Fay.

planet gear. Gearing in which one gear wheel revolves round another. Mason.

plane trigonometry. Trigonometry that treats of the solution of plane triangles. Zen., p. 54.

planform. The outline or shape of a body of water as determined by the stillwater line. A.G.I.

planimeter. An instrument for measuring the area of any plane figure by passing a tracing point along its boundary line. Webster 3d.


planimetric method. A method of measuring grain size in which the grains within a definite area are counted. ASM Gloss.

planimetry. a. The determination of horizontal distances, angles, and areas by measurements on a map. A.G.I. b. The plan details of a map. Seeley, 2.

planning. Producing flat surfaces by linear reciprocal motion of the work and the table to which it is attached, relative to a stationary, single-point cutting tool. ASM Gloss.


planar. A bed of ore or workings or a vein in which the crystals are arranged in layers. Fay.

plant. a. The shaft or slope, tunnels, workshops, etc. b. A group of mines. c. The scheme as far as it determines the mining methods and machines properly exploited with efficiency, safety, and economy. Nelson.

plantation. Relating to the chiefly simple forms of floating and surface-dwelling organisms of the ocean waters. Schiefferdecker.
mining, the mechanical installations, machines, and their housings. Earthworks are sometimes loosely included. Pryor, S. D., 1962. Use of equipment. A large scale of derricks, railways, cars, etc., employed in tunnel work. Stauffer.

plant bed. A shale roof. Plante battery. A type of plant scrap. Scrap metal sometimes loosely included. mining, the mechanical installations, ma .


plant indicators; universal Ham.

and then spread. See also mixed at a central mixing station and makes or

mixed in a foundry or defective plant itself; for example, sprues and bides, silicides, or nitrides that in which temperatures in excess of 30,000° C. The usual purpose of a refractory coating applied in this way is to protect a material, for example, molybdenum or ca. when used at a high temperature. Dodd.

plaster. A material or mixture of materials that is applied in substantial thickness to surfaces for protective or decorative coating purposes. It is designated as gypsum, lime, gypsum-lime or cement-lime plaster, according to the composition. Taylor.

plaster base finish tile. Tlies whose surfaces are intended for the direct application of plaster. ASTM C43-65T.


plaster, hard-binded. Plaster made from overburned gypsum, which is dipped in alun solution and calcined a second time. Keene's cement and Portland cement are examples. See also gypsum cements. CCD 6d, 1961.

plastering. Same as mudcapping. Fay.


plaster mill. a. A machine consisting of a controller or set of rollers for grinding lime or gypsum to powder. Fay, b. A mortar mill.

plaster molding. Molding, wherein a gypsum-bonded aggregate flow in the form of a pattern, permitted to harden, and, after removal of the pattern, thoroughly dried. The technique is used to make smooth nonferrous castings of accurate size. ASTM G51.

plaster of Paris. A plaster made from gypsum by grinding and calcining, so called from its manufacture near Paris, France. With water, it forms a paste which soon sets. In Canada, this term has been adopted for gypsum in any form. Fay. Has a number of ceramic uses; probably the most important is in making molds, and dies. Also used as a glass batch material to replace part or all of the salt cake in combination with soda ash, as an additive to certain glasses, and as a mounting medium for optical glass. Lee.


plaster retarder. Any substance used to slow the setting of plaster. Blood, glue, dextrin, and hair are among the retarders used. CCD 6d, 1961.

plaster shooting. a. A surface of suns and stars. Neither solid, liquid, nor gaseous, could become the great energy-thrust product of placing a. water slurry is poured over a pattern, thoroughly dried. The technique is used to make smooth nonferrous castings of accurate size. ASTM G51.

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plastic flow

plastic fracture. The breakage of a metal under tensile stress is the term applied when the fracture occurs as a function of time. Such movement is known as plastic flow. Spalling, c. A phenomenon in which the bottom sediments under a pond or lake move as a whole, rather than eroding as separate grains. Plastic flow occurs from the weight of water or from external forces, such as wind or currents. Hy. d. The permanent deformation, or change in shape without rupture, of a solid body subjected to a continuous force. A.G.I. e. In a glacier, the movement of glacier ice that takes place without shearing and cracking of the ice. A.G.I. f. The deformation of a metal by movement along the slip planes and at the grain boundaries, the effects varying according to the temperature at which the process is performed. Rolfe. g. The same as plastic deformation.

plastic fracture. The breakage of a metal under tensile load when being drawn out. See also cup-and-cone fracture, necking. Ham.

plastic igniter cord. A coalfire device for lighting a coal face. When the cord is ignited an intense flame passes along its length at a uniform rate and ignites the coal face, causing an ordinary safety fuse. Two types are made: The fast has a nominal burning speed of 1 per second per foot, the slow, a nominal speed of 10 seconds per foot. Nelson.

plasticity, a. The property of changing shape permanently when a force is applied to it, and of returning to its former shape when the force is removed. A.G.I. b. The property of a material that allows it to undergo permanent deformation without appreciable volume change or elastic rebound, and without rupture. Stokes and Vareni, 1955. c. A complex phenomenon which appears to be induced primarily by the pressure of gases causing surface flow at the moment, when under the action of heat, the molecules at the surface have attained a degree of freedom comparable with that obtained in a liquid. In the case of coal, a certain degree of plasticity is essential for the production of coke. A.G.I. d. See plastic flow; plastic limit; plastic soil; plastic state; plasticity index. ASCE P1826.

plasticity Index; Index of plasticity. The range over which the soil is plastic and is represented on a nomenclature chart as a semicircular area on horizontal and vertical axes. A.G.I. e. A compound added to a lacquer to counteract the tendency of the finished surface to become brittle. Shell Oil Co. c. An additive to improve the workability of concrete. Taylor.

plastic limit, a. The water content corresponding to an arbitrary point between the plastic and the semidrained states of consistency of a soil. ASCE P1826. b. Water content at which a soil will just begin to crumble when rolled into a thread approximately $1/8$-inch in diameter. ASCE P1826. c. The lowest water content at which the soil will show plasticity. A.G.I.

plastic making. This term includes all processes of shaping clay in the plastic condition. Plastics such as jiggering, jollying, and throwing. Dodd.

plastic modulus. A factor used in the plastic design of steel structures. It is a constant for each particular shape of section. See also plastic moment of section. Ham.


plastic range. The range of temperature during the cooking process within which the coking mass of coal is in a semifusible or plastic state. See also plastic pressing.

plastic refractory. A refractory material, tempered with water, that can be extruded and that has suitable workability to be ponded into place to form a monolithic structure. ASCE, 1963.

plastics. All synthetic resinlike materials which can be molded under the influence of heat or pressure. Anderson.

plastic shaping. See plastic making, Dodd.

plastic stillamine. An air-setting kyanite-base mixture, ready to use for patching walls, moldering shapes, etc. Bureau of Mines Staff.


plastic solid. a. A solid that undergoes change of shape continuously and indefinitely after the stress applied to it passes a critical point. Lewis.

plastic state. The range of consistency within which a soil exhibits plastic properties. Also called plastic range. ASCE P1826.

plastic strain. In the case of a single mineral, the term connotes permanent deformation accomplished by gliding within the crystal lattice without loss of cohesion. A.G.I. b. In rocks, which are composed of many crystals often belonging to several mineral species, the term is conveniently applied to any permanent deformation throughout which the rock maintains essential cohesion, and strength, regardless of extent to which local microfracturing and displacement of individual grains may have entered into the process. A.G.I. c. A term variously used but most commonly to designate the finished quartz body used in an oscillating circuit. See also crystal. AM. d. See set, z. Ram.

plastic tamping rod. A tamping rod of a tamped or stemmed, of a rigid nature, made from plastic possessing suitable dielectric properties, in order to be nonconductive to the building up of static charges of static electricity is unusual. c. Nelson.

plastic tooling. Dies, jigs, and fixtures for metal forming, boring, assembly, and checking, made at a saving of time and labor, of laminated and cast components, and cemented into highly stable industrial tools, chiefly with epoxy and some with polyester resins. Plastics are strong adhesive resins, particularly useful because of their low shrinkage factor. Polymers have a cost advantage and are easy to handle. Critchley.

plastic welding. Welding with steel <i>c</i>-iron in the plastic state as in the case in forge and pressure welding. Ham.

plastic yield. The term commonly applied to plastic deformation. Ham.

plate. a. Scot. A flat cast-iron or malleable-iron sheet laid at the shaft bottom or at a heading to establish height. Anderson. b. A plate of cast iron or steel bent and turned and moved about. A cast-iron plate with a circular ridge on which cars are turned at junction of roads. Fay. b. Eng. Black shale; a shale rock. Fay. c. A horizontal timber laid on a wall to receive a plastering framework. Standard, 1964. d. A sheet of copper coated with mercury for collecting gold. See also amalgamation, b. Fay. e. A lead miner's term for shale. Nelson. f. Eng. A rail, $4$ feet long, used at and near the face for the tubs. S.M.R.B., Paper No. 61. g. A flat-rolled metal product of some minimum thickness and width arbitrarily dependent on the type of metal. ASM Gloss. h. To cover over with gold, silver, or other metal, either mechanically or chemically. Webster 3d. i. A term variously used, but most commonly to designate the finished quartz body used in an oscillating circuit. AM. j. Plate glass. Standard, 1964.

plate amalgamation. Use of copper or copper-alloy plates coated with mercury to form a soft adherent film, in order to trap gold from crushed ore pulp as it flows over the plates. The resulting amalgam, containing up to the 50 percent of metallic gold, is periodically scraped off and more mercury is added to the film.

plate-and-frame filter. A filter press consisting of plates with a gridiron surface alternating with hollow frames; all of which are held by means of lugs, on the press framework. The corners of both frames and plates are cored to make continuous passages for pulp and solution; the filter cloth is placed over the plates. The pulp passage-way connects with the large, top opening of the plate and unloading ore, etc. Webster 3d. a. Fay. b. Eng. A rail, $4$ feet long, used at and near the face for the tubs. S.M.R.B., Paper No. 61. c. A diagram drawn to scale showing land boundaries and subdivisions, together with all data essential to the description of the several lots. A plat differs from a map in that it does not show additional cultural, drainage, and relief features. Seelye, 2. e. N.S.W. A line of a car in coal near its intersection with a shaft. New South Wales.

plATALARGAN. See alargan. Hess.

plateau. a. An upland, tableland, or elevated plateau. A. A plastic conducive to the building of soil; plastic state; plasticity index. ASCE P1826. b. Water content at which a soil will just begin to crumble when rolled into a thread approximately $1/8$-inch in diameter. ASCE P1826. c. The lowest water content at which the soil will show plasticity. A.G.I.

plateau. A material, usually organic, capable of imparting plasticity to nonplastics or improving the plasticity of ceramic mixtures. ASCE P1826. b. A compound added to a lacquer to counteract the tendency of the finished surface to become brittle. Shell Oil Co. c. An additive to improve the workability of concrete. Taylor.

plate limit. a. The water content corresponding to an arbitrary point between the plastic and the semidrained states of consistency of a soil. ASCE P1826. b. Water content at which a soil will just begin to crumble when rolled into a thread approximately $1/4$-inch in diameter. ASCE P1826. c. The lowest water content at which the soil will show plasticity. A.G.I.

plastic making. This term includes all processes of shaping clay in the plastic condition. Plastics such as jiggering, jollying, and throwing. Dodd.

plastic modulus. A factor used in the plastic design of steel structures. It is a constant for each particular shape of section. See also plastic moment of section. Ham.
plateau. Made up of ancient flows and lavas, a plateau is a nearly flat-topped elevation with a surface that slopes gently downward in all directions. Plateaus can be found in various parts of the world, including the Rockies, the Great Plains, and the Tibetan Plateau.

plate bearing test. A method by which the load bearing capacity of a soil or subsoil can be estimated. See also ultimate bearing pressure. 

plate cleaner. A device for cleaning raw coal which removes the difference in the coefficient of resilience or friction between clean coal and an inclined plate, commonly set between two parallel flat plates, and the plate to allow the clean coal to jump over a gap while the refuse falls through the gap. A plate cleaner is used to remove impurities from coal.

plate conveyor. A conveyor in which the carrying medium is a series of steel plates, each in the form of a short trough, joined together with a slight overlap to form an articulated band. The plates are attached either to one center chain or to two side chains. The chains connect rollers running on an angle-iron framework and transmit the drive from the drivehead which can be installed at intermediate points as well as at the head or tail ends. A plate conveyor can negotiate curves down to about 20 feet radius; available in widths 400, 540, and 640 millimeters with running speeds from 3 to 4 feet per second with a carrying capacity from 100 to 400 tons per hour. 

plate coordinates. In photographic mapping, rectangular coordinates measured on a photograph with reference to the principal point as origin. See also 2.

plate feeders. a. Short plate conveyors which are sometimes used instead of the usual measuring chutes in skip winding. They serve the same dual purpose, namely to measure a predetermined load of coal and discharge it into the skip. The feeders are placed side by side, adjacent to the shaft. The loading and discharge into the skip is automatically controlled. Plate feeders are used for a variety of purposes in mines on the surface and underground. Nelson. b. The mechanical plate feeder is a device for feeding material at a fixed and uniform rate. It is generally applied at the tail end of the conveyor or elevator which feeds a plant, but it can be applied to feeding any other unit. It relieves the pressure and drag, with the consequent unnecessary wear on the belt, which is ordinarily experienced if feeding from a hopper directly to a belt. It not only cuts maintenance costs by eliminating uneven wear, but increased output can be obtained by steady feeding. This type of feeder also handles wet aggregate. Pit and quarry. c. Plate feeders may be of the hopper type, where material is fed into the hopper at a predetermined rate, or they may be of the rotary type, where material is fed into the oscillator at a predetermined rate. Nelson. 

plate glass. Flat glass formed by a rolling and solidifying process, ground and polished on both sides, with a thickness of 1/8 inch. Standard, 1964.

plate oven. A double chamber, usually constructed of comparatively thin steel sheeting, stiffened around the edges with angles. Plates should be of such size that they can be conveniently handled in the oven, one part of which is used for heating split cylinders of sheet or cylinder glass before flattened into sheet glass, and the other chamber for annealing the sheet. Standard 3d.

platform. One who participates articles with a coating of precious or lustrous metal to form a plate or sheet. See also plating.

platforms. 1. See almanac in 1. D.O.T. 1. 2. See also D.O.T. 1. 

plate metal. A bonded abrasive product attached to a steel plate, which is designed for attachment to a machine. Standard, 1964.

plate mounted. A bonded abrasive product attached to a steel plate, which is designed for attachment to a machine.

plate metal. A bonded abrasive product attached to a steel plate, which is designed for attachment to a machine. 

platform. A laborer who spreads samples of precious metal to show the place of manufacture, fineness of the metal, etc. Standard, 1964.

platform. Refined iron run in molds and broken up for remelting or for use in a mix. Webster 3d.

plate mixer. A mixer for mixing the ore in a mill to produce the proper slurry consistency. Nelson.


plate nail. Eng. A nail or spike to fasten tram plates and rails to the sleepers. Fay.

plated. A. Doubled, or double, indicating the part of which is used for heating split cylinders of sheet or cylinder glass before flattened into sheet glass, and the other chamber for annealing the sheets. Webster 3d.

plate oven. A double chamber, usually constructed of comparatively thin steel sheeting, stiffened around the edges with angles. Plates should be of such size that they can be conveniently handled in the oven, one part of which is used for heating split cylinders of sheet or cylinder glass before flattened into sheet glass, and the other chamber for annealing the sheet. Standard 3d.


plate vibruster. A self-propelled mechanical vibrator having a flat base, which consolidates hard fill prior to construction. 

platform. A. A wooden floor on the side of a gangway at the bottom of an inclined seam, to which coal is run by gravity, and from which it is shoveled into mine cars. Fay. b. A scaffold. Fay. c. A plank or mesh steel-covered level area at the base of a drill tripod or derrick, used as a working space in front of a drill machine around the collar of the borehole. Sometimes the platform is large enough to act as a foundation and anchor for the drill machine. Also a similar floored area in the tripod or derrick on which a man stands while working in the tripod or derrick. See also floor; drill floor. Long. d. The place on top of a breast where the freshly mined coal is weighed by a weigh box just before it is dumped into the machinery. In the breaker, a flat or slightly inclined floor covered with iron plates onto which coal is run from the main screen bars and cleaned by platform men. Sometimes wood mat used in sets to support machinery on soft ground. Also called a pontoon. Nichols. 

plate. A laborer who spreads samples of precious metal to show the place of manufacture, fineness of the metal, etc. Standard, 1964.

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platform


platform gantry. A gantry constructed for carrying a portal crane or similar structure. Ham.

platform hoist. A power driven hoist having a capacity of 2 tons with a lifting height of about 2½ tons, which can be raised on a leading platform to a height of up to 200 feet. See also mobile hoist. Ham.

platform reef. A fixture used to hold work pieces or heavy metal plates for armored vessels. Standard, 1964.

platform truck; rack body truck. A truck with a flat open bed. Nicholas.


platinoid. A mineral consisting of a natural alloy of iridium and platinum and other related metals occurring usually in silver-white grains. Mohs hardness, 6 to 7; specific gravity, 22.6 to 22.8. Webster 3d.


platinilum. A mineral consisting of a natural alloy of iridium and platinum and other related metals occurring usually in silver-white grains. Mohs hardness, 6 to 7; specific gravity, 22.6 to 22.8. Webster 3d.

platinilume. An alloy containing 54 to 58 percent platinum, especially in its higher valence; as, platinic chloride. Compare platinous. Standard, 1964.

platinin. Gold. Said to be a native alloy containing 84.6 percent gold, 2.9 percent silver, 0.2 percent iron, 0.3 percent copper, and the remainder platinum. Hess.


platinothermal. To coat or combine with platinum, especially by electroplating. Standard, 1964.

platinothermite. A solid mixture of iron, aluminum, and platinum whose specific gravities are about 12 and the other of which is composed of osmium, iridium, and platinum whose specific gravities are over 21. Webster 3d.

platinum metal. Any of the six precious metallic elements including platinum and elements resembling it, chemical and physical properties that belong to group VIII of the periodic table and are often subdivided into two triads one of which is composed of ruthenium, rhodium, and palladium whose specific gravities are about 12 and the other of which is composed of osmium, iridium, and platinum whose specific gravities are over 21. Webster 3d.

platinum mining. A method of metal extraction by reducing ammonium chlorideplatinum that collects large volumes of oxygen, hydrogen, and other gases; used as a catalyst. Webster, 3d.

platinum. See alarum. Hess.

platt. Corn. An enlargement of a leaf near a stalk, and often at instant hoisting, waggons pass each other, etc. Same as plait, a. Fay.

platten. In glassmaking, to flatten out; make flat. Fay.

Plattcogene. See Pleocene. Fay.


Plattner's process. A process for extracting gold in which a charge of gold-bearing pulp is placed in a revolving iron drum lined with lead, and a stream of chlorine gas is conducted through the pulp, producing chloride of gold, which is soluble in water. See also chlorination process.

platy-figgy. Hard to split, a measure of ease of splitting of slate. A.G.I.

platy flow structure. See planar flow structure. A.G.I.


platy structure. A structure due to differential contraction during cooling, occurring in lavas and intrusions or as a series of fractures parallel to the cooling surface. Igneous rocks may be broken into thin plates or tabular sheets, which give them a stratified appearance, especially as seen in the field when the structure is exposed by weathering. Holmes, 1928.

plauentie. a. The type synite of Plauen, near Dresden, Germany. Holmes, 1928.

b. Those members of the syenite series which are rich in potash and have some plagioclase with the predominant orthoclase. Rice.

play. Idle, said of a mine not at work. See also playday. Fay.


c. A dried-up lake basin in an arid region. Fay.

playa lake. Wind-scoured basins are shallow, but they may cover large areas. They are characteristic of deserts. Basin of a playa is a shallow water basin, which may be dry yet may be the site of an evaporate lake, or playa. Fay.

playa lake. Wind-scoured basins are shallow, but they may cover large areas. They are characteristic of deserts. Basin of a playa is a shallow water basin, which may be dry yet may be the site of an evaporate lake, or playa. Fay.

playday. Eng. A day on which, on account of an accident, or other causes, mines are not worked. See also play. Fay.

play in. Lie. To commence hoisting or under-cutting a face of coal at the side of a heading. Fay.

play of color. The optical phenomenon consisting of flashes of different prismatic colors due to interference of light at thin films within or near the surface of a gem, and seen in rapid succession when the gem is moved, as in a cabochon. It partly causes the orient of pearls, but differs from change of color, dispersion, fire, and opalescence. Fay.

Piezocene. See Pliocene. Fay.

Pleistocene. The earlier of the two epochs comprised in the Quaternary period in the classification generally used. Also called Glacial epoch, and formerly Ice Age, post-Pliocene, and post-Tertiary. The series of sedimentary deposits deposited during that epoch, including both glacial deposits and ordinary sediments. Some geologists formerly used Pleistocene as synonymous with Quaternary and included it in all post-Tertiary time and deposits. Fay.
plenum. a. A system of ventilation in which air is drawn into an enclosed space, as a room or a caisson, so that the outward pressure of air in the space is slightly greater than the inward pressure from the outside, and leakage is outward instead of inward. Fay. b. A mode of ventilating a mine or a heading by forcing fresh air into it. Fay. c. Use of compressors to hold soil from slumping into an excavation. Nichols.

plenigrain. See pleonaste.

pleochroism. See pleochroism.

pleochroic hales. Dark-colored zones around small inclusions of non-actinic minerals that are found in certain crystals, notably biotite. C.M.D.

pleonaste (from pleonastite). a. The property of exhibiting different colors in different directions by transmitted polarized light. A.G.I. b. More precisely, the property of absorbing differently, light that vibrates in different directions in passing through a crystal. If the crystal is uniaxial the change of color is called dichroism; if the crystal is biaxial, the change of color is called pleochroism. A.G.I. c. The property of birefringent crystals (micas) to absorb various wavelengths of light differentially depending on the vibration direction of the light within the crystal. Thus a mineral displaying pleochroism shows various colors or tints when it is traversed by plane polarized light and the orientation of the crystal is varied with respect to the plane of polarization. It is a common and diagnostic property of many minerals and, easily observed under the petrographic microscope or a dichroscope. A.G.I.

pleomorphism. Synonym for polymorphism.

pleonaste. Same as ceylonite. See also spinel. Dana 17.


plot. a. Corn. "To cut a plot" is to make row(s), or square out a piece of ground by the side of the lode or shaft, for holding the broken ore or waste for other convenient purposes. Fay. b. To place survey data upon a map or plat. In past use, no clearly defined difference existed between plot and plat. It is suggested that a difference be established by limiting plot to the graphical representation of a survey, and plat to the cartographic operations involved in the construction of a map or plat. Nichols. c. A fold; usually applied to the surface of sea level. See also deflection, DSL and plot. It is suggested that a different be established by limiting plat to the end of a cutter loader for deflecting the cut coal onto the face conveyor. Nelson. d. Applied for removing or curtaining the dust and dirt off a belt conveyor and thus prevent it being carried back along the return belt. Nelson.

plotting. a. The making of a map or plot; the plotting of points, the laying down of lines, etc. Webster 3d.

plucking. a. Term used to describe the mid-length being completely destroyed and losing its significance. Stokes, v. 1, p. 140. b. Used as a proper noun in the phrase "plucking a V-shaped belt scraper" which are attached to the belt conveyor frame and which press against the return belt. They are intended to remove coal or other material which might stick to the return belt and be overcharged. See also plucking.

plough. a. A wheel attached to the end of a cutter loader for deflecting the cut coal onto the face conveyor. Nelson. b. Applied for removing or curtaining the dust and dirt off a belt conveyor and thus prevent it being carried back along the return belt. Nelson. c. Applied for removing or curtaining the dust and dirt off a belt conveyor and thus prevent it being carried back along the return belt. Nelson.

plough-deflector. a. A steel plate attached to the end of a cutter loader for deflecting the cut coal onto the face conveyor. Nelson. b. Applied for removing or curtaining the dust and dirt off a belt conveyor and thus prevent it being carried back along the return belt. Nelson.

plough-type machines. Ploughs may be divided into two classes: (1) Where the machine peels the coal to a depth of from 1 to 12 inches by knives of various designs and the cut coal is then loaded onto a heavy type scraper chain conveyor; and (2) where the machine peels a thin slice up to 2 inches in thickness, by knives attached to each end of a steel box and the coal is dragged along the face inside the box. From the speed of travel aspect, ploughs may be divided into (1) fast-moving types (about 80 feet per minute) which take a relatively thin slice, and (2) slow-moving types (10 to 20 feet per minute) which remove a thicker slice. The trend is towards the rapid plough working on the solid face. See also Anaheulabel; continuous mining, b; Lobbe Hotel. Nelson.

plowman. One who breaks up hard-packed clay in an open clay pit by operating a tractor which draws the plow over the bed of the pit. D.O.T. 1.

plows. The Atomic Energy Commission's program of research and development on peaceful uses of nuclear explosives. Possible uses include large-scale excavation, such as for canals and harbors; crushing ore bodies; and producing heavy tritium and isotopes. LBL.

plow steel. A high tensile steel used in the manufacture of hoisting ropes. Fay.


plucking. a. A cutter loader with knives or blades, which is pulled along the longwall face by a powerful chain. The broken coal is loaded against the knife of the cutter which, with the aid of hydraulic rams, holds the plough up to the coal face and causes it to bite into the coal as they are pulled along. The plough is a continuous mining machine. See also plough-type machines. Nelson. b. Applied to V-shaped belt scrapers which are attached to the belt conveyor frame and which press against the return belt. They are intended to remove coal or other material which might stick to the return belt and be overcharged. See also plucking.

pluck me. Nickname for a company store; given because of a tendency to overcharge. Korson.
plucky. Applied to stones that, under the influence of shock from a concussion or impact, split into large masses of stone to smaller size. By using a hammer drill, a row of shallow holes is made along the line where the break is desired, and the faces of the two iron strips flat on one side for contact with the wedge, and curved on the other to fit the walls of the drill. The plug is inserted in the hole and the plug and feather are placed between them. They are held together by a stopper. In some extremely rough rocks, a wedge is left inserted in the hole to prevent any increase in the fire content in the air. All the stoppers are plugged with sandbags in order to complete the seal of the sealed-off mine area. The plug is generally a tapered passageway of about 3 feet 6 inches square at the inby side of the stopping and 2 feet 6 inches square at the outby side. M. Adam, p. 143. b. Same as block hole. Fay.

plug hole stopping. A stopping in which the floor and the sidewalls of the passage are built of sandbags and the roof may be the roof of the roadway or covering boards used between the webs of steel arches, or preferable, corrugated steel sheeting used as lagging behind steel arches. The plug or passage is generally made tamping from the inby to the outby side. 8 inches square to 2 feet 6 inches square so that, in the event of an explosion, the plug of sandbags in the passage is subjected to a wedging action assisting to retain the plug in place. The plug hole may be plugged with sandbags or gravel. Though this is often at the top, it is sometimes placed to the side and reasonably spaced. S. N. Sinha, p. 207-208.


plug polisher. In metallurgy, one who polishes tube drawing plugs (metal die used to govern internal diameter of metal tubes during drawing operations), using a polishing machine. D.O.T. Supp.

plug shot. A small charge exploded in a hole to break up a stone of moderate size. Fay.

plug tap. A tap with chamfer extending from three to five times the diameter of the plug. ASM Gloss.

plug valve. A valve or cock opened or closed by the turning of a plug, usually conical in shape. Not to be confused with needle valve or globe valve. Long.

plug weld. A circular weld made by either arc or gas welding through one number of lap or in one position only. A plug weld, if properly made, may be only partially filled. Neither a fillet welded hole nor a spot weld is to be construed as a plug weld. Long.


plumbaginous. Containing plumagno, as from phonagno, schist; some crystalline
latter, that having the larger molecular volume is used in the calculation. Com-
pare minus minerals. Holmes, 1928.
plutonic. The portion of a powder sample retained on a standard sieve of specified number. Contrast with minus sam-
ple. See sight. See backsight. See lye, 2.
plutonic intrusions. Applied to large intru-
sions which have cooled at great depth and originated below the earth's crust to a depth of about 30 miles. Arkell.
plutonic cognate ejecta. Coarsely crystalline fragments consanguineous with the lavas of a given volcano, which solidified in depth, generally as dikes and sills, but were brought to the surface by pyroclastic eruptions. See cognate ejecta. Arkell.
plutonic metamorphism. The changes which occur in plutonic intrusions. See plutonic. A.G.I.
plutonic. a. Of igneous origin. A general name for those rocks which have crystallized in the depths of the earth, and have therefore assumed, as a rule, the granitoid texture. Fay. b. A general term denoting one of the three great subdivisions of rocks under a classification proposed by Read. It includes the granitic, mafitic, and metamorphic rocks; the great granitic complexes, the grano- schists, and schists. See plutonic rock. A.G.I.
plutonic cognate ejecta. Coarsely crystalline fragments consanguineous with the lavas of a given volcano, which solidified in depth, generally as dikes and sills, but were brought to the surface by pyroclastic eruptions. See cognate ejecta. Arkell.
plutonic rocks. Igneous rocks formed beneath the surface of the earth by the metamorphic replacement of an older rock. A.G.I.
plutonites. Igneous rocks of the coarse-grain size group. See plutonic. A.G.I.
plutonism. The obsolete belief that all of the rocks of the earth solidified from an original molten mass. Compare neptunism. A.G.I.
plutonium. a. A radioactive metallic element of the actinide series. Similar chemically to uranium, and usually produced in nuclear reactors as the long-lived isotope of mass number 239 (plutonium 239; half-life, 24,360 years) by spontaneous emission of an electron from neptunium obtained in turn from uranium 238. It is also found in minute quantities in pitchblende and other uranium-containing ores. It undergoes fission with the emission of a helium nucleus to form uranium 235, and is fissionable with slow neutrons to yield energy for power plants or atom bombs. Symbol, Pu; val-
ces, 5, 4, 5, and 6; and atomic number, 94. Handbook of Chemistry and Physics, 45th ed., 1964, pp. B-88, B-126. b. The second transuranium element of the acti-
ne series to be discovered. Seaborg, Mc-
Millan, Kennedy, and Wahl produced:
plutonium 238 in 1940 by bombarding uranium with deuterium nuclei (deuter-
ons) in a cyclotron. Natural plutonium in trace quantities occurs in uranium ores where it was formed by the irradiation of the uranium with the neutrons present. Plutonium is the most important trans-
uranium element, and the most important of its 15 known radioactive isotopes is plutonium 239. Plutonium is readily fis-

sionable with neutrons; it is available in quantity; and 1 pound equals about 10 million kilowatt hours of heat energy. Used as an important material in the in-
dustrial applications of nuclear power and as an ingredient of nuclear weapons. Handbook of Chemistry and Physics, 45th ed., 1964, pp. B-88, B-126. c. Silvery-
white metal; atomic mass or mass number given as about 239 and as 242; warm to the touch because of energy released by alpha decay; specific gravity, 15.92 to 16.04 depending on isotopic form; melting point, 639.5±2°C; boiling point, 3,250±19°C; soluble in concentrated hydrochloric acid, in hydrobromic acid, and perchloric acid; and insoluble in nitric acid and in concentrated sulfuric acid. There are six allotropic forms: (1) alpha plutonium; monoclinc; specific gravity, 19.84 (at 23°C); and stable below 122°C±2°C; (2) gamma plutonium; monokinetic; specific gravity, 17.70; and stable from 122°C±2°C to 206°C±5°C; (3) gamma plutonium; orthorhombic; specific gravity, 17.14; and stable from 206°C±3°C to 319°C±5°C; (4) delta plutonium; isometric; specific gravity, 15.32; and stable from 319°C±5°C to 451°C±4°C; (5) delta-prime plutonium; tetragonal; specific gravity, 16.00; and stable from 451°C±4°C to 476°C±5°C; and (6) epsilon plutonium; isometric; specific grav-
y, 16.31; and stable from 476°C±5°C to 695°C±3°C (the melting point). Handbook of Chemistry and Physics, 45th ed., 1964, pp. B-126, B-203, B-204.
pluvial. a. Of a geologic age, resulting from the action of rain or sometimes from the fluvial action of rainwater flowing in stream channels. Webster 3d. b. Refers to a rainy period, particularly one outside of the Pleistocene glaciated region corre-
ponding in time to a glacial age; also such a period. A.G.T. Supp.
pluvial period. A period in which rainfall or precipitation is relatively abundant. Periods of less plentiful precipitation are corresponding in time to a glacial period. Stakes and Varees, 1955.
pluvial period. A period in which rainfall or precipitation is relatively abundant. Periods of less plentiful precipitation are called interpluvial periods. Stakes and Varees, 1955.
pluvial period. A period in which rainfall or precipitation is relatively abundant. Periods of less plentiful precipitation are called interpluvial periods. Stakes and Varees, 1955.
ply. a. One of several layers of fabric or of other material. Nichols, b. Staff. A thin band of sand, lying
immediately over a coal seam. Arkell. c. Scot. A rib or successive ribs, for example, of a handband with very thin silver. d. Scot. Limy pty, a limestone bed, Breich quarries, Edinburgh. Arkell.
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ply glass. Glassware, particularly for lamp shades and made of covering opal glass (usually on both sides) with trans-
parent glass of matched thermal expansion. Compare case glass. Dodd.
plymetal. Sheet consisting of bonded layers of dissimilar metals. ASM Gloss.
pluvial period. A period in which rainfall or precipitation is relatively abundant. Periods of less plentiful precipitation are called interpluvial periods. Stakes and Varees, 1955.
plywood. a. A pipe or tube through which a gaseous material is trans-
pored or vacuum system. ASA MH4.1 pneumatic. b. A general term denoting one of the three great subdivisions of rocks under a classification proposed by Read. It includes the granitic, mafitic, and metamorphic rocks; the great granitic complexes, the grano-

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pneumatic filling

Stokes, 3d, p. 272.

pneumatic flotation cell. Machine in which the air used to generate a mineralized froth is blown into the cell, either through a perforated layer of froth near the bottom, or by pipes which bring low-pressure air to that region. Pryor, 3.

pneumatic feeding clutches. This clutch transmits power through friction shoes carried on the tube of cord and rubber construction. The pneumatic clutch is self-adjusting for wear due to the natural resilience of the rubber tube. Disengagement is complete and automatic when the air under pressure is released. The clutch is controlled by finger pressure on a valve. The valve can be installed at the place most convenient for the operator. Pit and Quarry, 3rd, Sec. D, p. 71.

pneumatic hammer. A hammer in which compressed air is utilized for producing the impacting blow. Bureau of Mines Staff.


pneumatic injection. A method for fighting underground coal fires developed by the U.S. Bureau of Mines. This air-blowing technique involves the injection of incombustible mineral, like rock wool or dry sand, through 6-inch bored holes drilled from the surface into interseck underground passageways in the mines. Bureau of Mines Staff.

pneumatic jig. a. Air jig, such as plumb, used in desert countries for concentrating ore. Pryor, 3. b. A jigging machine in which an air blast performs the work of separation of minerals. Standard, 1964, c. See Kirkup table; plunger jig washer. Nelson.


pneumatic lubricator. Synonym for line oiler. Long.

pneumatic method. In flotation, a method in which gas is introduced under slight pressure near the bottom of the flotation vessel, the device used for introduction being either a submerged pipe or a porous cloth, from the bottom of the vessel to the wall of a wind box. Gaudin 2d, p. 416.

pneumatic mortar. Mortar applied to a surface with a cement gun in the same manner as putty. Such mortar has a cube crushing strength of 3,000 pounds per square inch at 7 days and of 6,000 pounds per square inch at 28 days, with a water/cement ratio of 0.45. See also preload tank; prestressed concrete. Ham.

pneumatic pick, coal puncher. A compressed-air-operated hand tool used to excavate coal, ore, and rock, with a punch-injection method. Without the punch steel, its length is 18 inches and its weight about 24 pounds. It delivers about 2,500 blows per minute. The latest type is the watertight designed so that the air valve is operated by water pressure. The water assists in suppressing the dust made by the operation. Long.

pneumatic ram. A ram fed by a compressed-air pipeline. The piston is about 8 inches in diameter, has an area of 32 square inches and exerts a pushing force of up to 4,000 pounds. Nelson.

pneumatic riveter. A compressed air tool used for driving rivets. Ham.

pneumatic rod puller. An air-driven rod puller. See also rod puller. Long.

pneumatics. That branch of physics that treats of the mechanical properties of gases, such as their pressure, elasticity, density, and also of pneumatic mechanism; sometimes it includes acoustics. Standard, 1964.

pneumatic sewage ejector. A compressed air displacement pump for moving sewage. Ham.

pneumatic shaft sinking. a. Shaft sinking with the aid of a drop shaft fitted with an air-looked to form a working chamber. See also man look. Ham. b. The caisson sinking process now largely obsolete in mining practice. Nelson.

pneumatic stamp. Free-falling crushing weight, similar to stamp of stamp battery, save that the stem of each stamp forms part of a compressed-air cylinder through which it is raised. See also stamp battery. Pryor, 3.

pneumatic stowing. A system of filling mined cavities in which the crushed rock is carried along a pipeline by compressed air and then forced into the space to be packed, the intense pressure ensuring a very high density of packed material. For stowing shallow workings—up to 200 yards in depth—the stowing plant may be installed on the surface. The air pressure is about 60 pounds per square inch. For deeper workings, the plant may be installed underground, and the crushed rock taken down from the surface. The stowing pipes are about 5 to 6 inch diameter. The system is often employed if important surface structures require protection. The material used is from old dirt heaps, screen dirt and washery rejects. The material is crushed to about 25% of its original and preferably without the minus ½ inch material. See also low-pressure air stower. Nelson.

pneumatic table. An appliance for the dry cleaning of ore or coal. It consists of a perforated deck, with vertical ribs or ruffles, which is reciprocated and the motion transmitted to the wall of a wind box. Gaudin 2d, p. 416.

pneumatic tamper. Essentially a long-stroked piston with a mushroom-shaped foot about 4 inches in diameter. It operates on compressed air drawn from an air compressor. The compressed air is used to lift the piston and footpiece, and their combined weight, in fallins', supplies the impact. Caron, p. 380.

pneumatic tools. Tools operated by air pressure. Grubb.

pneumatic water barrel. A special type of water barrel invented by Galloway, for removing water from a shaft by sinking. By means of a hose connection to air pump, at the surface, a partial vacuum is created inside the barrel and the water lifts the valve and the hose. The hose is then detached and the barrel hoisted to the surface and discharged. Various types of sinking pipe were also used. Also called vacuum tank. Nelson.

pneumotriboscope. A breathing apparatus developed about 1906. The oxygen for breathing is generated by the reaction between the carbon dioxide and moisture in the exhaled air with the peroxides of sodium and potassium. It did not prove satisfactory as the air for rebreathing became unbearably hot. Nelson.


pneumatolitic metamorphism. Contact metamorphism in which the composition of rock has been altered by introduced magnetic material. A.G.I. Superv.

pneumatolysis. The alteration of rocks and the formation of minerals during or as a result of the emanation of gases and vapors from solidifying igneous rocks. Fey.

pneumatolytic. A term used in different combinations by various authors and perhaps best abandoned. It has been used to describe such processes as surface effects of gases near volcanoes; contact-metamorphic effects surrounding deep-seated intrusive without any knowledge of gas against the liquid state; that stage in igneous differentiation at which a dense, homogeneous effusion is supposed to be characterized by gas-crystal equilibria; and (very loosely) any deposit containing pneumatolitic minerals or elements, such as tarsmaline, topaz, fluorite, lithian, and tinstone, or any deposit presumed to have come from a gas phase. A.G.I.

pneumatolytic alteration. Rock alteration, that is, mineral substitution of rock resulting from pneumatolytic; between 60° and 600° C, according to European authors. Schieferdecker.

pneumatolytic clay. Clay that has been subjected to hot gases and liquids during its natural formation process. A.G.S., 1963.

pneumatolytic hornfels. A fine-grained, non-fissile rock, the product of contact metamorphism and pneumatolytic modification. See calc-silicate hornfels, hornfels; limonite; skarn; tectite. A.G.I.

pneumatolytic metamorphism. Contact metamorphism in which the chemical changes are largely the result of chemical activity of gases emanating from igneous bodies. Stokes and Vorres, 1955.


pneumatolytic stage. One of the successive stages of consolidation of magma during which there is equilibrium between crystal and gas phases. Schieferdecker.

pneumo-. A combining form taken from the Greek meaning lung, and used in connection with the terminology of geologic processes and effects involving gases and vapors. Stokes and Vorres, 1955.

pneumokoniosis; pneumonkoniosis. A disease of the lungs caused by habitual inhalation of dust containing particles of irritant mineral or metallic particles. It consists of irritant mineral or metallic particles. It results in which occurs in any work places where dust is prevalent, such as mines, quarries, foundries, and potteries. Also called miner's asthma; miner's lung. Also spelled pneumonkoniosis; pneumonkoniosis. G.C.V. Reference: anthracosis; silicosis, b. Webster, 3d.

pneumonkoniosis. See pneumokoniosis. Webster, 3.

pneumotribosintumulocreroplectronicolovolcanoconiosis. A pneumoconiosis caused by the inhalation of very fine silicate or quartz dust and which is especially intolerant of patients suffering from pneumatolytic. The processes attending the
pneumotectic deposit. A transitional form between magnatic and hydrothermal ore deposits, in which the effects of mineralizers are very apparent. Schieferdecker.


Pocket. a. Broadly, a localized enrichment; a crevice in a rock containing gold; a rich patch of gold in a reef. Nelson, b. A chamber, of a capacity equal to the space used at the shaft bottom for quick and accurate skip loading. See also shaft pocket, stamper chute. Nelson. c. A rich deposit of minerals, but not a vein. Gordon. d. S. Afr. A mass or body of rich ore, of small extent. Beeman. e. A receptacle from which coal, ore, or waste is loaded into wagons or cars. Fay. f. A ganister quarterm's local term for masses of rock, 30 to 50 feet in width, that are worked out and loaded, buttores of untouched rock being left between them to support the upper masses. Fay. g. A hole or depression in the wearing course of a roadway. Fay. h. A local accumulation of gas. Hudson. i. A bulge, top, or belly in a lode or bed. Arkell. j. A cavity, whether filled with air, water, mineral, or gravel. Arkell. k. A small body of ore; an enlargement of a lode or vein; an irregular cavity containing ore. Fay. l. A natural under-ground reservoir of water. Fay. m. A glen or hollow in the mountains. Fay. n. In pegmatites, the central openings lined with crystals, including those of gem species. Stewart.

Pocket-and-fender method. In pillar extraction, a method in which the pillars are mined in the same way as in the open-end method, except that a fender or a series of small coal stumps is left adjacent to the gob as the lift is advanced. After the lift is completed, the fender or stumps of coal are blasted, and sometimes part of this coal is recovered. Woodruff, v. 3, p. 61.

Pocket and fender method. A method of mining pillars in which a narrow pillar of coal, called the stump, is left along the goaf (worked-out space) to support the roof while driving the pocket. This coal acts as a protection for the miners. When the pocket has been completely mined, the stump is then blasted and the pocket is driven, and so on. Lewis, pp. 542-543.

Pocket clay. A highly siltaceous clay sometimes has a very thin organic mineral layer above a leached layer which rests upon an illuvial dark brown layer; developed under coniferous or mixed forest or under heath vegetation in a temperate to cold moist climate; iron oxide, alumina, and perhaps organic matter is removed from the A-horizon and deposited in the B-horizon. Pohlé-Croasdale in 1883. See also freezing method. Nelson. b. One in which brine at subzero temperature is circulated through bore holes to freeze running water through which a shaft or tunnel is to be driven, during development of waterlogged mine. Pryor, 3.

Pog. A tool formerly used for lifting the balls of ball clay. Dodd.

Pole and cross plate process. Recovering gold, silver, copper, and lead from ores by leaching with salt at a temperature of about 900°F. This leaching is accelerated with an additional constituent; the smoke, containing the volatilized chlorides, is electrically precipitated and the metal chlorides are then treated for metal recovery by fusion or electrolysis. Bennett 2d, 1962.

Pol. See polylithic. Fay.

Poldometer. An automatic weighing device for use on belt conveyors. The device feeds the material from a hopper in a uniform stream onto a short independent belt conveyor and from there onto the main belt or bin. The weight of material on the measuring belt actuates a scale beam which raises or lowers a gate controlling the rate of flow from the feed hopper to a certain predetermined load per foot of measuring belt. A meter records the travel of measuring belt and this figure multiplied by the weight per foot of belt as fixed by the scale beam gives the weight of metal handled in any given period. See also weightometer. Nelson.

Pol. See polylithic. polylithic. Same as bornite. Fay.

Pol. Said of a texture in igneous rocks which small crystals of one mineral are irregurally scattered without common orientation in larger crystals of another, for example, small olivines embedded in larger pyroxenes, as in some peridotites. Such rocks have a mottled luster. Also applied to rocks of the Perman and Triassic systems. An alternative spelling is poelitic. C.T.D.

Pol. See polylithic. polylithic. A metamorphic texture due to the development, during recrystallization, of a new mineral around numerous relics of the original minerals, thus simulating the poikilolithic texture of igneous rocks. When the included relics also reveal the original texture of the rock, the new texture is known as Holmes, 1928.

Pol. Suggested for a variety of opctic texture in which the pyroxenic matrix completely includes the plagioclase, but is not merely penetrated by them. Holmes, 1928.

Point. A. A predetermined direction for driving a roadway underground. The point is...
point

fixed by roof plug in the roadway. See also alignment. Nelson. b. One one-hundredth (0.01) part of a carat. When less than one carat, the weight of a point of a diamond is usually expressed in points, for example, 20 points equals 1/5 carat. I.C. 6200, 1964, p. 149. c. That edge of a boring tool that is used on a railroad frog; a railroad switch. Webster 3d. d. A device into which steam or water is introduced from frozen gravel to thaw it for mining or dredging. Webster 3d. e. Eng. The bearing or direction, in reference to the magnetic meridian in which an undergound road is driven. Fay. f. In quarrying, a type of wedge that tapers to a narrow, thin edge. Fay. g. The end or bottom of a borehole, as distinguished from the rattle or collar. Fay. h. The extreme terminal usually sharp or narrowly rounded part of something, as a pin, indicator, etc. that is usually formed by the gradual or abrupt decrease in width or thickness of the body which it terminates and that is typically used for piercing, pricking, indicating, or for some similar function; a usually sharp, tapering, or other material that is smoothly converging ends, tip. Webster 3d. i. A projecting usually tapering part of something: as (1) a piece of land, as a promontory, cape, projecting into a body of water; (2) a sharp prominence; apex; peak. Webster 3d. j. A tool used in trimming and smoothing rough stone surfaces. Webster 3d. k. A place considered as position only. It is a spot, or a place having a definite position but no dimensions; that is, it has no width or thickness. Jones, 2, p. 80. l. The extreme end of a cape, or the outer end of any land area protruding into the sea. Schierfedecker, m. To finish (as a wall) by filling in with new materials; often used with up. Webster 3d. n. To fill in with new material; often used with up. Webster 3d. o. Point as to point. Schieferdecker.

Shiple.

point. In general, the angle at the point of a cutting tool. Most commonly, the included angle at the point of a twist drill, the general purpose angle being 118 degrees. ASM Gloss.

point bar. One type of support for vitreous enameware used during the firing process. Dodd. See also burning bar.

point-bar sharpener. A small handheld tool used to sharpen the pins on point bars and somewhat similar to a pencil sharpener, but a great deal stronger. Hansen.

point bearing pile. See end-bearing pile. Fay.

point chalcedony. White or gray chalcedony point bearing.

point cutting. Reducing the diameter of wire, rod, or tubing over a short length at the end by swelling or hammer forging, turning, or squeezing to facilitate entry into a drawing die and gripping in the drawing head. ASM Gloss. b. The operation of chanferring or rounding in automatic machines the threaded end or the head of a bolt. ASM Gloss. c. The finishing of joints in a brick or masonry wall. Crispin. d. Eng. See wall, l. SMRB, Paper No. 61.

pointed point cut-through. A sharp-pointed rod attached to a graduated staff or vernier scale for measuring the elevation of the surface of flowing water. The point is lowered until the tip barely touches the water, forming a streak. Seeley, 1.

pointing. a. Reducing the diameter of wire, rod, or tubing over a short length at the end by swelling or hammer forging, turning, or squeezing to facilitate entry into a drawing die and gripping in the drawing head. ASM Gloss. b. The operation of chanferring or rounding in automatic machines the threaded end or the head of a bolt. ASM Gloss. c. The finishing of joints in a brick or masonry wall. Crispin. d. Eng. See wall, l. SMRB, Paper No. 61.

pointing tool. A small, round, metal tool with a sharp point, used by bricklayers for pointing and striking up joints and for removing mortar from the face of the wall. Crispin.

point mark. See pin mark. ACGB, 3.

point metal. Metal used for pointing pens and other instruments. Tasmania is the sole producer on a large scale of point metal cumberbium. Hess.

point of curvature (PC.). The point where the curve leaves the first tangent. Seeley, 2.

point of curvature (P.C.). The point where the curve leaves the first straight line drawn from the point of tangency common to two curves intersecting lines cross one another. Jones, p. 34.

decades. a. The absolute value of the ratio of a small strain to the corresponding axial strain in a body subjected to uniaxial strain; usually applied to elastic conditions. ASM Gloss. b. When a compressive force is applied to a body in one direction, other forces are induced in that body in directions at right angles to it. The ratio of the induced forces to the applied force is given by Poisson's ratio, which depends on the elastic constants for the body in question. Spalding. c. The ratio of lateral strain to corresponding axial strain for a material subjected to axial loading. Poison's ratio for an isotropic material at a stress below the proportional limit may be calculated: \[ r = \frac{1 - \nu}{2(1 + \nu)} \] where \( r \) is Poison's ratio, \( E \) is modulus of elasticity in tension or compression, \( G \) is modulus of elasticity in shear, psi. HOG.

poker man. A laborer who removes blue powder and ash residue from retorts after molten metal has been tapped. Also called scraper. D.O.T. Supp.
polar vibrator

The name by which internal concrete vibrator is commonly known. See also internal vibrator. Ham.

polar welding. The same as push welding. ASM Gloss.

pokkers and Jetters. Eng. Blocks or pulleys, which carry or support the connecting rods of engines. Fay.

dipolar. Due to mutual attraction between charged lattice points on mineral surface and counter-ions in solution. Can therefore be anionic or cationic. Pryor, 3, p. 7.

polar adsorption. Sorption of anions or cations by the same mechanism as push welding. ASM Gloss.

poker vibrator. The name by which internal vibrator is commonly known. See also internal vibrator. Ham.

poker welding. The same as push welding. ASM Gloss.

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poker vibrator. The name by which internal vibrator is commonly known. See also internal vibrator. Ham.

poker welding. The same as push welding. ASM Gloss.
polishing

ASM Gloss. C.T.D.

polishing. Polishing out excavation behind timing already in place. Ham.

polishing boards. In mining, forepolishing boards, driven horizontally ahead of the support roof, which replaces the old roof running ground. In trenching, side boards wedged apart in pairs. Pryor, 3. See also forepoling.

polings. Polished instead of painted for lagging. Also spelled pollings. Fay.

polischliefer. Tippoli slate. Also called polishing slate. Dana 6d, p. 306.

polish. See glance, c. Long.

polished. See glazed, a. Long.

polished off. A diamond bit that has been dulled. Long. b. Finished or completed. Long.

polished plate glass. See plate glass. ASTM C162-66.

polished section. A section of material that has been ground in a plane. Laid on one face for examination, under a microscope, by reflected light. Compare thin section. A. B. D.

polished specimens. Selected pieces of ore or metal, or briquettes of particles bonded with lucite or other material, which have one ground surface smooth by means of abrasive powders and polishing laps. The powders include emery, aluminum oxide, and diamond dust. Electrolytic polishing is also used for preparing metal surfaces by making the metal the anode in an electrolytic bath. Pryor, 3.

polished wire glass. Wire glass, ground and polished on both sides. ASTM C162-66.

polishing. Smoothing metal surfaces through the use of abrasive materials. ASM Gloss. See also acid polishing; pitch polishing; electrolytic polishing; acid polishing; pitch polishing.

polish, a. In glassmaking, a hardwood block with a long iron handle by which to flatten glass. See also glaze. Also spelled, a. To dull a diamond bit. Standard, 1964, b. A polishing pad used in polishing plate glass after the grinding process. C.T.D.

polish, n. A type of polish found in some areas of Karst topography. Stokes and Varies, 1955.

polka-dot agate. Local name for translucent, almost colorless, chalcedony, with yellow, red, or brown circular dots. From Oregon. Shipley.

poll. a. Corn. The head or striking part of a miner's hammer. Fay. b. S. Wales. To clean the shaft of a well. Fay.


poll pick. A pick with a head for breaking away hard partings in coal seams or knocking down rock already seamed by blasting. Fay.

pollucite. A rare, hydrous cesium aluminum silicate, CsAl(SiO3)2. Exhibiting crystallizing in cubes or massive. Colorless; transparent; used as a gem stone. Found in pegmatite. Sanford; D.D. 11.


polonium. radium F. A radioactive metallic element that is chemically similar to tellurium and bismuth. It occurs in pitchblende and in other uranium-containing ores, in radium-lead residues, and in old radium ampules, but it is produced in much larger quantities by bombarding bismuth with neutrons in nuclear reactors. It emits a helium nucleus to form an isotope of lead. Symbol, Po; atomic number, 84; atomic mass, about 210; and valences, 2, 4, and 6. Also called radium F. Only about 100 micrograms of polonium occur in 1 ton of uranium ore, and its abundance is about 0.2 percent of that of radium. All 27 known isotopes are radioactive; their atomic masses range from 192 to 218; and polonium 209 is the most stable isotope, having a half-life of 103 years. Two allo-

poly-, a. Having more than one, in contrast to a parallelogram, which is the only quadrilateral that has two pairs of parallel sides and a single pair of sides congruent. Sometimes used as a substitute for natural gums as a binder and a thickening agent. Lee.


polyelaterite. Soft elastic bitumen which differs from pitch in its ease of solubility in organic solvents. It is also used for preparing metal surfaces with lucite or other material, which have one ground surface smooth by means of abrasive powders and polishing laps. The powders include emery, aluminum oxide, and diamond dust. Electrolytic polishing is also used for preparing metal surfaces by making the metal the anode in an electrolytic bath. Pryor, 3.

polyconic map projection. A map projection used for the topographic maps of the United States Coast Survey (now the U.S. Coast and Geodetic Survey, A.G.I.) and in a modified form is used for maps of large areas. Devised by F. R. Hassler, organizer and first superintendent of the U.S. Coast Survey (now the U.S. Coast and Geodetic Survey, A.G.I.).

polyethylene glycol. These water-soluble materials may be shaded line along with cobalt, color and glaze slips, and in extrusion. Lee.

polygenous. Originating in various ways or from various causes; formed at different places or from different parts; said specifically, in geology, of mountain ranges; opposite of monogenetic. Standard, 1964.

polygenetic. Composed of or containing several kinds of material; heterogeneous. The polycrystalline conglomerate. Standard, 1964.

polycrase series. See also euxenite. Crosby, v. 1, p. 262.


polyhymnite. Described as a gray to black metallic opaque mineral with cubic cleavage, 12Ag.Sb2S3; considered to be a mixture of argentite and tetrahedrite. Dana 6d, p. 306.

polysulfo. A natural silver sulfamontanite, Ag,Sb2Ss; color steel gray to iron black; strength black; harder metallic; hardness 2 to 3; specific gravity 6.0 to 6.2. Found in Nevada, Colorado, Idaho; Mexico, Chile, Europe. An ore of silver. CCD 6d, 1961.


polykrotor. Same as iolite. Shipley.

polychronic. Showing a variety or a change of color. Webster 3d.

polychronic decoration. A multicolor decoration. ASTM C742-60T.

polyconic map projection. A map projection having the central geographic meridian represented by one parallel, with the spacing for lines representing the geographic parallels is proportional to the distances apart of the parallels; the parallels are represented by arcs of circles which are not concentric, but whose centers lie on the line representing the central meridian, and whose radii are determined by the lengths of the elements of cones which are tangent along the parallels. All meridians except the central one are curved. This projection is neither conformal nor equal area, but it has been much used for maps of small areas because of the ease with which it can be constructed. It is the map projection used for the topographic map of the United States (U.S. Geological Survey), and in a modified form is used for maps of large areas. Devised by F. R. Hassler, organizer and first superintendent of the U.S. Coast Survey (now the U.S. Coast and Geodetic Survey, A.G.I.).

polycrystal. An end-member of the euzemite-polycrase series. See also euxenite. Croby, pp. 19-20.

polycrystalline. An apparently single crystal consisting of a regular intergrowth of different minerals. Spencer 20, M.M., 1953.

polycrystalline. Composed of many crystals; an aggregate, as distinct from a single crystal. Rollin.


polyester. Soft elastic bitumen which differs from elastomer by a nontacky consistency, more intensive fluorescence and complete insolubility in organic solvents. It is believed that these properties are due to a higher state of polymerization. Tomkiewicz, 1954.


polyleuclidean. Some water-soluble materials may be shaded line along with cobalt, color and glaze slips, and in extrusion. Lee.

polymorphic. Originating in various ways or from various causes; formed at different places or from different parts; said specifically, in geology, of mountain ranges; opposite of monogenetic. Standard, 1964.

polyphase. A silver natural sulfamontanite, Ag,Sb2Ss; color steel gray to iron black; strength black; harder metallic; hardness 2 to 3; specific gravity 6.0 to 6.2. Found in Nevada, Colorado, Idaho; Mexico, Chile, Europe. An ore of silver. CCD 6d, 1961.

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polymignite. A very rare, weakly to moderately polymetamorphic rock which has been polymerized. A resin, with a plasticizer. See also polyethylene. Polymethylene. Polyethylene. Polymerized ethylene, CH₂=CH₂. Thermosetting plastics, fuse, and thermoplastics. Polymethylene. Series related to sulfuric and thiosulfuric acids, believed to have the structure H₂S₂O₇.

polymorphic. A polymorphous organism; also, one of the several forms of such an organism. Webster 3d.

polymorphism. The property of having or presenting many forms; especially, in crystallography, the ability of certain substances to crystallize with different axial ratios without change of chemical composition; thus, carbon as diamond crystallizes in the isometric system, and as graphite in the hexagonal system. Standard, 1964. See also allotropy.

polyphasic. A compound or mixture containing two or more phases, as a solution. See also polysyngony.

polyphase current. Webster 3d.

polyphase current. A condition in which the space lattice of two related minerals is completely altered to a new type. This is illustrated by the quartz-tridymite relationship. Compare polysyngony; polytropy. Hess.

polyvinyl acetate. A resin, with a plasticizer. Polyvinyl acetate. Water emulsions of this material are used extensively as adhesives for ceramics. In a plasticized form these resins are used in glass textile sizes to bond the individual filaments together. Lee.

polyvinyl butyral. A resin, with a plasticizer. Provides the intermediate in standard glass naphthalated sheet glass used in the manufacture of window glass. Lee.

polyvinyl chloride. A plastic material. Polyvinyl chloride. A plastic material.

polyvinyl chloride. A resin, with a plasticizer. Provides the intermediate in standard glass naphthalated sheet glass used in the manufacture of window glass. Lee.

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Ponsard furnace

Ponsard furnace. A furnace in which the escaping combustion gases, passing through tubular flues, heat the incoming air continuously through the flue walls. Fay. Ponsard is used portable malleable iron, foundry satisfactory for the mounting of small metal-lurgical specimens. Originally in the form of a pot 1 ft. in diameter, under temperature and pressure it becomes as transparent as glass. It is tough, hard and resistant to the action of etching reagents, and adheres excellently to the specimen. Osborne.


Pontil. An iron rod used in glassmaking to make a pontil on a piece of glass. An ornamental knob, globular or pointed, that is formed at the lower end of a piece of glass and that, when it is removed, leaves a depression corresponding to the shape of the pontil. Oborne.


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Pontoon bridge. A temporary or permanent pontoon. a. A float supporting part of a structure, such as a bridge. Nichols.

Pontoon. A. A float supporting part of a structure, such as a bridge. N. of Eng. A boy who drives a pony in the mine workings. Fay.

Pontoon bridge. A temporary or permanent pontoon. a. A float supporting part of a structure, such as a bridge. Nichols.

Pontoon. A. A float supporting part of a structure, such as a bridge. N. of Eng. A boy who drives a pony in the mine workings. Fay.

Po. A. A float supporting part of a structure, such as a bridge. Nichols.


Pony. a. A synonym for pressure-relief valve. Long. b. The reduction in pressure effected by release of part of the confined liquid or gas through a pressure-relief valve. Long. c. In dry process enamelimg, a defect appearing as a small conical piece of porcelain either partially or entirely separated from the ware. ASTM C286-65. d. See lift, w. ACWG, 1963.


Pop. A defect characterized by randomly occurring, rough, pitted, circular shaped areas of around coat appearing in the first cover coat sheet porcelain enamel. ASTM C286-65. e. See lift, w. ACWG, 1963.

Porcelain. A pyroxene trachyte with or without subsidiary biotite and amphibole. Bureau of Mines Staff.

Porcelainite. A trade term for white stone-ware, jasper, or the like. Standard, 1944.

Porcelain balls. Spheres of fired clay body used as grinding media in ball mills. Porcelain balls must be hard, of nearly equal porosity and preferably, white. Balls wear down during use and should be replaced periodically. Enam. Dict.

Porcelain bricks. Hard fired white porcelain molded into bricks which are cemented on the inside of the steel shell of an enamel mill. The bricks used on the sides of the mill are so shaped as to closely conform with the contour of the steel shell. Enam. Dict.

Porcelain clay. See kaolin; kaolinite. Fay.

Porcelain color. A pigment such as is used in decorating porcelain. Fay.

Porcelain dishes. As used to hold temperature cones during cooking of furnace temperature......... Porcelain dishes used for the cooling of the hot metal. Sturk.


Porcelain enamel. Not to be confused with paint enamels or "baked-on" enamels, such as are used on automobile fenders, etc. Porcelain enamel is a glassy composition applied to metal and fused thereon at a low temperature. Sturk.

Porcelain enamel commercial quality steel sheet. Steel sheet, ordered or sold on the basis of specifications governing the use as a base for enameling or other vitreous coatings. Bennett 2d, 1962.

Porcelain enamel deep drawing quality steel sheet. Steel sheet, ordered or sold on the basis of specifications governing use as a base for enameling or other vitreous coatings, and also on the basis of deep drawing qualities. Bennett 2d, 1962.

Porcelain enamel sanitary ware. See sanitary porcelain.

Porcelain gilding. A process of applying gold to china, usually with turpentine, and firing it, resulting in the adherence of the gold to the china and the volatilization of the less permanent ingredients. The gold is then burnished. Standard, 1964.

Porcelainite. A trade term for stone-ware, jasper, or the like. Standard, 1944.

Porcelainite. A trade term for stone-ware, jasper, or the like. Standard, 1944.
porcelainized

Resembling potter's clay that has been fired; specifically in geology, applied to clay, shales, etc., which by the influence of heat have come to resemble clay ware or porcelain. *Standard*, 1964.

porcelain jasper. Burnt clay. See also porce- lainite. *Fay.*

porcelain lace. A decorative material formed by ribbons lace in porcelain slip and firing it. The threads of the fabric are consumed, leaving the pattern in a fine lace-like porcelain ware. *Standard*, 1964.

porcelain lined. A pump equipped with a ceramic-coated cylindrical shell lining the pump cylinder. See also porcelain liner. *Long.*

porcelain liner. A cylindrical shell, coated with a non-corrosive material, porcelain-like ceramic material, used as the liner of a pump cylinder to resist the abrasive and/or corrosive effects of a recirculated or mud-laden drill fluid, grit, etc. *Long.*

porcelain mill. A mill for grinding materials for porcelain. *ASTM C242-60T.*

porcelain opal. Milky white opal; more opaque than milk opal. *Shipley.*

porcelain oven. The firing kiln used in baking porcelain. *ASTM C242-60T.*


porcelain process. The method of producing glazed ware by which a ceramic body and clay are mated together in the same firing operation. *ASTM C242-60T.*

porcelain tile. A ceramic mosaic tile or paver. *ASTM C242-60T.*

porcelain oven. A ceramic oven used in firing porcelain. *ASTM C242-60T.*

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porcelain linings. A cylinder, lined, coated porcelain, or other material, for use in pumps where apparently spontaneous combustion of the seams in the past. Also called porcelainized. *ASTM C242-60T.*

porcelain oven. The firing kiln used in baking porcelain. *ASTM C242-60T.*

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porosity trap porosity on one or more sides of the reservoir. A.G.I.
porosity Full. In gem mining, a Ceylonese term for a mamoty or hoe with a handle about 6 feet long and a broad blade so curved that it can be dug through river gravel and will hold some of the finer material. Heu.
porous Containing voids, pores, cells, interstices, and other openings, which may or may not interconnect. See also porosity. Long.
porous formation Synonym for porous ground. Long.
porous ground Any assemblage of rock material as a result of fracturing, faulting, modification of deposition, etc., contains a high percentage of voids, pores, and other openings. Long.
porous, punctate Electrode consisting of a metal bar immersed in a saturated electrolyte solution that is contained in a porous pot. Scheider, Stecker.
porous stones Those crystalline or cryptocrystalline aggregates which permit the escape of solutions such as dyes between particles. See also stained stone. Shipley.
porous wheel A grinding wheel having an open or porous structure and a vitrified or resinous bond. ASM Gloss.
porphyrite A term which has been variously used for pre-Tertiary andesitic rocks, altered andesite rocks, and hypabyssal rocks of marked porphyritic texture and andesitic composition. The last usage is now customary. The phenocrysts are generally plagioclase (average composition that of andesite) and plagioclase, and the groundmass is holocrystalline and more coarsely grained than in andesite. To avoid confusion, some writers prefer terms such as diorite porphyry and andesite porphyry in appearance. Shipley.
porphyry A term used for porphyroblastic metamorphic rocks whether of igneous or sedimentary origin. See also halleflint; halleflintite; knotted slate; leptite; macaculose. A.G.I.
porphyry copper A term first given to an altered andesite rock in which coarse grains, often elongated, of small ferromagnesian minerals and pyrite may or may not interconnect. See also porosity. Faul.
porphyroclast A large rock fragment contained in mylonite. A.G.I. Supp.
porphyroclastic texture See porphyrogranulitic.
porphyrogranulitic texture A textural term given by Judd to dolerites which carry large porphyritic crystals of feldspar and augite in a base consisting of a mixture of lath-shaped feldspar crystals and small, irregular grains of augite. Johannesen, v. 1, 2d, 1919, p. 309.
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porphyry copper ore See porphyry copper.
porphyry copper deposit in which the copper minerals occur as discrete grains and veinlets throughout a large body of rock, which commonly indicates porphyry. It is a large tonnage, low-grade deposit. Bateman. b. In the commercial sense, the term is not restricted to ore in porphyry but is applied to deposits characterized by huge size, particularly with respect to horizontal dimension, uniform dissemination, and low-average-per-ton copper content. A.G.I.
porphyry copper ores See porphyry copper.
porphyry rocks Rocks of Wedgewood ware. See also pebble ware. Fay.
porphyroclastic Synonym for porphyroclast. Fay.
porphyroclastic texture See porphyroclast.
porphyroblast A term given to the pseudo-porphyroblastic crystals of rocks produced by thermal metamorphism. The corresponding texture is called porphyroblastic. Holmes, 1920. b. Large grains or crystals, commonly of feldspar, quartz, or calcite, developed in schists resulting from deformation of rocks originally containing phenocrysts. Also called metacryst. A.G.I.
porphyroblastic The texture of a recrystallized rock in which coarse grains, often euhedral or subhedral, are distributed in a finer grained matrix. A.G.I.
porphyroblastic texture See porphyrogranulitic.
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porosity trap porosity on one or more sides of the reservoir. A.G.I.
porosity Full. In gem mining, a Ceylonese term for a mamoty or hoe with a handle about 6 feet long and a broad blade so curved that it can be dug through river gravel and will hold some of the finer material. Heu.
porous Containing voids, pores, cells, interstices, and other openings, which may or may not interconnect. See also porosity. Long.
porous formation Synonym for porous ground. Long.
porous ground Any assemblage of rock material as a result of fracturing, faulting, modification of deposition, etc., contains a high percentage of voids, pores, and other openings. Long.
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porous Containing voids, pores, cells, interstices, and other openings, which may or may not interconnect. See also porosity. Long.
porous formation Synonym for porous ground. Long.
portage group. Marine strata of Upper Dev-
positive gradient

Layer of water where temperature increases with depth. *Hy.

postcrystalline deformation. The deformation (tectonic movements) following the recrystallization of the rock. Schieferdecker.

post drill. An auger (or drill) supported by a post. *Fay.

postdissolution method. Penetrate inspection in which an emulsifier is required to render the penetrating agent water washable. *ASM Gloss.

post emulsification. The separation of an emulsion into two phases by the use of a suitable solvents. SmRB, Paper No. 61.

post glacial. Occurring after a period of glacial or ice age. *Fay.

postglacial. Occurring after a period of glacial or ice age. *Fay.


post hole Auger. A hand-held digging tool which enables bores to be sunk to about 20 feet in unsupported holes and deeper in cased holes. *Fay.

post hole digger. A. Large, auger type, mechanically or by hand, used for digging in unconsolidated ground and retrieving core samples. *Fay. b. Synonym for core auger. *ASM Gloss.

post mineral movement. The movement along a fault may pulverize some of the rock into a fine-grained gouge, which often looks and feels like clay. Postmineral movement along a mineralized zone forms a gouge containing pulverized minerals (from the vein itself). The planes thus formed constitute structural weaknesses in the rock, which in turn result in a condition of a series of openings are made in or near them. *Lewis, pp. 396-397.

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A pot may either be open (the surface of the glass exposed to the furnace gases) or closed by an integrally molded roof, a mouth being left for charging and gas exit. A closed pot is also known as a covered or hooded pot. 

**Potable**. Drinkable. Webster 3d. Said of water.

**Potamology**. The science of rivers, which may be called botanyomology. A.G.I.

**Potassium**

- **Potassium**. A reactive metallic element of the alkali group (period 1) of the periodic system. It is soft; light; and silvery. It occurs abundantly in nature but is always combined with other elements. It is used extensively in photography, in the manufacture of glass, and in the preparation of potassium cyanide, potassium nitrate, and potassium chlorate. 
- **Potassium carbonate**. Slightly soluble in cold water; highly soluble in hot water. **Potassium chlorate**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium chloride**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium chloride hemihydrate**. Colorless;* isomorphous with potassium and sodium chlorides. **Potassium dichromate**. Slightly soluble in cold water; soluble in hot water. **Potassium fluoride**. Slightly soluble in cold water; soluble in hot water. **Potassium hydroxide**. Slightly soluble in cold water; readily soluble in hot water. **Potassium iodide**. Slightly soluble in cold water; readily soluble in hot water. **Potassium nitrate**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium permanganate**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium peroxide**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium phosphate**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium carbonate**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium bicarbonate**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium hydroxide**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium iodide**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium nitrate**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium chloride**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium chlorate**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium cyanide**. Slightly soluble in cold water; soluble in hot water. **Potassium chloride hemihydrate**. Colorless; isomorphous with potassium and sodium chlorides. **Potassium dichromate**. Slightly soluble in cold water; soluble in hot water. **Potassium fluoride**. Slightly soluble in cold water; soluble in hot water. **Potassium hydroxide**. Slightly soluble in cold water; readily soluble in hot water. **Potassium iodide**. Slightly soluble in cold water; readily soluble in hot water. **Potassium nitrate**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium permanganate**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium peroxide**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium phosphate**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium carbonate**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium bicarbonate**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium hydroxide**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium iodide**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium nitrate**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium chloride**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium chlorate**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium cyanide**. Slightly soluble in cold water; soluble in hot water. **Potassium chloride hemihydrate**. Colorless; isomorphous with potassium and sodium chlorides. **Potassium dichromate**. Slightly soluble in cold water; soluble in hot water. **Potassium fluoride**. Slightly soluble in cold water; soluble in hot water. **Potassium hydroxide**. Slightly soluble in cold water; readily soluble in hot water. **Potassium iodide**. Slightly soluble in cold water; readily soluble in hot water. **Potassium nitrate**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium permanganate**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium peroxide**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium phosphate**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium carbonate**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium bicarbonate**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium hydroxide**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium iodide**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium nitrate**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium chloride**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium chlorate**. Soluble in water; decomposes in concentrated hydrochloric acid. **Potassium cyanide**. Slightly soluble in cold water; soluble in hot water.
potassium cyanide. Colorless or white; in¬
molten state, very poisonous; KCN; molecular weight, 65.12; faint odor of bitter almonds; soluble in water, in ethyl alcohol, in methyl alcohol; grayish yellow; specific gravity, 1.52 (at 16°C); and melting point, 634°C. Used in the extraction of gold and silver from ores, the heat treatment of steel, and as a re¬

potassium dichromate; potassium bichromate. Bright, yellowish-red; transparent; K2Cr2O7; triclinic becoming monoclinic at 245.6°C; molecular weight, 294.19; bitter, metallic taste; soluble in water; and in alcohol; specific gravity, 4.57 (at 17°C); and melting point, 396°C; and it decomposes at 500°C. Used in the separation of heavy metals. CCD 6d, 1961; Molecular weight, 72.17; yellow; orthorhombic; KHS; delique¬
cent; specific gravity, 1.68 to 1.70; melting point, 495°C; decomposes in water; and soluble in alcohol. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-211.

potassium hydroxide; caustic potash. White, deliquescent solid having corrosive prop¬
erties, KOH. Soluble in water; absorbs carbon dioxide; has alkaline properties; melting point, 360°C; molecular weight, 56. Used in the solid as a drying agent for gases, and as an agent for absorbing acid gases; as an absorbent for carbon dioxide in mine-air analysis apparatus and in self¬
contained mine rescue apparatus. Cooper, pp. 319-320.

potassium iodide. White crystals, granules, or powder, KI; strong bitter saline taste; soluble in water, in alcohol, and glycerol; specific gravity, 3.123; melting point 723°C; decomposes below 240°C. Used as a cement for join¬
ing metal and other work by applying in the hot plastic condition. C.T.D. Also used in silversing mirrors. Merriman.

potassium magnesium chloride. See carnal¬
site. Colorless or white; orthorhombic or hexagonal; K2MgCl4; specific gravity, 2.703; melting point, 455°C; decomposes in air only at elevated temperatures and pres¬
sures. Used in the manufacture of glass and refractory material. CCD 6d, 1961.

potassium-sodium tartrate; Rochelle salt. KNaC6H4O6; colorless; orthorhombic; molecular weight, 220.25; specific gravity, 1.790; melting point, 70° to 80°C; loses H2O at 215°C; soluble in water; and very slightly soluble in alcohol. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-210. Used as a cement for join¬
ing metal and other work by applying in the hot plastic condition. C.T.D.

potassium sulfite. Colorless or white; orthor¬
hombic or hexagonal; K2SO3; bitter saline taste; soluble in water; insoluble in acetone, carbon disulfide, and in alcohol; specific gravity, 2.602; melting point 289°C or 1,077°C; molecular weight, 174.27; trans¬
formation temperature between the orthorhombic and hexagonal forms, 588°C; and boiling point, 1,689°C. Used in amylum manufacture and in glass manufac¬
ture. CCD 6d, 1961; Handbook of Chem¬

potassium tannate. K2TiO7; a ferroelectric material having a dielectric constant ex¬
ceeding 4000 at the Curie temperature (−260°C). Dodd.

potassium xanthogenate; potassium ethyl¬
thiocarbonate; potassium ethylxanthogenate; potassium ethylxanthate. See potassium xanthate. Bennett 2d, 1962.


potassium yellow prussiate; yellow prussiate of potash. Lemon-yellow; monoclinic; KFe(CN)6; molecular weight, 242.41; specific gravity at 25°C, 2.676 (at 17°C); dehydrates losing 3% at 60°C; melting point, 455°C; decomposes below 240°C. Used in enamels, in synthetic mica, in ceramics, and in the formulation of heavy and refractory material. CCD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-207.

potassium fluoride. Colorless or white; iso¬
metric; molecular weight, 41.0; delique¬
cent; KF; sharp saline taste; soluble in water and in hydrofluoric acid; and is soluble in ammonia; insoluble in alcohol; specific gravity, 2.48; melting point, 846°C; and boiling point, 1,505°C. Used in etching glass. CCD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-277.

potassium fluoride dihydrate. Colorless or white; monoclinic prisms; deliquescent; KF·2H2O; colorless; in water, in hydrofluoric acid, and in am¬
monia; soluble in alcohol; specific gravity, 2.48; melting point, 846°C; and boiling point, 1,505°C. Used in etching glass. CCD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-207.

potassium iodate; potassium silicofluoride. Colorless or white; monoclinic prisms; deliquescent; KF·2H2O; sharp saline taste; soluble in water and in hydrofluoric acid; insoluble in alcohol; melting point, 41°C; molecular weight, 94.13; specific gravity, 2.454; and boiling point, 255°C. Used in etching glass. CCD 6d, 1961; Handbook of Chem¬

potassium nitrate; potassium nitrite; potassium perchlorate. Colorless or white; monoclinic prisms; deliquescent; KNO3; sharp saline taste; soluble in water and in hydrofluoric acid; insoluble in alcohol; melting point, 41°C; molecular weight, 94.13; specific gravity, 2.454; and boiling point, 255°C. Used in etching glass. CCD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-207.

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pot
cay be colorful, but without fine play of color. Sh. 1954.
put halls. Refractory clays used for making the pots in which glass is produced. CCD 6:
pot die forming. Forming products from sheet or plate through the use of a hollow die and the movement of the formed piece to assume the contour of the die. ASM Glass.
potential. The words potential and voltage are synonymous and mean electrical pressure. The potential or voltage of a circuit, machine, or any piece of electrical apparatus means the potential normally existing between the conductors of such circuit or the terminals of such machine or apparatus. In Bureau of Mines practice: (1) any potential less than 301 volts shall be deemed a low potential; (2) any potential greater than 301 volts but less than 651 volts shall be deemed a medium potential, and (3) any potential in excess of 651 volts shall be deemed a high potential. Fay.
potential energy. The form of mechanical energy a body possesses by virtue of its position. If a body is being dropped from a height, e.g. from lower to higher, the body is losing potential energy, but if a body is being raised, then it gains potential energy. Morris and Cooper, p. 256.
potential drop. The difference in pressure between any two points in an electrical circuit, measured in volts. Morris and Cooper, p. 256.
potential drop ratio method; P.D.R. method. A variant of the resistivity method in which the potential drop ratio is determined. The difference of potential between two pairs of points in the ground is measured. Schieferdecker.
potential energy of deformation. See strain energy, c. Ro.
potential gradient. Potential gradient means an ascending or descending value of voltage related to a linear measurement, as a distance along the earth surface or ground. I.C. 7962, 1960, p. 23.
potential ore. Ore that is presumed to exist. Obolete, A.G.I.
potential temperature. The temperature a parcel of water would have if it were lifted from its position in the water column to the sea surface. The water would have a lower temperature due to the fact that it would undergo an adiabatic temperature change, as a result of changed pressure conditions, without any exchange of heat with its surroundings. Hyg. b.
potentiometer. a. A variable voltage divider. HBG. b. Apparatus used to measure multie potential differences. Pryor, 3.
potentiometric titration. Quantitative analysis in which changes of electromagnetic force are measured during titration, a technique especially adaptable for the direct study of corroding metals where both anodic and cathodic reactions are taking place. Morris and Cooper, p. 256.
potetole. A hood shaped like a pot, but with no bottom, which is placed in a tank furnace so that it reaches below the glass level. It protects the man gathering glass on its pipe or iron from furnace gases; also, the glass here is somewhat cooler than that in the main part of the furnace, where melting is taking place. C.T.D.
pot furnace. a. A furnace for melting glass in pots. ASTM C162-66. b. Any of the small vertical furnaces used to smelt batches (2 to 4 pounds) of enamel in a crucible. The crucible of molten material is removed from the furnace with aid of tongs, and the melted enamel poured from the pot into water for fritting purposes. Enam. Dict.
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patterner. A term used in early metalurgical practice for an ore that becomes vitrified by heat, like the glazing of earthenware. See also MILLSTONE.

pottern ore. See potters' consumption.

potter's bronchitis. See potter's consumption.

potter's clay. a. A pure plastic clay, free from iron, and consequently white after burning. Fay. b. A clay adapted for use on a potter's wheel, for the manufacture of pottery. A.G.I.

potter's consumption. An acute bronchitis often occurring among pottery employees, eventually affecting the lungs. Also called potter's asthma; potter's bronchitis. Standard, 1964.

potter's earthenware. See pottery earthenware.

potter's flint. See flint, potter's.

potter's fractured. See flint, potter's.


potter's corn. Kidney. A thin kidney-shaped piece of horn or metal used, until the early 20th century, by pottery potters. To make dishes, a bat of prepared body was placed on a plaster mold and hand-pressed to shape with a piece of fired horn; the horn was used for final smoothing of the surface. Dodd.

potter's lead. See alquifou.

potter's mortar. See pottery mortar.

potter's red cement. A pozzolana type of cement consisting of crushed fired clay mixed with portland cement. See also pozzolana. Dodd.

potter's wheel. A rotating circular table, mounted on pillars on which holloware is made by the thrower. C.T.D.

pottery. a. A shop or factory where ceramic ware is made. Fay. b. All fired ceramic wares that contain clay when formed, except technical, structural, and refractory products. ASTM C42-60T. c. As a generic name, all fired clayware produced by a potter (a clay worker). ACGS, 1963. d. As a specific name, the low-fired porous colored body ware (in contrast to white or buff-colored earthenware). ACGS, 1963.

pottery body stains. Calcined oxide finely ground, for coloring ceramic bodies. Used as colors or designs for tile, terra cotta, chinaware, etc., where the pigment is a part of the ceramic body. CCD, 1961.

pottery-decoration designer. One who sketches patterns to be used in decorating pottery and makes finished drawings in color of terra cotta, chinaware, etc., where the pigments are reduced by pounding, grinding, etc. Dodd.

potting. The placing of pots, containing either raw material or the product, in the kiln or furnace. The use of this purpose of sintered alumina powder, within hermetically sealed cans, has proved successful. Potterville conglomerate. A conglomeratic formation at the base of the Pennsylvania (Upper Carboniferous) in the northern Appalachian region. See also Millstone grit. Webster, 1962.

pot. Containing pots. See also pot. Also applied to any roof in a coal mine which falls down in thick blocks. Fay.

pottery ore. Som. Brown iron ore, Brendon Hills. Apparently a color term once the two varieties of ore are black and potty. Arkell.

pot wagon. A vehicle used for transferring a pot from a pot arch to a pot furnace. ASTM C162-66.


powder explosions. These explosives contain still smaller quantities of liquid products, compared with plastic and semi-plastic explosives.

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powder. a. Any of various units of mass and weight. As used in powder metallurgy, particles of material, as melted metal, poured at a time and lying coalbeds. Fay. d. In powder metallurgy, particles of material, as melted metal, poured at a time and lying coalbeds. Fay.

d. In powder metallurgy, particles of material, as melted metal, poured at a time and lying coalbeds. Fay.

pour. In founding: (1) the amount of material, as melted metal, poured at a time and (2) the act, process, or operation of pouring melted metal; as, make a pour at noon. Standard, 1964.

pouring. Melting metal from a furnace or a ladle to a mold. ASTM C162-66.

pouring basin. A basin on top of a mold to receive the molten metal before it enters the spout or downgate. A.M.S.

pouring gate. A channel in a mold through which to pour molten metal. Fay.

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powder used for the transfer of steel from furnace to ingot. These include ladle brick, molds, shovels, stopper heads, mold plugs, hot tops, and mortars used for the brickwork involved. A.I.S.T. No. 24.

powdered dynamite. A mixture, in a range of 0.1 to 1.0 g, of explosive which an oil commences to flow under stated conditions. Pryor, 3. b. The lowest temperature at which an oil can be poured. Shell Oil Co.

pound. a. Any of various units of mass and weight. As used in powder metallurgy, particles of material, as melted metal, poured at a time and lying coalbeds. Fay. d. In powder metallurgy, particles of material, as melted metal, poured at a time and lying coalbeds. Fay.

pour point. a. Temperature at which an oil will flow after burning and mingle with clay to form ceramic ware. Made. Fay. b. A clay adapted for use on a potter's wheel, for the manufacture of pottery. A.G.I.

powdered glass. Various kinds of glass, which have been crushed fine, may be transported by air to fire a boiler or industrial heating furnace. B.C.I.

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powder explosives

explosives, so that the spaces between the solid particles are not filled out entirely. As the result of this the density of the mass is 20 to 40 percent lower than that of plastic and semi-plastic explosives. Fraschel, v. 3, Art. 16:02, p. 9.


powder flowmeter. In powder metallurgy, a device for determining the flow rate of a powder. ASM Gloss.

powder house. A magazine for the temporary storage of explosives. Fay. See also magazine.

powder jack. See jack, d. Fay.

powder keg. A small metal keg for black powder.

powder metal: Powder house. A magazine for the temporary storage of explosives. Fay. See also magazine.

powder metal. A. A man in charge of explosives and mining, one who handles proper storage of explosives in powder house and blasting powder, usually having a capacity sufficient for 25 pounds of powder. Fay.

powder and blast. In powder to the long, and blast. Agent mixed with or incorporated in a powder to facilitate the pressing and ejection of the blast. Fay.

powderman. a. A man in charge of explosives in an operation of any nature requiring their use. Fay. b. In blasting, a man in charge of mixing and loading explosives and mining, one who handles proper storage of explosives in powder house as well as handling dyna- mite, caps, detonators, and fuses to miners as needed. At smaller mines, may deliver explosives to miners at working places. Also called powder monkey; powder nipper; powder supply man. D.O.T. 1. See also powderman helper.


powder metallized, powdered metal. As used in the diamond-drilling industry, the finely divided particles of iron, copper, nickel, zinc, molybdenum, etc., which, when mixed with a suitable binding material and subjected to processing by heat and pressure, may be used as a matrix material to form a bit crown. Long.

powder metal bit. Any diamond bit, mechanically set, in which finely divided metal powder is used as a matrix to hold the diamonds in place. Also called powder-bit; powder-set-bit; sintered-metal bit; Long.

powder metallurgy. In powder metallurgy, the art of producing and utilizing metallic powders of the reduction of massive materials and shaped objects. ASM Gloss.


powder-metal process. The process of mechanically setting diamonds in a bit in a matrix of finely divided metal powders. The metal powder is first cold-pressed to compact it in a bit mold or die and then is heated to allow the bonding alloy to melt and bond the diamonds and bit blank. Hot pressing or coining follows heating of the powder in some modifing the compact. ASM Gloss. Long.


powder method. A method for recording the planes in which a finely powdered crystal-line specimen selectively scatters X-rays of any given wavelength. Widely used for mineral identification. A.G.I.

powder mine. An excavation filled with powder for the purpose of blasting rocks. Fay. A miner or person employed at the powder house of a coal mine whose duty it is to deliver powder to the miners. Fay. b. Any of some metal mines, the person who distributes powder, dynamite, and fuse to the miners at the working faces. This is a nautical term, but is frequently used in the mining industry. Fay. c. In the v/cry industry, one who carries powder or other explosives to blaster and assists him by placing prepared explosive in hole, connecting lead wire to blasting machine, and performing other duties as directed. Also called blaster helper; powder carrier; powderman helper. D.O.T. 1. See also blaster; powderman.

powder nippers. See powderman, b. D.O.T. 1.


powder photograph. An X-ray diffraction photograph of a fine powder. Harribi.

powder pin. A term formerly used in the anthracite region to identify a wooden stick, similar to a rolling pin, with a knob on one end only, this stick was used to roll paper around in order to form a cartridge to receive the loose black powder used in blasting. Hess.

powder porosity. Ratio of volume of voids between particles, plus the volume of pores, to the volume occupied by the powder, including the porosity of the compacts. D.O.T. 1.


powder spreader. See bulk spreader.


powellite. Natural calcium molybdate (CaMoO₄) or Ca(Mo,W)O₄, in which a portion of the molybdenum is replaced by tungsten. Blush-green crystals contain 1.65 to 10.28 percent WO₃; specific gravity 4.35 to 4.32. Pearly-gray scales are more common and contain only traces of tungsten. Specific gravity 4.25. Found in Idaho, Michigan, Texas, Nevada, California; Siberia. A minor ore of molybdenum. CCD 6d, 1961.

powellizing process. A wood treatment consisting of impregnating the wood with a saccharin solution. It hardens the wood, and renders it fireproof to some extent. Liddell 2d, 1962.

power. a. Any form of energy available for driving machinery, equipment, devices; the ability of the steam engine, the horse, the steamboat, the windmill, the electric motor, etc., to do work. In general, any form of energy capable of producing a mechanical effect. Long.

power drive. Any form of energy capable of doing any kind of work; for example, steampower, and waterpower. Specifically, mechanical energy, as distinguished from electrical or hydraulic energy. Fay.

power equation. The power required to drive the air through a mines circuit is consumed mechanically in lifting water out of the mine, is lost in the kinetic energy of the air leaving the upcast, and is converted into heat in overcoming friction. This may be expressed as an equation: (Natural ventilation power) = (Power used in lifting water) + (Power lost as kinetic energy) + (Power converted into heat against friction).

power factor. One or more winches mounted on a tractor and used to manipulate large claws of bulldozers, scrapers, or other machinery. Nichols, 2.

power control winch. A high speed tractor mounted winch with one to three drums; used chiefly for maneuvering the late parts of bulldozers, scrapers, and rooters. Nichols.

power density. The ratio of heat generated per unit volume of a nuclear reactor core. LBL.

power distillate. The untreated kerogen condensates and still heavier distillates down to 28° Bé from Mid-Continent petroleum. Used as fuel in internal-combustion en- gines. Fay.


power drag scrapers. Either pit or bank ex- cavation can be handled economically by a power drag scraper. This machine consists of (a) a standard hopper; (b) a two-horse drum; (c) two long cables that attach to the front and rear of the scraper; (d) two sheave blocks mounted on the mast to guide the operating cables to the hoist. The tail-block is shifted manually from time to time, and the scraper in a wide arc until all the material within the operating radius has been taken out. BuMin. Bull. 23d, Sec. A, p. 29.

power drill. A drill actuated by steam, com- pressed air, or electricity. Hudson.


power-driven compressor. A compressor which is driven either by a belt or through gearing. Leat., 671, p. 671.

power earth auger. A mechanically operated auger for exploring and testing deposits which are not very hard. The drilling rig may be mounted on a lorry or caterpillar tracks when greater depths may be reached. Nickols.

powered supports. In fully mechanized coal mining, a system of pit props connected to a flexible armored conveyor by means of hydraulic rams. Roof beams mounted above the props are held by hydraulic pressure to the working roof. They are carried forward as the working passage adjoins the coal face above the conveyor and the cutting machine. The conveyor is pressed forward by the section by section behind the advancing cutter, and the props are then drawn forward by manipulating hydraulic valves. Pryor, 3.

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power excursions. See excursion. LBL.

power factor. a. The ratio of actual power in an alternating-current circuit measured in watts to the apparent power measured in volt-amperes. (Power factor = Power used in lifting water) + (Power lost as kinetic energy) + (Power converted into heat against friction). Spalding, p. 303.

power factor. b. The ratio of the actual power in an alternating-current circuit measured in watts to the apparent power measured in volt-amperes. (Power factor = Power used in lifting water) + (Power lost as kinetic energy) + (Power converted into heat against friction). Spalding, p. 303.

power factor. c. The ratio of actual power in an alternating-current circuit measured in watts to the apparent power measured in volt-amperes. (Power factor = Power used in lifting water) + (Power lost as kinetic energy) + (Power converted into heat against friction). Spalding, p. 303.

power factor. d. The ratio of actual power in an alternating-current circuit measured in watts to the apparent power measured in volt-amperes. (Power factor = Power used in lifting water) + (Power lost as kinetic energy) + (Power converted into heat against friction). Spalding, p. 303.
power factor

unit. Coal Age, 1. c. A clause frequently found in electric power contracts which sets forth that if a customer permits his average power factor of his load to fall below a specified value, a penalty charge will be made. This clause can readily be computed by adding the cost of power for an unfavorable month by as much as 20 to 30 percent. Power factor is often defined as the ratio of actual power to apparent power and is expressed usually as a percentage. Kentucky, p. 260.

power-factor meters. Meters which indicate the relation of the phase between the line current and the line voltage which actually is the same as the power factor of the load. Coal Age, v. 71, No. 8, August 1966, p. 270.

power. The amount by which the output power level in decibels exceeds the input power level in decibels. Thus, if the output power of a device is ten times the input power level in decibels. On the other hand, if the output power is the same as the input power level in decibels, each half of the face belt is pulled around a prop at one end of the face by means of a cage attached to a small electric winch. Triffa.

power rammer. A manually operated compacting machine weighing about 200 pounds, raised by an internal combustion mechanism and allowed to fall by gravity. See also forger rammer; mechanical rammer. Ham.

power ratio. The ratio of fan power to the power which would be required for leakless conditions is the square of the volume ratio. Roberts, I, p. 227.

power reactor. A nuclear reactor designed for use in a nuclear power plant, as distinguished from reactors used primarily for research on nuclear radiation or fissionable materials. LQR.

power reel. A reel that is driven by an electric motor or some other source of power, used to wind or coil strip or wire as it is produced from some other form of energy. See also power unit, b. A unit which converts AC or DC current to AC or DC voltages suitable for the operation of equipment. NDP.

power per unit band. The first approach by the quotient obtained by dividing (1) the power on the load being transmitted by a given system, at a given time and in a given frequency band, by (2) the width of this band as the width of this band approached zero. H86.

power plant. See power house. Jones.


power pack. a. In general, an electrically operated motor which is a self-contained package on the end, to supply power to face equipment, for example, self-advancing supports. The system is sometimes used on a circuit with a return leg, returning to a reservoir containing about 212 gallons of oil. The pump can supply 25 gpm at 2,000 lb of pressure, or 10 gpm at 5,000 lb per square inch, which allows a setting load of about 9 tons per prop. Nelson.
between the vertical stress P and the lateral Q. Pryor, 3.


practical shot. In coal mining, a shot for which the hole has been drilled in a direction selected with reasonable care, and that has been filled with powder and tamped with the same degree of care. Fay.


prairie shooting. An impact mill consisting of an impeller rotating clockwise at 1,500 revolutions per minute, a baffle plate moving anti-clockwise at 1,500 revolutions per minute, and another baffle plate that is stationary. *Dodd.*

prase. A translucent and dull leek-green variety of chaledonic quartz. *Fay.*

praseodymium. A pale yellowish metallic element of the rare earth group that occurs usually with cerium, lanthanum, and neodymium, and forms green salts. Used chiefly in the form of its salts in coloring glass-green-yellow. Symbol, Pr; valences, 3; molecular weight, 140.97; atomic number, 59; and atomic weight, 140.907. *Webster 3d; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-129, B-212.*

praseodymium oxide. A rare earth metal now called praseodymium in Canada and by many geologists in the United States. The Am. Comm. on Strat. Nomenclature recommends that the Canadian spelling be used and that the term Early Precambrian era and Late Precambrian era be substituted for Archean and Proterozoic. *A.G.I.*

Precambrian. Rocks older than the Cambrian age. With the Cambrian sediments, evidence of life first appeared. Name applied to the great shield shaped area of Precambrian rocks in northern Canada and parts of the northern United States. These ancient rocks are evident in many parts of the world. *Cunning.*

precementation process. In forming, the pressure introduced into the wet concrete prior to forming the part. *ASM Gloss.*

precious. Used by mineralogists to imply the finest variety of gems or minerals; for precious stones. Produced domestically in Oregon and Washington. Some turquoise is produced in Nevada and Colorado. Most precious stones are used in jewelry, and for industrial purposes, are imported. *Burger.*

precious topaz. A term still applied, by some jewelers, to genuine topaz to distinguish it from topaz-colored quartz, known as synthetic topaz. *Burger.*

precipitation. a. The process of separating a solid from a solution. b. The ejection of a solid substance out of the atmosphere, generally upon a precipice. c. The ejection of a solid substance from a supersaturated solution. See also crystallization. *Hawkes, 2, p. 233.*

precipitation barrier. Metal-rich water, as it moves away from the source of the metal, ordinarily comes into an environment where it is changing conditions that cause precipitation of part or all of the metal from the water. Precipitation barrier is a mechanism by which the metal is removed from solution by a kind of progressive aging. *ASM Gloss.*

precipitation heat treatment. Artificial aging in which a constituent is precipitated from a supersaturated solid solution. See also artificial aging. *Webster ASM Gloss.*

precipitation process. The treatment of lead ores by direct fusion with metallic iron or slag, or ore rich in iron; performed generally in a shaft furnace, reverberatory. It is often combined with...
preeutering...
prelubricated sealed bearings

lubricated renewable seal bearings, these bearings have provision for cleaning, renewal, and renewing of seals after manufacture. NEMA M61-1956.

premature blast. The detonation of an explosive charge earlier than warranted. It may occur with blackpowder and a similar function when fired with severe explosives. See also hangfire. Nelson. Premature explosion may be due to careless, accidental percussion, faulty fuse, or degenerated explosives. Pryor, 3.

premature block. An obstruction or block in a core barrel or bit that prevents the entry of core into the barrel before the bit can be advanced far enough to cut a paper-stitched core is used. The National Coal Board of Great Britain has commissioned the study of this problem and has recommended procedures for avoiding premature blocks.

premature shift. The shift on a conven- tionale mining pressure after having ex- amined the deposit and having made it accessible both in strike and dip. This work is executed almost entirely in the deposit and includes: (1) inclines and transfer stations with manways, (2) sublevel drives between the levels, and (3) various crosscuts, chutes, minor shafts, raise, winzes, and other works. Stokes, v. 1, p. 215.

premix. Aggregate which has been coated with bituminous binder before spreading. See also penetration macadam; tar macadam; Nelson.

premixed method. See prep-mix method.

prebranched dolomite; prebranchedcalcium. Magnes- sium borate, MgBO\cdot\text{OH}\cdot\text{H}_{2}O, monoclinic (?). From the salt deposit at Inger, Kazakhstan. Spencer 21, M.M., 1958.

prepacked coal; minilignite. A coal product which has been mechanically weighed and packaged for household use. Usually, strong paper or plastic bags are used. The National Coal Board of Great Britain has commissioned the study of this product and has recommended procedures for avoiding premature blocks.

prepacked concrete. Concrete made by in- jecting Portland cement and sand grout under pressure into the bottom voids of a compacted mass of clean, graded coarse aggregate of at least 1 inch maximum.

preparation. a. The treatment of ore or coal to reject waste. See also concentration; a; preparation plant; b. The process of preparing run-of-mine coal to meet market specifications by washing and sizing. Jones.

preparation boss. In bituminous coal mining, a foreman who is in charge of the operations of washing and sizing coal at the washing plant.

preparation coal. Physical and mechanical properties of coal are used to determine whether or not a given run-of-mine coal is suitable for a particular use. B.S. 3552, 1962. b. A machine tool having a reciprocating motion at right angles to the machine operator. D.O.T. 1.

preparation-getting machines. N. of Eng. Another name for the machines used for washing and getting phases of the cycle. Trist.

preparation plant. Strictly speaking, a prepara- tion plant may be any facility where coal is prepared for market, but by common usage it has come to mean a facility designed especially for the conversion of facilities where coal is separated from its impurities, washed and sized, and loaded for shipment. See also coal-preparation plant; coal washer, b.

preparation shift. The shift on a conventional mine or mining face during which the coal is machine cut, broken down, and the conveyor, etc., advanced in readiness for the coal-going shift. Sometimes there are two preparation shifts preceding the coal- going shift. Nelson.

preparatory work. Mining operations to fa- cilitate mining proper after having ex- amined the deposit and having made it accessible both in strike and dip. This work is executed almost entirely in the deposit and includes: (1) inclines and transfer stations with manways, (2) sublevel drives between the levels, and (3) various crosscuts, chutes, minor shafts, raise, winzes, and other works. Stokes, v. 1, p. 215.

press. a. A machine in which prepared coal, with or without binder, is subjected to pressure so that it is molded to the desired size and shape of a briquette. B.S. 3552, 1962. b. A machine used in the forming of ware. For example, a machine used in the forming of ware from sheet metal. The two are distinct. ASM Gloss. c. A machine used in the forming of ware from sheet metal. The two are distinct. ASM Gloss. d. Increase the ease of handling or forming the compact, or to remove a lubricant or binder before sin- tering. ASM Gloss.

pressing. In powder metallurgy, the heat- ing of a compact to a temperature lower than the normal temperature for final sintering. Usually, a green compact is heated in an inert gas or vacuum to a presintering temperature. During this treatment, the compact is heated in an inert gas or vacuum to a presintering temperature. The compact is then allowed to cool in air or vacuum.

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pressite. An arrangement by which a gear level can be moved, but the resulting speed shift will not take place until the clutch or the throttle is manipulated. Nicholls.

preselective. An arrangement by which a gear level can be moved, but the resulting speed shift will not take place until the clutch or the throttle is manipulated. Nicholls.

press cake. The incorporated gunpowder or millcake, pressed and ready for granula- tion. Press cloth. See filter cloth. Dodd.

pressed amber. An amber substitute produced by consolidating a powdered amber under pressure, usually with linseed oil or other oil as a binder. Also called re- constructed amber. Shipley.

pressed bar. A compact in the form of a...
pressed amber

pressed brick. A high-grade brick used for \textit{capped} surface work. \textit{Crepin}.

pressed brick clay. A better grade clay than that usable for common brick. It must have a uniform color, must not warp or crack, and must not have low absorption when burned at a moderate temperature, and must be free from soluble salts. \textit{CDO 3d}, 1942, p. 192.

pressed cameo. Similar to molded cameo, but pressed. \textit{Shipley}.


pressed copal. Made like pressed amber, from fragments of copal. \textit{Shipley}.

pressed density. In powder metallurgy, the density of an unsintered compact. Sometimes called Green density. \textit{ASM Gloss}.

pressed distillate. The oil left in petroleum refining after the paraffin has been separated from the paraffin distillate by cooling and pressing. \textit{Webster 3d}.

pressed fuel. An artificial fuel prepared from coal dust, waste coal, etc., incorporated with other ingredients, as tar, and compressed in molds into blocks; briquettes. \textit{Fay}.

pressed glass. Glassware formed by pressure between a mold and a plunger. \textit{ASTM C162-66}.

pressed in ceramics. The workman who molds the handle, ears, and decorative reliefs to be applied to a pottery vessel before firing. \textit{Fay}.

pressed fit. An interference or force fit made through the use of a press. \textit{ASM Gloss}.


pressing. a. In metalworking, the product or process of shallow drawing sheet or plate. \textit{ASM Gloss}. b. In powder metallurgy, forming a powder-metal part with compressive force. \textit{ASM Gloss}. c. In pottery making, any hand operation in which masses of clay are formed into the finished article by means of the potter's wheel. \textit{Hess}. d. The operation of forming pressed glass. \textit{ASTM C162-66}. See also dry-pressing, hot-pressing.

pressing area. The clear distance (left to right) between housings, stops, gibs, gibways, or shoulders of strain rods, multiplied by the total distance from front to back. \textit{ASM Gloss}.

pressing crack. In powder metallurgy, a rupture in the pressed compact which develops during the ejection of the compact from the die; \textit{see also capping and lamination}. Sometimes referred to as a slip crack. \textit{ASM Gloss}.

pressing machine. a. A machine which forms ceramic shapes by forcing plastic or semiplastic raw materials into a die or mold. \textit{Bureau of Mines Staff}. b. A machine in which the whole forming operation is carried out by pressing the plastic glass by a plunger forced into a die or mold. The machine may be operated by hand or it may be fully automatic. \textit{C.T.D}.

press-pipe inspector. One who inspects green bodies in the greenware state for dimensional accuracy and consistency of clay. Also called green-pipe inspector. \textit{ASTM C33}.

press-to-log operator. In the fuel briquettes industry, one who tends an automatic machine that compresses sawdust into green-pipe fuel. \textit{C.T.D.} 

pressure. a. The load divided by the area over which it acts. \textit{ASCE P1826}. b. Force per unit area. \textit{AIM Gloss}. c. Force exerted by air per unit area, either gage or absolute. Atmospheric pressure is 14.7 pounds per square inch. \textit{Hartman}, \textit{p. 8}. d. As used in mine ventilation terminology, it is sometimes defined in a rather vague manner as the available energy content of the air, and the pressure difference between two points in a ventilation current as the energy lost due to friction between two points. \textit{Bobert}, \textit{I}, \textit{p. 165}.


pressure arch. The driving of a narrow roadway results in the development of a pressure arch over the excavation. The strata within the arch bend slightly and cease to support overlying beds, and the load is transferred to the solid coal or rock along the sides. The wider the roadway, the longer the span of the arch and its height at the crown. A similar but larger pressure arch is formed across a longwall face, with one leg resting on the solid coal and the other on the solid pack behind the coal face. \textit{See also abutment}.

pressure arch theory. The pressure-arch theory in roof action suggests that when a narrow heading is advanced, the layers of rock in the immediate roof deflect slightly and relieve themselves of the load of the overlying strata by transferring it to the sides of the opening over a small area, \textit{i.e.,} a pressure arch. The width of arch just short of that which the higher strata cannot span and transfer the load to the sides of the opening is called the maximum-pressure arch. The depth mainly influences the minimum width of the arch, \textit{i.e.,} it is important although the type of overburden also plays a part. The following formula has been developed for the minimum width of the maximum-pressure arch: \[ W = \frac{3(D + 20)}{2} \]

pressure balancing. When an area of a mine has been sealed off from the remainder of the workings by barriers or stoppings inserted at suitable points, it is important to prevent the circulation of air within the sealed area. This means that external air pressures must be equalized on all the seals. The object of equalizing the atmospheric pressures on the seals is attained by inserting or removing doors or brattice cloths at appropriate places. It is possible to make all the seals contiguous with a common airway by this means, so that, if they are not widely separated, they will be subjected to the same external atmospheric pressure. \textit{Roberts}, \textit{I}, \textit{p. 99}.


pressure box. An elevated cistern fed by a flume, ditch, or pipe, and supplying water under a head. \textit{Webster 3d}.

pressure bulb. The zone in a loaded soil mass bounded by an arbitrarily selected isolar of stress. \textit{ASCE P1826}.

pressure casting. a. Making castings with pressure applied to the molten metal in a mold as in injection molding, die casting, centrifugal casting, and cold-chamber pressure casting. \textit{ASM Gloss}. b. Making castings with pressure applied to the molten or plastic metal. \textit{ASM Gloss}.

pressure charger. a. A method of driving tunnels and sinking shafts through running sand by holding back the loose material by compressed air. The technique is now more applied to any great extent in mining. \textit{See also caisson sinking}. \textit{Fay}. b. An enclosed space arranged on the access side of a stopping, which seals off an area and is furnished with means of raising or lowering the air pressure within it. \textit{K.S. 3610}; \textit{1963}, sec. 2. c. If the mine area to be sealed off is extensive, and the seals are widely scattered, the fact that they are subjected to different pressures may be unavoidable. In this event, pressure chambers may be required on the outby side of seals. Since the pressures at which the seals cannot be made tight, due to broken or fissured ground. The principle consists of having an outer chamber by erecting a second stopping on the outby side of the seal. The air pressure in the intervening space is then controlled to prevent movement of air across the seal. \textit{Roberts}, \textit{I}, pp. 99-100.

pressure check. An imperfection; a check or crack in a glass or ceramic article resulting from too much pressure in forming. \textit{ASTM C33}.

pressure component. Any change in velocity with depth not accounted for by a change in temperature or in state, as described at the pressure component of the velocity gradient. \textit{H&G}.

pressure cracking. Cracking of the compact caused by releasing the pressure immediately after it has been shaped in a dry-press; the cause is sudden expansion of air that has been trapped and compressed in the pores of the compact. The fault has been largely eliminated by designing presses so that the plunger descends twice to its lowest level, of the coal originally deposited over the barren area. Prolonged pressure may be responsible for the deformation. \textit{Nelson}.

pressure drop. Pressure formed over the workings and at the remote areas, \textit{i.e.,} from the surrounding formations creating pressure on the pillars, walls, or other supports. Pressure blocks of large size may result from natural geological phenomena, such as faults, or may occur as a result of mining operations. \textit{Lewis}, \textit{p. 408}.
pressure cracking

the trapped air having time to escape be-
tween the stones and second pretensions. Didd.
pressure creoseling. The most effective method
of preserving timber by impregna-
tion with creosote under pressure in tanks.

pressure die casting. The usual die casting
process in which the molten metal is
forced into highly finished molds under
heavy pressure by plungered, compressed
air, or combined methods. See also preci-
sion casting. Ham.

pressure dome. a. Synonym for air dome.
Long. b. The bonnet on a steam boiler.

pressure drilling. A process of rotary drill-
in which the drilling fluid is kept under
pressure in an enclosed system.
Brantly, l.

pressure drop. The decrease in pressure
at which a liquid or gas is made to move
between the intake and discharge of a
pipeline or drill stem. Long.

pressure figure. a. A figure produced by in-
sec ting lines of parting, due to gliding
which the moving element responds to
pressure exerted by air. Commonly
employed rather than pressure, particu-
larly for differences which cause airflow.
Measured in inches (water). Also called

pressure hydrate. The most common variety
of ASTm designated Type S hydrated
lime. Synonymous with autoclaved lime.
Boynton.

pressure hydrophone. A hydrophone in which
the electric output substantially corre-
sponds to a component of the gradi-
ent (vertical derivative) of the sound pres-
sure. Hy.

pressure gradient transducer. Transducer,
such as a mica or hydrophone, in
which the moving element responds to
pressure difference rather than to pressure.
HOG.

pressure grouting. a. The act or process of
injecting, at high pressures, a thin cement
slurry or grout through a pipeline or bore-
hole to seal the pores or voids in the rock
or to cement fragmented rocks together.
Long, b. Forcing a slurry of cement and
sand into subgrade or embankment either
by use of compressed air or by hydraulic
pressure. Urquhart, sec. 2, p. 31.

pressure head. a. Hydrostatic head; column
of water required to balance the fluid
pressure being measured. Pryor, 3. b. The
head on any point in a conduit represen-
ted by the height of the hydraulic
gradeline above that point. Seely, 1.
c. Height of column of water equivalent
to pressure exerted by air. Commonly
employed rather than pressure, particu-
larly for differences which cause airflow.
Measured in inches (water). Also called
head. Ham.

pressure hydrate. The most common variety
of ASTm designated Type S hydrated
lime. Synonymous with autoclaved lime.
Boynton.

pressure head. a. The height of a liquid
column of water required to balance the
pressure being measured. Held.

pressure loss. the decrease in pressure
at which a liquid or gas is made to move
between the intake and discharge of a
pipeline or drill stem. Long.

pressure meter. a. a pressure-recording
device. Nelson.
b. a device for indicating in
the pipeline or drill stem the
pressure at which a liquid or gas is
made to move between the intake and
discharge of a pipeline or drill stem.
Long.

pressure method. In flotation, a method in
which the electric. output is
substantially increased by an increase in
the voltage. See also pressure
method.

pressure gradient. a. The difference in
vertical pressure; stone pressure. Long.
b. A dampener. Long.
c. The difference in vertical pressure
between the top of a charge
and the bottom of another,
under equal conditions.

pressure modification. Changes in water
pressure caused by wave action. Hy.

pressure monitoring. Forging done by a steady
pressure in a hydraulic press. Stan-
dard, 1964.

pressure pan. a. A machine for removing
solids from tailings, and the effluent can
be reused in the washery or plant. The
tailings are pumped into the filter under
pressure, filtration takes place and solids
are deposited in the chambers. Gradually
the resistance increases until a pressure of
100 pounds per square inch is necessary
to form more tailings into the press. At
this stage, the chambers are almost full of
solids. The feed is cut off and the press
opened to allow the cakes to fall onto the
conveyor beneath the chambers. The out-
put of the pressure filter is low. Nelson.
b. A filter in which pressure is applied to
increase the rate of filtration. B.S. 3532,
1962. c. A filter in which the liquid to be
filtered is forced through filtering mate-
rnal by a pressure greater than its own
weight in the filter. Fay. d. See filter.
Pryor, 3.

pressure per stone. a. The number of stones set
in the bit by the number of stones
set in the bit. The
pressure per stone; stone pressure. Long.

pressure per stone. Synonym for pressure
per diamond. Long.

pressure plate. a. A plate driven by
the flywheel or rotating housing, which
will close automatically. Also called pop
valve; pressure-release valve.

pressure plate. b. A container from which
creosote, zinc chloride, or other pre-
servative is forced through the drill stem
and into the open hole below the packer.
Ham.

pressure pretesting. A process in which a
hydrophone, used to control or re-
strict the flow of fluid so that the pressure of the fluid plus
the force exerted by a spring or lever is suffi-
cient to close the valve against the pres-

ure survey. An indirect method of test-
ing porosity and permeability of forma-
tions at elevations of borehole or drill holes.
With the method a "packer" is attached
to the end of the drill string and the
string is run into the hole. The packer
is then expanded to block off the hole and water
is pumped through the drill string at con-
tant pressure, the quantity being meas-
ured. The drill string is then removed and
into the open hole below the packer.
If the rock is tight and unfractured
no water can be pumped. The quantity
which can be pumped, at any given

pressure pretesting. a. The act or process of
injecting, at high pressures, a thin cement
slurry or grout through a pipeline or bore-
hole to seal the pores or voids in the rock
or to cement fragmented rocks together.
Long, b. Forcing a slurry of cement and
sand into subgrade or embankment either
by use of compressed air or by hydraulic
pressure. Urquhart, sec. 2, p. 31.

pressure head. a. Hydrostatic head; column
of water required to balance the fluid
pressure being measured. Pryor, 3. b. The
head on any point in a conduit represen-
ted by the height of the hydraulic
gradeline above that point. Seely, 1.
c. Height of column of water equivalent
to pressure exerted by air. Commonly
employed rather than pressure, particu-
larly for differences which cause airflow.
Measured in inches (water). Also called
head. Ham.

pressure hydrate. The most common variety
of ASTm designated Type S hydrated
lime. Synonymous with autoclaved lime.
Boynton.

pressure hydrophone. A hydrophone in which
the electric output substantially corre-
sponds to a component of the gradi-
ent (vertical derivative) of the sound pres-
sure. Hy.

pressure gradient transducer. Transducer,
such as a mica or hydrophone, in
which the moving element responds to
pressure difference rather than to pressure.
HOG.

pressure grouting. a. The act or process of
injecting, at high pressures, a thin cement
slurry or grout through a pipeline or bore-
hole to seal the pores or voids in the rock
or to cement fragmented rocks together.
Long, b. Forcing a slurry of cement and
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sure. Hy.
pressure testing

pressure, is indicative of the degree of fracturing and permeability of the rock below the level of the packer. The quantity is also a function of the ground-water surface elevation. Woodruff, v. 1.

pressure tight. Leakproof under pressure. ASM Gloss.

pressure-tube anemometer. See pitot-static tube.

pressure-tube reactor. A nuclear reactor in which the reactor core, which is contained within a strong-walled container, is pressurized. A strong-walled container housing the core of most types of power reactors is pressurized. A. Any structure, area, or zone of pressurized water within is held higher than the near normal atmospheric pressure. Nelke, 1954.

pressurized. 2. Any structure or area in which the pressure within is held higher than the near normal atmospheric pressure. Nelke, 1954.

pressure vessel. A strong-walled container housing the core of most types of power reactors is pressurized. A. Any structure, area, or zone of pressurized water within is held higher than the near normal atmospheric pressure. Nelke, 1954.

pressure wave. a. A pressure produced by expanding gases moving at high velocity, the side component of which, equivalent to static pressure, may be recorded by a manometer at the side of the entry or mine passage. Rice, George S. b. Synonym for shock wave; compressional wave. A.G.I.; A.G.I. Supp.

pressure water loader. A cartridge loader in which the gun and shell are loaded in a workshop with the tensioned wires embedded in them and firmly anchored. See also pressurized. Fay.

pressurized. Any structure or area in which the pressure within is held higher than the near normal atmospheric pressure. Nelke, 1954.

pressurized. a. Any structure, area, or zone fitted with an arrangement that maintains nearly normal atmospheric pressure. Nelson, b. Any structure or area in which the pressure within is held higher than the pressure without. Bureau of Mines Staff.

pressurized stoping. Stoppings erected in the intake and return roadways of a district to isolate an open fire or spontaneous heating area. ASPE P1826.

pressure welding. Welding where pressure is used to hold the work to be welded. ASM Gloss.

pressure wires. Wires leading from various parts of the core and extensions to the parts have been designated as decompression, compression, virgin compression, expansion, rebound, and other descriptive names by various authorities. ASPE P1826.

pressure testing. A test to determine the strength of a material under pressure. A.G.I. Supp.

prickled. a. Any structure, area, or zone fitted with an arrangement that maintains nearly normal atmospheric pressure. Nelson, b. Any structure or area in which the pressure within is held higher than the pressure without. Bureau of Mines Staff.

prickled. Any structure, area, or zone fitted with an arrangement that maintains nearly normal atmospheric pressure. Nelson.

prickled. In ceramics, ornamented with dotted depressions made with a single point or with a comb. Standard, 1964.

prickled. a. A thin brass rod, once used to make a hole through the tamping of a charged shot hole, through which the blasting fuse could then be inserted. Pryor, s. b. A nonferrous tool for making a hole in the primer cartridge to receive the detonator. B.S. 3561, June, 1964. see also priming. S. Staff.

picketing. Marking or graving on a control of glass on the basis of an observation of intervals and the condition of the glass, and equipment inspections made at regular intervals. Pryor, 3.


piercing dirt. Same as holing coal. Tomkeeff, 1954.

prime of the country. A term sometimes given to the inhabitants of one discovered near the surface. Nelson.

primaries. A mineral, (K, Ba)2[Fe(Fe-2)O3].

prilon. A hydrous borate of calcium, 5CaO. Fe2O3.H2O.

prismatic. a. Globular, porous structure is safely transferred through the piles and underpinning, the weight of the structure will withstand its working load more effectively or with less deflection. Ham.

prismatic recrystallization. Recrystallization in a tectonite is ceased before deformation was completed. A.G.I. Supp.

pretectonic recrystallization. The predominant crystal recorded and marked on a chart. A system which enables break-downs to be anticipated and arrangements made to perform the necessary overhauls and replacements in good time. Nelson.

prevailing currents. The predominant or usual movement of water. Ham.

preventable accident. An accident due to carelessness. Such carelessness may be due to the nature of the worker, bad lighting, or fatigue. Spalding, p. 362.

preventive maintenance. A system of plant and equipment inspections made at regular intervals and the condition of the items recorded and marked on a chart. A system which enables break-downs to be anticipated and arrangements made to perform the necessary overhauls and replacements in good time. Nelson.

pressure vessel. A strong-walled container housing the core of most types of power reactors is pressurized. A. Any structure, area, or zone of pressurized water within is held higher than the near normal atmospheric pressure. Nelke, 1954.

pressure unloading. Use of air pressure to remove contents of a ball mill, tank, or reeking and in which the pressure on both sides of each stopping are made equal by the use of auxiliary fans. By making the air jet at the return fresh air does not reach the fire through one stopping and foul gases are not expelled at the other. A small regulator is used in the auxiliary fans to maintain equal pressures at all times. Nelson.

pressurized water reactor. A reactor in which the water is transformed from the core to a heat exchanger by water kept under high pressure to achieve high temperature and to prevent boiling in the core, and a secondary circuit is generated in a secondary circuit. LBL.

Preston density comparator. An instrument designed for use in the routine quality control of glass on the basis of an observation of intervals and the condition of the glass, and equipment inspections made at regular intervals. Pryor, 3.
primary

to include the present Paleozoic, late by Late Paleozoic; finally abandoned and now obsolete. Fay. D. Of ore, not enriched or oxidized by weathering or pyritization. A substance which is obtained directly, by extraction and purification, from natural raw material; for example, copper and antimony are coal-tar primary compounds. C.T.D.


primary blasting. a. Applied to the application of a explosion to or during the initial firing of solid rock, ore, or coal; blasting in situ. See also secondary blasting. Nelson.

primary boiling. a. The process of smelting alumina in an electric furnace that reduces the oxide to aluminum, which is cast into ingots for further processing. Nelson.

primary anomaly. See geochemical anomaly.

primary basalt. A presumed original magma, from which all other rock types are obtained. A.C.T. Primary basalt.

primary blast furnace. A machine which takes over the work of size reduction from blasting operations, and may be a gyratory or jaw breaker. Its capacity must be greater than the overall crushing plant capacity. In mines, primary ore crushing to about 6 or 8 inches may be performed underground. See also reduction ratio. Nelson.

primary breaker. A machine which takes its own electrical energy from the chemical action of its constituents. Examples of primary cells are the voltaic cell, the Daniell cell, LeClanche cell, and the dry cell. Morris and Cooper, p. 238. A group of flotation cells in which the raw feed is given a preliminary treatment, either or both of the products being subsequently retreated. B.S. 3552, 1962.

primary chemical. A chemical, which is obtained by extraction and purification from a natural raw material; for example, copper from coal. Fay. D. Of ore, not enriched or oxidized by weathering or pyritization. A substance which is obtained directly, by extraction and purification, from natural raw material; for example, copper and antimony are coal-tar primary compounds. C.T.D.

primary consolidation. The reduction in volume of a soil mass caused by the application of a sustained load to the mass and due principally to a squeezing out of water from the void spaces of the mass and deposited by a transfer of the load from the soil water to the soil solids. Also called primary compression; primary time effect. A.S.C.E P1926.

primary creep. See creep. ASM Gloss.

primary crusher. a. In comminution of ore, a primary crushing machine capable of accepting run-of-mine coarse ore and reducing it in size to somewhere between 6 and 34 inches. Heavy-duty connotes both the ability to handle large tonnages daily and to withstand or very rough treatment. Pryor, 3. b. The primary crusher in a series for processing shale or other rocks. See also secondary crusher. A.C.S.C, 1969.

primary current. a. In ore dressing, the first stage in which crushers take run-of-mine ore and reduce it to a size small enough to be taken by the next crusher in the series. Ordinarily, the Blake jaw crusher or a gyratory crusher is used. Newton, p. 59.

primary crystal. The first type of crystal that separates from a melt on cooling. ASM Gloss.

primary current distribution. The current distribution in an electrolytic cell that is free of polarized or charged areas. Stokes and Varnes, 1955.

primary detecting element. In flotation, that portion of the feedback elements which first either utilizes or transforms energy from the dispersed medium to produce a signal which is a function of the value of the directly controlled variable. Fuerstenberg, 1955.

primary dip. The dip or attitude assumed by a bedded deposit at the time of its formation. See original dip. Stokes and Varnes, 1935.


primary dissolution. See geochemical dispersion (anomalies) recognized as being of importance in prospecting are: (1) the geochemical province within which a chemical composition can be correlated with certain types of ore; (2) dispersion patterns formed by the fluids associated with metamorphic processes; and (3) dispersion patterns produced by the migrating gas phase at low temperature. Temperature dispersion patterns may include the end products of the processes of metamorphism, metasomatism and magmatic differentiation (final compositions in minerals in a molten magma). Lewis, pp. 299-300.

primary drilling. The process of drilling holes in a rock mass for the purposes of mining. See primary ventilation. Hawkes, 2, p. 10.

primary excavation. Digging in undisturbed soil, as distinguished from handling stoping. Nichols.

primary explosive; initiating explosive. Explosive or explosive mixture or detonator; used in primers and detonators to initiate explosion. Bennett, 24, 1962.

primary flow structures. Structures of either linear or platy nature developed in igneous rocks prior to or during consolidation. Stokes and Varnes, 1955.

primary foliation. That variety of platy flow structure that forms foliation. An interpretation placed for and is due to the parallelism of platy minerals. Stokes and Varnes, 1955.

primary gneiss. Applied to a rock that exhibits foliation, lineation, or other planar or linear structures, such as are generally characteristic of metamorphic rocks, but which because of the absence of observable granulation or reaction is considered to be gneiss. The qualifying adjectives trachitoid or gneissoid for coarse-grained rocks and trachytic or gneissose for fine-grained rocks are in use presently. For, the term gneiss should properly be employed only for metamorphic rocks. A.C.T.

primary gneissose. A bed, or locally, a rock which has been formed from coarse-grained or medium-grained igneous or metamorphic rocks, and which shows a well-developed planar structure. Stokes and Varnes, 1955.

primary horizon. The zone within which the rock layers show a distinct change from one type to another, such as the contact of the granite in which it is found, the magnetic flux necessary for the initiation of the machine or apparatus. C.T.D.

primary mineral deposits. A mineral deposit as defined at the same time the rock in which it is found, or the rock which in it is found, in contradistinction to a secondary mineral formed later than the rock. For example, biotite in a granite is a primary mineral. If the biotite is altered to chlorite, the chlorite is termed a secondary mineral, since its formation was later than that of the granite in which it occurs. Nelson.

primary mineral deposits. Mineral deposits formed from magmas; subdivided into syngenetic and epigenetic deposits. They are subjected to later weathering, erosion, and detritus and to possibly long-time changes that may transform. primary mineral deposits. Mineral deposits formed from magmas; subdivided into syngenetic and epigenetic deposits. They are subdivided into three groups: (1) syngenetic rocks, (2) sedimentary rocks, and (3) gneissic materials. Nelson.
primary mineral deposits
and residual or cètral ore deposits. Lewis, p. 273.

primary openings. Openings or voids exist-
ing when the rock was formed. In sedi-
mentary rock, primary openings are usu-
ally the result of the arrangement and
nature of the original sediment. A.G.I.

primary porosity is that which has remained prac-
tically unchanged from the time of ori-

primary ore minerals. Ore minerals are clas-
sed as primary or hypogene, and sec-
ondary or supergene. The former were
deposited during the original period or
periods of metasomatization during which
alteration products of the former as a
result of precipitation from percolating
water, are suspended, if any turbulence
exists at all; that primary slime is formed.
Taggari, p. 973.

primary solid solution. A constituent of
alloys that is formed by the substitution of an
atom of component B for atoms of a
component A in the crystal structure of A,
resulting in a new phase having the proper-
ties of both A and B. Strock, 10.

primary structure. a. The structure present
in a stratified rock, consisting of a primary
rock, a matrix which has been plastically
deformed, and a primary sedimentation
structure. a. The structure which ex-
ists at the time of solidification of a
magma. Taggari, p. 973.

primary-type coal. The type of coal which
contains both a coal matrix and a detrital
sandstone or siltstone. Bennett, 2d, 1962.

primary water supply. The principal or orig-
nal source from which drinking water is
obtained, as opposed to recirculated water.
Long.

primary wave. Same as longitudinal wave.
A.G.I.

primary zinc. Zinc produced by direct smelt-
ing or fusing. Bennett, 2d, 1962.

primary settlings. Subsidence in a surface
or that portion of a charge
which carries a detonator or is coupled
to Cordex fuse and which detonates
the charge. The term is used to describe
the part of the charge that is de-

primary source. If an operation produces
or recycles some or all of the waste
material, the waste is considered a
direct initiation. Nelson.

primary setting. The surface subsidence that
occurs before the surface is entirely
covered by water. Strock, 10.

primary settling. The surface subsidence that
occurs after a few months or years and
that usually constitutes 60 to 90 percent
of the total subsidence. It varies accord-
ing to the depth and thickness of the
settling zone. Briggs, 1.

primary situation. A mineral found in the
rock in which it was formed. Hess.

primary slime. Most ore reefs as mined
contain both primary and secondary minerals.
Kemmerer.

primary source. A primary source can be
defined as any operation that produces
at least one product that is completely
different from any products produced by
other operations. A.G.I.

primary-type coal. The type of coal which
contains a matrix of detrital sandstone or silt-
stone, and a primary sedimentation struc-

primary water supply. The principal or orig-
nal source from which drinking water
is obtained, as opposed to recirculated
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primary slime. Most ore reefs as mined
contain both primary and secondary minerals.
Kemmerer.
priming valve. a. A safety valve on the working cylinder of a steam engine to discharge the priming. Standard, 1964. b. A valve connected with the discharge pipe of a force pump through which the pump may be primed.

primitive circle. In crystallography, the great circle in the plane of a stereographic projection. Fay.

primitive form. A crystal form from which other forms may be derived. Fay.

primitive period. With a periodic quantity, the smallest increment of the independent variable for which the function repeats itself. Hy.

primitive rocks. Rocks supposed to be first formed and containing no organic remains, being irregularly crystallized and aggregated without a definite plan such as granite, gneiss, and the like. See also primary. Fay.

Prince Rupert's drops. Drops of glass that have been highly strained by quenching; when the tail of one of these drops is broken the glass explodes to dust, but the drop itself is immensely strong. These drops were first made by Prince Rupert, nephew of King Charles I. Dodd.

principal axes. The principal axes cf an ellipsoid. The extensions of lines drawn in these directions, in the unstrained state, are stationary for small variations of direction. One of them is the greatest extent, the second is the smallest. A.G.I.

principal axes of strain. In elastic theory, the principal axes of the reciprocal strain ellipsoid. The extensions of lines drawn in these directions, in the unstrained state, are stationary for small variations of direction. One of them is the greatest extension, the second is the smallest. A.G.I.

principal axes of stress. The coordinate axes along which no shearing stresses exist. A.G.I.

principal axis. a. In the tetragonal and hexagonal systems, the vertical crystallographic axis; hence what is the same thing in uniaxial crystals, the optic axis. Fay. In the orthohombic and triclinic crystals, the axis of the principal zone; the axis with the shortest period, often the optic axis of the principal zone. In monoclinic crystals, the axis c, usually the axis of the principal zone excluding the symmetry axis; the symmetry axis b. A.G.I. b. In a transducer used for sound emission or reception, the reference direction for angular coordinates used in describing the directional characteristics of the transducer. In a two-axis transducer, the axis of symmetry or the direction of maximum response, but if these do not coincide, the reference direction must be described explicitly. Hy.

principal earthquake. The strongest of a consecutive number of earthquakes. Schlieffen.

principal meridian. a. A meridian line accurately located, and used as a basis from which coordinate lines of monuments, called guide meridians, for the use of surveyors. Standard, 1964. b. In public land surveying, the line established through the initial point of a system of coordinated township boundaries. See also base line.

principal moment of inertia. The moment of inertia of an area about either principal axis. Ro.

principal plane. Each of three mutually perpendicular planes through a point in a soil mass on which the shearing stress is zero. See also principal plane; minor principal plane; major principal plane; minor principal plane. ASCE P1826.

principal point. That point on an air survey photograph which is the intersection between the optical axis of the camera and the photographic plane. Ro.

principal section. In crystallography, the plane passing through the optical axis of a crystal. Standard, 1964.

principal stresses. The normal stresses on three mutually perpendicular planes on which there are no shear stresses. ASM Gloss.

principal tectonic. Synonym for synogenetic. A.G.I.

principle of Archimedes. See Archimedes' principle. Ham.

principle of moments. a. The algebraic sum of any number of forces is equal to that point, equals the moment of their resultant about that point. Grissip. b. A body will be in equilibrium when the sum of the clockwise moments equals the sum of the anticlockwise moments, or the algebraic sum of all the moments is zero. Morris and Cooper, p. 153.

principle of superposition. In order to determine the stress in a member due to a system of applied forces, the system can be split up into several component forces and their moments and reactions added in order to calculate the total stress. Ham.

principle of uniformity. Synonym for uniformitarianism. A.G.I.

prinsep. Eng. The distance between two rolling points. Plantsing in Derbyshire. An odd number to flow onto the top deck of the jig, allowing the upper stratum of the material to flow onto the top deck of the jig while the lower stratum enters the jig recess chamber. Mitchell, p. 139.

プリンスウォーカー. A dense-media process in which large-size coal is separated from the refuse in a flowing bed of small coal in a reciprocating launder. Refuse sinks to the bottom. The small coal is screened from the coarse refuse and returned to the head of the classifier by a drag conveyor. The floating large coal passes over skimmers in the trough to the discharge chute. Mitchell, p. 139.

prinse washer. A combination trough washer and jig in which the feed enters the unit through the e of the photographs. Rastil iation takes place. The stratified material overflowing the stationary trough is divided at the first opening in the shaking jig, allowing the upper stratum of the material to flow onto the top deck of the jig while the lower stratum enters the jig recess chamber. Mitchell, p. 431.

print. a. In founding, a projection on a a ragonite arranged with their principal prismatic layer. The nuclear and during firing; an item of kiln furni-

paper, using glass cutter. Positions design around ware, cutting off excess with scis-
sors and smoothing with . Reduces waste by removing defective portions of design with chemical solution and fitting in patch cut from design. D.O.T. Supp.

prinette. Pottery, the decoration of which is effected by means of transfer printing. Standard, 1964.


print. a. In crystallography, an open form of three or more similar faces parallel to a single axis; the shape of its cross section is usually rectangular or solid, as trapezoidal prism, rhombic prism, or dichroehal prism. A.G.I. b. In crystallography, any prism that is parallel to one of the c. Obsolete. A.G.I. c. The light liquid mobile volume of a single. The volume of a length of embankment or excavation. Seely, 1. d. A solid with ends that are similar, equal and parallel polygons, and with sides that are parallelograms. Jones, p. 116.

print. a. In optics, resembling the color formed by the reflection of light through a prism. Shiplay. b. In crystallography, having elongation in one direction, commonly parallel to one of the crystallographie axes; also parallel to the faces of a crystal, as prismatic cleavage. Shiplay.

prismatic compass. Surveyor's compass, usually portable and handheld in which the graduated radius is inscribed on the face of the needle that is attached is read through a prism while sighting. Pryor, 3.

prismatic glass. Glass that has been pressed or rolled to produce a pattern of prisms; these refract light passing through the glass. The term is sometimes, erroneously, applied to pressed tubing. See also lenst-fronted tubing. Dodd.

prismatic layer. A layer, in pearl or mother-of-pearl, composed of minute crystals of aragonite arranged with their principal axes perpendicular to the surface of the layer. Shiplay.

probable ore. A class of ore whose occurrence is not absolutely certain but is reasonably assured but not absolutely certain. Pryor, 3.

probable reserves. Areas of coal or mineral lying beyond the developed reserves but still close enough to be considered proved within ordinary probability. Where the acreage of probable reserves is known from maps or surveys, the tonnage of coal may be calculated as: (1) Theoretical tonnage = 101.37 x specific gravity of coal x tons per acre; and (2) workable tonnage — deduct 10 to 20 percent or more according to geological report and the area's known consistency. See also economic coal resource base.

probable. A small tube containing the sensitive element of electronic equipment, which can be lowered into a well to make measurements and data. Long, b. To conduct a search for mineral-bearing ground by drilling. Lang, c. To lower drill rods, etc., to locate obstructions and/or to determine the attitude of a piece of junk, a borehole. Long, d. Electrocute used in mining a potential difference. Schiesser, 4.


process flow sheet. A basic flowsheet indicating the main operational steps within the plant, the movement of the various materials between the steps, and the final products obtained, and often also the operating variables with which the plant must be capable of dealing at various points. B.S. 3352, 1962.

probing. a. A small needle used to detect radioactivity in a drill hole. Ballard. b. To thrust a pointed steel rod down into sand or soft clay to contact the sea or ore body. The point of the rod is examined for traces of coal or mineral. See also auger.

probing a hole. Using a probe attached to a Geiger counter to detect radioactivity in a drill hole. Ballard.

process metallurgy; production metallurgy. a. A series of chemical or metallurgical operations conducted to an end. Webster 3d. b. Term is used in mineral processing, large-scale beneficiation of ores. Processing, or dressing, operations may include crushing, sorting, sizing, grinding, classification, desliming, leaching, amalgamation, gravity treatment flotation, magnetic and electrostatic treatment, and pyrometallurgy. See also metallurgical process; mining process; wet process. ACS-G, 1963.

process annealing. In the sheet and wire industries, heating a ferrous alloy to a temperature close to, but below, the lower limit of the transformation range and then cooling, in order to soften the alloy for further cold working. ASM Gloss.

process tolerance. The dimensional variations of a part characteristic of a specific process, once the setup is made. ASM Gloss.

process. a. The series of chemical or metallurgical operations conducted to an end. Webster 3d. b. Term is used in mineral processing, large-scale beneficiation of ores. Processing, or dressing, operations may include crushing, sorting, sizing, grinding, classification, desliming, leaching, amalgamation, gravity treatment flotation, magnetic and electrostatic treatment, and pyrometallurgy. See also metallurgical process; mining process; wet process. ACS-G, 1963.

processes. The various artificial methods used to clean, size, and steel, and usually returned to steel manufacture of finished articles from iron and steel, and usually returned to steel manufacture of finished articles from iron and steel. Nelson.

process metallurgy. A nuclear reactor that gives comparative results. By weighing differences after long periods, the movement of the various materials between the steps, and the final products obtained, and often also the operating variables with which the plant must be capable of dealing at various points. B.S. 3352, 1962.


processing. In flotation, process lag is the delay or retardation in the response of the controlled variable at a point of measurement to a change in the manipulated variable. D.O.T. 1.

processing. A. The various artificial methods used to clean, size, and steel, and usually returned to steel manufacture of finished articles from iron and steel. Nelson.

process inspector. One who repairs flaws, such as blisters, bruises, and other surface marks, on enamelled metal parts. Removes enamel from broken surfaces, using a metal probe, and fills cavities with thick enamel underlaid with wax and rubbed in with fingers. Also called patcher; touchup man. D.O.T. 1.

process lag. In flotation, process lag is the delay or retardation in the response of the controlled variable at a point of measurement to a change in the manipulated variable. D.O.T. 1.

process. A. The various artificial methods used to clean, size, and steel, and usually returned to steel manufacture of finished articles from iron and steel. Nelson.

process. a. A series of chemical or metallurgical operations conducted to an end. Webster 3d. b. Term is used in mineral processing, large-scale beneficiation of ores. Processing, or dressing, operations may include crushing, sorting, sizing, grinding, classification, desliming, leaching, amalgamation, gravity treatment flotation, magnetic and electrostatic treatment, and pyrometallurgy. See also metallurgical process; mining process; wet process. ACS-G, 1963.

process annealing. In the sheet and wire industries, heating a ferrous alloy to a temperature close to, but below, the lower limit of the transformation range and then cooling, in order to soften the alloy for further cold working. ASM Gloss.

process metallurgy. A nuclear reactor that gives comparative results. By weighing differences after long periods, the movement of the various materials between the steps, and the final products obtained, and often also the operating variables with which the plant must be capable of dealing at various points. B.S. 3352, 1962.

process tolerance. The dimensional variations of a part characteristic of a specific process, once the setup is made. ASM Gloss.

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process annealing. In the sheet and wire industries, heating a ferrous alloy to a temperature close to, but below, the lower limit of the transformation range and then cooling, in order to soften the alloy for further cold working. ASM Gloss.
made in a variety of types suitable for all kinds of ceramic product. Dodd.

**Proctor penetration curve.** See penetration resistance. "ASCE P1826.

**Proctor penetration needle.** A quick and convenient method for testing the resistance of the soil to penetration at a standard rate of 1/4 inch per second. See also California-bearing ratio, Fay.

**Prodelta clays.** The fine muds or silts which make up the bottommost portion of cross-bedding. These are deposited in the delta offshore from a river delta. A.G.I.

**Productivity.** a. A term closely allied to, and may be expressed by, the O.M.S. of a face or collarily or metal mine. Productivity will vary with the degree of mechanization and other practices in the mining operation, it is a function of the "horsepower" of a suitable nature, at the disposal of each miner. See also intensive mining machine, Nelson.

**Productive.** Yielding payable ore. Fay.

**Producer gang.** A team of men employed in the production of coal or coke in air. It consists of a machine, a gunnery, and a coaling crew. The gunnery consists of a pivoted arm mounted on a horizontal shaft. The coaling crew consists of a team of men employed in the production of combustible gas to be contained with small proportions of hydrogen (obtained by the "water gas" reaction), metaling the coal, and carbon dioxide (resulting from conditions unfavorable for the complete combustion of coal to carbon dioxide). Franti, 1965, v. 2, p. 376.

**Producer gas.** Obtained by the partial combustion of coal or coke in air. It consists mainly of carbon monoxide and nitrogen, with small proportions of hydrogen (obtained by the "water gas" reaction), metaling the coal, and carbon dioxide (resulting from conditions unfavorable for the complete combustion of coal to carbon dioxide). Franti, 1965, v. 2, p. 376.

**Producer paper.** Paper ruled horizontally and vertically with equidistant lines to scale, for convenience in drawing engineering profiles in either direction. Standard, 1964.

**Profile shooting.** A refraction type of seismic shooting in which the shots and detectors are laid out on long lines. Successive shots are taken at uniform or almost uniform intervals along each line, and successive detector spreads are shifted about the same distance as the corresponding shot point so as to keep the range of shot-detector distances approximately the same for each shot. Generally, shots are received from opposite directions on each detector spread. The distance range is chosen so that when desired the second, arrivals will be refracted from a particular formation such as the basement, first, second, whenever possible. The proper distance is usually determined by time-distance plots based on the first arrival. Woodruff, v. 3, p. 447.

**Profile.** a. A vertical section of a soil showing the nature and sequence of its variations. Webster 3d. b. A drawing used in civil engineering to show a vertical section through a bit, borehole, etc. It is the sum of the products obtained by multiplying each element of the area dA by its coordinates with respect to those axes, x and y; it is therefore the quantity \( \int_{x_1}^{x_2} \int_{y_1}^{y_2} dx dy \).

**Profilograph.** An appliance for plotting the "water" reaction, which includes the design being cut from the material before fusing into the silk or a waxed paper backing. In silk screen printing, the design being cut from the material before fusing into the silk mesh is mounted on a waxed paper backing. In silk screen printing, the design being cut from the material before fusing into the silk mesh is mounted on a waxed paper backing.

**Profile shooting.** A refraction type of seismic shooting in which the shots and detectors are laid out on long lines. Successive shots are taken at uniform or almost uniform intervals along each line, and successive detector spreads are shifted about the same distance as the corresponding shot point so as to keep the range of shot-detector distances approximately the same for each shot. Generally, shots are received from opposite directions on each detector spread. The distance range is chosen so that when desired the second, arrivals will be refracted from a particular formation such as the basement, first, second, whenever possible. The proper distance is usually determined by time-distance plots based on the first arrival. Woodruff, v. 3, p. 447.
profigraph

to point the perimeter profile is plotted on a reduced scale. *Nelson.*

proficient. In an accurate and instrument for measuring the smoothness or roughness of a surface. As a diamond-edged stylus is moved across a surface, the arm, by moving a coil in an electric field, causes the generation of a current in proportion to the roughness of the surface, which is registered by an indicating needle. *Crispin.* See M.R.E. profilometer. *Roberts,* J., p. 61.

profitted. When one speaks of the interest on a mining investment, the rate mentioned ordinarily consists of the normal rate plus a substantial additional rate that represents the profit that should accrue in proportion to the hazardous nature of the mining project. In this sense, the rate of interest in most forms of mining should be high; to be satisfied with less than 10 percent annually would show a lack of acumen. *Hoover,* p. 157.

profit-and-loss account. Form used in presenting accounts which shows the gross balance over a working or trading period, plus the net balance and the expenditure. *Pryor,* 3.

profit-and-loss statement. A statement showing in detail the sum to be added to, or subtracted from, the net worth of a business as a result of operations during the fiscal period. *Hoover,* p. 448.

profit in sight. Profit from a particular proceeds, which are emitted at appreciable time intervals after fission has occurred. Prompt neutron exposure are over 99 percent of fission neutrons. *L.P.*

prone. The state of being inclined or disposed to by means of an illuminated scale. *Schieferdecker.*

promotion. A term that has been applied to an amorphous intermediate product in the process of kaolinization. *See also kaolinization.*

prolapsed bedding. A series of flat folds with near-horizontal axial planes contained entirely within the fold. *Petitjohn.*

prolonged. Secondary conditioner used in zinc industry. *Bureau of Mines Staff.*

promethium. A rare earth element discovered in the fission products of uranium. It is prepared in a cyclotron by bombarding promethium-142 with protons from a nuclear reactor and from nuclear reactor separations. Fourteen isotopes, promethium 141 to promethium 145, have been noted the longest-lived isotope, promethium 145, has a half-life of 18 years; and the most useful isotope, promethium 147, has a half life of 2.5 years. *Symbol,* Pm; *valence,* 3; *atomic number,* 61; *melting point,* 10,35° *C;* and boiling point, 200° C. *CCD 6d,* 1961; *Handbook of Chemistry and Physics,* 45th ed., 1964, pp. B-31, 4074. 

promising. Looking as if likely to turn out well; as in mining, a promising prospect. *Pryor,* 3.

promontory. a. A projecting tongue of land surrounded on three sides by a devoted general; b. A cape of comparatively high land. Also called headland; head. *Schieferdecker.*

promote. a. To encourage; introduce of finance for a mining venture. *Pryor,* 3. b. A reagent used in froth-floatation process, usually called the collector. *See also collector. Pryor,* 3. c. A substance which increases the activity of a catalyst. *C.T.D.*

promise. a. The state of being in proportion to the hazardous nature of the mining project. In this sense, the rate of interest in most forms of mining should be high; to be satisfied with less than 10 percent annually would show a lack of acumen. *Hoover,* p. 157.

prompt criticality. The rate at which the fission chain reaction is sustained solely by prompt neutrons; that is, without the help of delayed neutrons. *L.P.*

promptly. At the low point of the wave, and its attendant services, including the ore treatment plant. *Pryor,* 3.

project. In operational procedures, any set of actions directed toward a specific aim or objective. *Pryor,* 3.

project data. Basic information needed by engineers concerned with design, site development, machine and housing assembly, plant erection, contract supervision and coordination when planning, erecting and bringing into operation a new mine and its attendant services, including the ore treatment plant. *Pryor,* 3.

projected diameter. Of a particle, that of a circle which has the same area as the projected profile. *Pryor,* 3.

projected pipe. A pipe laid on the surface before the excavation of powders in which the opposite direction at the low point of the wave, and exhibit no motion at the midpoints between. *Hoover.*

projective. a. A plan showing the proposed direction and location of entries, shafts, faces, fan and waste courses. Such projections generally show the entire profile to be worked by any mine and all completed work, though the latter is not strictly projection. *Zern,* b. Synonym for exposure. *See also exposure. Long,* c. Synonym for projection. *See also projection.* d. In mapping, a geometric (or mathematical) system of constructing the true meridians and parallels, or the plane rectangular coordinates on a map. *Says,** y. e. A geometrically or mathematically derived portrayal of the surface of the earth with a minimum of distortion of distances, directions, shapes, and areas. *Hy.* f. The act or result of constructing a figure upon a plane or other two-dimensional surface that corresponds point for point with a sphere, a spheroid, or some other three-dimensional form. *Hy.*


projection welding. Resistance welding in which the welds are localized at projections, embossments, or intersections. *ASM Gloss.*


project plans. A series of plans of a proposed new mine or reconstruction which are drawn up for the purpose of obtaining approval of the project. *B.S.* 3618, 1965, sec. 1.

project. A term that has been applied to an amorphous intermediate product in the process of kaolinization. *See also kaolinization.*

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Proof spirit. A. The stress that will cause a substance to break. B. A specified stress to be applied to a member or structure to indicate its ability to withstand service loads. 

Prop. a. Underground supporting post set across the lode, seam, bed, or other opening. Pryor, 3. b. In mining, a roof support, usually temporary. B.C.I. c. A timber set upright or at right angles to the dip, to support the roof rock. Fay. d. A strut or post in tunnel construction work, either vertical or raking, usually of round timber, used as a support, or stay. A raking strut is used to support the roof where it is necessary to support the roof several hundred such struts. Fay.

Propagation. In general, propagation is said to occur when the flame of an explosion travels over considerable areas of a mine in a horizontal plane and travels when cause is removed. Rice, George S.

Propagation anomaly. The difference between the actual propagation loss for a given length of water path and the nominal value of propagation loss identified with the distance covered by that path.

Propagation loss. The transmission loss associated with any given length of ray path in the water. Rice, George S.

Propagated blast. A blast consisting of a number of predetermined charges of explosives and only one hole primed, generally for the purpose of ditching, where each charge is detonated by the explosion of the adjacent one, the shock being transmitted through the wet soil. In this method, one detonator is fired in the middle of a line of holes is capable of bringing about the explosion of several hundred such charges. Fay.

Propeller. The rotating curved blade of a pump or fan, also an impeller. Nelson.

Propeller fan. A. Axial-flow ventilating fan used to blow fresh air into mine workings or to extract foul air. Pryor, 3. b. A fan having an impeller other than the centrifugal-type rotating in an oriﬁce, the air ﬂow into and out of the impeller not being conﬁned by any casing. B.S. 3618, 1963, sec. 2.

Propeller pump. This type of pump, often called axial-ﬂow, develops most of its head by the propelling or lifting action of the vane upon the liquid. The impeller is single-inlet with the ﬂow entering axially and discharging radially. The speciﬁc speed is usually above 9,000. The impeller closely resembles a ship's propeller. These pumps are built in horizontal or vertical casings, and are primarily used in handling sludge, de-watering pits, sewage pumping, and similar duties requiring large capacities and heads under 100 feet. Fitz and Quarry, 53d, Sec. E, p. 88.

Propeller shaft. Usually a main drive shaft fitted with universal joints. Nichols.

Propeller. In a revolving shovel, a shaft which transmits the power to the walking mechanism. Nichols.

Proportional limit. The greatest stress which a material is capable of sustaining, developing without any deviation from proportionality of stress to strain (Hooke's law). In the case of rocks, this stress limit and elastic limit are restricted to short-time tests as in tests of long duration they slowly and permanently deform, even if stresses below the short-time proportional limit. Stokes and Verrall, 1935.

Propeller plus integral control action. As used in ﬂotation, action in which the output is proportional to the linear combination of the input and the time integral of input. Fuerstenau, p. 549.

Propeller plus integral plus derivative control action. As used in the control of very large machines, in which the output is proportional to a linear combination of the input, to the time Integral of input, and to the time integral of change of input. Fuerstenau, p. 549.

Propelling. Measuring by weight or by volume the constituents before mixing of concrete, mortar, or plaster. See also batching plant. Ham.

Progress. A project plan, undertaking, or situation requiring action (as dealing with, managing, operating, carrying out) with reference to it. Webster 3d.


Propellant. A. A mixture given to sand or other granulated rock material used to prop the artiﬁcial crevice formed when underground formations are hydraulically fractured. See also hydraulic fracturing. A.G.I.

Propellent. See prop drawer.

Propeller pump. This type of pump is used in longwall mining of a coal seam, a face with no posts between the coal and the conveyor used to remove it. Pryor, 3.

Propeline. A. A coal miner or bituminous coal mining, one who operates props (posts) to support the roofs of underground working places, placing and wedging them at the most effective points. D.O.T. 1.


Proportional phis behind plus derivative action. As used in flotation, action in which the output is proportional to the particular speciﬁc species. These proportions vary with the refractive index of the gem species. Shipley.

Propeller. Term loosely used to mean the physical properties and optical properties of a gemstone or its substitute. Shipley.

Propeller pump. These include the cross-sectional area of a structural member, its moment of inertia, section modulus, and other mechanical properties essential for accurate design calculations. Ham.

Propellant. A. A mixture given to sand or other granulated rock material used to prop the artiﬁcial crevice formed when underground formations are hydraulically fractured. See also hydraulic fracturing. A.G.I.

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Propellant. See prop drawer.
prospective. A colorless, tabular mineral with
propylitindon. The introduction of, or re-
propyllte. Originally, andesites formed at the
prop wood. Eng. Timber suitable for cut-
prop wall. Props that are fastened together
obtained from a small amount of paydirt
man. I. A specimen or sample of mineral
formation that may be capable of develop-
by working a sample of ore. Pay. h. A
which has not yet been made manifest.
sutwity survey. Pryor, 3. e. The name
search for deposits and is performed by
Long. d. Territory under examination for
plot of ground believed to be mineralized
in the mining district. of the Western United States. Stokes and
mineral wealth.
prospecting a. The search for outcrop: or
prospeedag disk pam dolley pot. A simple
prospect nice. A small group organized
prospect hole. a. Any shaft, pit, drift, or drill
hole made for the purpose of prospecting the
mineral-bearing ground. Fay. b. A
prospect shaft. A shaft sunk in connection
prospect hole adds nothing to the value
hole made for the purpose of prospecting
mineral property, the value of
insist of clay, talc, etc. Fay.
prospecting tour. A tour or journey of ex-
prospecting license. Authorization granted by
a government to an individual in some
countries, permitting him to prospect for
minerals and to register (stake) a claim.
Pryor, 3.
prospecting pan. Same as gold pan. Craigie,
v. 3, p. 1843.
prospecting tour. A tour or journey of ex-
ploration made in seeking regions or de-
posits that are rich in minerals, usually gold or
prospective ore. Ore that can not be included
in the category of basic or iron ore. Craigie,
v. 3, p. 1844.
prospecting. a. The search for outcrop: or
prospect nice. A small group organized
prospect hole adds nothing to the value
hole made for the purpose of prospecting the
mineral-bearing ground. Fay. b. A
prospect shaft. A shaft sunk in connection
with prospecting operations. Craigie, v. 3,
p. 1844.
prospecting plan. A preliminary printed statement
describing a business or other enterprise,
and distributed to prospective buyers,
investors, or participants; such as a de-
scription of a new security issue supplied to
prospective purchasers and giving de-
tailed information concerning the com-
pany's business and financial standing.
protactinium. A shiny, gray, metallic radioactive
element that is formed
in nature by the loss of an alpha particle
and a beta. Predicted as eka-tantalum,
protactinium shows close chemical resemblance to tan-
talum but differs from it in that the penta-
atomic (Pa) is exclusively basic with
no acidic characteristics. Symbol, Pa; va-
lence, 4 and 5; tetragonal; atomic num-
ber, 91; atomic weight, 231; specific grav-
ity, 1,230° C; and boiling point, unknown.
ber, 91; atomic weight, 231; specific grav-
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ber, 91; atomic weight, 231; specific grav-
ity, 1,230° C; and boiling point, unknown.
danger from molten or corrosive materials exists. Nelson.

protective clothing. The special items of clothing used to protect the protoclastic apparatus of the body, such as protective boots, miners' helmets, knee pads, and shirts. Occasionally, leather protective gloves and goggles may also be used. Nelson.

protective colloid. A colloid of considerable stability which is unaffected by small concentrations of electrolytes; referred to as hydrophobic. Hydrophobic sols are protected from the coagulating influence of electrolytes by the addition of very small quantities of the protective or hydrophobic colloid. Used in flotation to improve the depression of minerals which are not resistant to the floated portion. Has protective equipment. Electrical circuits and apparatus which provide protection against overloads or faults and include such devices as circuit breakers, earth leakage protection, overload trips, and relays. Ham.

protective filter. See filter, c. ASCE PI 1926.

protector block. A protector block is a lightfusing protective device used on telephone, telegraph, and signal systems to protect persons and equipment against lightning and foreign currents of a hazardous character. The common form of protector block includes a fuse for each side of the line and a small gap between each line and the ground. J. A. T. M. 1965.

protector lamp. Eng. A safety lamp, the flame of which is impossible to expose to the open air while lighting, as unlocking, or rather unscrewing it, extinguishes the light. Fay.

proteolite. A general term for hornfelsic rocks introduced by Baas, in 1852, and used by Bonney, in 1886, for andalusite hornfels. Compare cornubianite. Fay.

protosterone. An altered dolerite or basaltic rock containing purple-brown augite and primary brown hornblende, and characterized by the presence of secondary green hornblende and other alteration products. Holmes, 1928.

Protosterol. a. The younger of two Precambrian systems or eras. Synonym for Algonkian. Holme.

protostrophe. The movement of a piece of rock by the granulation of minerals of early formation, the granulation being due to the differential flow of the magma from which the fractured minerals were derived. Protobitumens are sub-divided into labile protobitumens and stable protobitumens. Tomkeieff, 1934.

protoclast. A rock possessing cleavage originally developed during metamorphism under water or cooling from magma, such as bedding, flow structure, etc. Compare metapelitic. Fay.

protoclastic. Applied to a structure of igneous rocks in which the constituent minerals show granulation and deformation, produced by differential flow of the magma before complete consolidation. A.G.I.

protoclastic structure. A structure produced by the granulation of minerals of early formation, the granulation being due to differential flow of the partly consolidated magma. See also protogine; protoclastic schist; granite gneiss; orthogneiss. A.G.I.

protoclastic. A rock in which protoclastic structure was produced by differential flow of partly consolidated magma. See also protogine; protoclastic schist; granite gneiss; orthogneiss. A.G.I.

protogine. Synonymous with the above.

protoginon. A compound used in the breathing apparatus to remove carbon dioxide from the expired air, and, if the air contains an oxidizing agent. Fay.

protolion. A crystalline calcium-magnesium carbonate in which the metallic ions occur in the same crystallographic layers instead of in alternate layers as in dolomite. A.G.I. Supp.


protogen. See protogine. Ham.

protogenous. a. Capable of supplying a hydrogen ion (proton), C.T.D. b. Of or pertaining to a first origin or production; specifically, of or pertaining to those crystalline rocks supposed to be formed by igneous action. Standard, 1964.

protogenous. A group name for original rocks as opposed to derived rocks, and including salt, igneous, and ore deposits. The term is no longer used. Holmes, 1928.

protogenous. Rocks to alpine gneissaceous granites which are considered to be either protoclastic or composite in origin. A.G.I.

protogenetic. Replaces the term for the process producing protoclastic structure. Schlafer.

protogenygen. a. A coherent crush breccia made of megascopically visible particles which are commonly lenticular in shape and which preserve faintly the primary structures of the parent rock. Protogenygen resembles conglomerate or arkose on weathered surfaces. Commonly shows innumerable megascopican gliding surfaces. Backlund clearly emphasizes the ease brecciation, pointing out the resemblance of the rock to conglomerate, and implying in the prefix proto that the rock was derived from a series of rocks of which mylonite and ultramylonite are representatives. A.G.I. b. Used for contact metamorphic rocks which have been mylonitised by movements on thrusts controlled by the contact surfaces between the intrusions and the country rocks. See also mylonite. A.G.I.

protoil. An elementary particie with a single positive electric charge, mass approximately 1,047 times that of the electron. The atomic number of an atom equals the number of protons in its nucleus. LQL.

protopetroleum. a. A name for a hypothetical material which may be present in petroleum. Tomkeieff, 1934. b. The primary source material of petroleum. A.G.I.

protosiderite. A sandstone which may be found between orthoquartzite and subgraywacke. A.G.I. Supp.

protoisolation. In older writings, any primary material too low in tenor to constitute ore but from which ore may be formed by enrichment. As commonly employed today, a protore is one that cannot be produced at a profit under existing conditions but that may become profitable with technological advances or price increases. Stokes and Varnes, 1935. b. Metalliferous material before it becomes ore through enrichment. Webster, 3d. c. The unchanged portion of any primary material that locally has been concentrated into ore, and that which by weathering may be so concentrated. Ballard.

protoliquefied. A compound used in the breathing apparatus to remove carbon dioxide from the expired air, and, if the air contains an oxidizing agent. Fay.

protoliquefied. The atomic number of an atom equals the number of protons in its nucleus. LQL.

protomarcite. Suggested by Loevlinson-Leasing for one of three types of igneous rocks, subdivided according to their genesis. Protomarcite is a product of the crystallization of magma, and is characterized by their great uniformity in composition and their relatively large volume. Compare syenite. Schlafer.

prototype. The stage following the basic idea and assists the inventor and manufacturer in solving the difficult details of the project. The prototype model which assists the inventors and manufacturers in developing the basic new principles or features of the machine but is adequate to conduct tests. The final stage is the production of parts, fitting assembly and factory testing before the first production model leaves the workshop. See also lead model, lead prototype. The oxide of any metal containing the least proportion of oxygen. Weed, 1913.

protona. The lowest of all animals, and have no definite organs. They are just...
Protozoa

like a piece of jelly in a strong case. Mason, V. I., p. 25.


Protozoans. Minute one-celled animals, most of which are invisible to the naked eye and occur universally in the surface layers of water. They are important because they can reproduce asexually or sexually. Several genera are capable of producing bioluminescence, usually of the sheet type. Hy., protractor, a. A device for measuring angles on drawings. Nichols. b. Any one of several goniometerlike devices used to determine the etch angle inside an acid tube. Long, p. 14.

Provitrinite. A variety of the major maceral of vitrinite. Further subdivision of the macerals is made into subvarieties. Fay.

Proving area. The establishment of the quantity and grade of coal or ore available for exploitation. Several genera are capable of producing bioluminescence, usually of the sheet type. Hy.


Proximate analysis. a. The determination of the compounds contained in a mixture as distinguished from ultimate analysis, which is the determination of the elements contained in a compound. Standard, 1964. Used in the analysis of coal. Fay. b. In the case of coal and coke, the determination, by prescribed methods, of moisture, volatile matter, fixed carbon (by difference), and ash. Unless otherwise specified, the proximate analysis does not include determinations of sulfur or phosphorus or any other elements other than those named. ASTM D 121-62. See also chemical constitution of coal.

Proximetry. a. A goniometerlike device for determining the optical density of the stain is used in the analysis of coal. Fay. b. In the case of coal and coke, the determination, by prescribed methods, of moisture, volatile matter, fixed carbon (by difference), and ash. Unless otherwise specified, the proximate analysis does not include determinations of sulfur or phosphorus or any other elements other than those named. ASTM D 121-62. See also chemical constitution of coal.

P.R.U. hand pump and densitometer. A dust sampling instrument consisting of a D.V.P. Mark 11 pump with a swept volume of 90 cubic centimeters. A filter paper is inserted into a bridge behind the inlet nozzle of the pump such that a circle of 1 centimeter diameter of the filter paper is exposed to the dust. The dust, while passing through the filter paper, produces a stain. The optical density of the stain is determined photometrically in a densitometer by the light that falls upon a galvanometer. The dust particle concentration is determined by a calibration factor. Its main disadvantage is that is underestimates the number of fine particles. See also photoelectric densitometer. Fay.

Pseudoparticle. A seal or button of glass impressed with a pattern, added as an ornament to the stems of glass vessels. Hagar.

Psephite. A coarse, fragmental rock composed of rounded pebbles; for example, conglomerates. Used as a pigment and in dyes. Mixed in oil, it is used in the fitting up of the body of an instrument. Stokes and Varner, 1955.

Psephite. A coarse, fragmental rock composed of rounded pebbles; for example, conglomerates. Used as a pigment and in dyes. Mixed in oil, it is used in the fitting up of the body of an instrument. Stokes and Varner, 1955.

psuedophyllite. Made up of small stones. Fay.

psuedoeylite. A mineral that re- plasce in the form of a crystal- line eruprive rock, so as to appear like a true vescular liquid or amygdule. Stand- ard, 1964, part I.

psuedo- As a prefix, implies something false, its meaning is modified by the subject to which it applies. Schwabe.

psuedoanticline. An upward buckling of the superficial layers of the ground due either to changes in volume brought about by pedogenic processes or to some other cause. Chalmer.

psuedoate. Bank attoll; shelf attoll. Atoll which rises back from the outer margin of rimless shoals. Siefreidercker.

psuedobinary system. a. A three-component or ternary alloy system in which an inter- mediate phase acts as a component. ASM Gloss. b. A ternary diagram. ASM Gloss.

psuedobolete. Probably a basic oxycodile of basalt and copper, 5Cu(OH)2-4AgCl. Tetral. Found only in parallel growth on boleite, frequently as Raised Crystaline mass. From Bolo, Lower Greensands. English.

psuedobrecia. a. An apparent breccia that develops as a result of weathering. A.G.I. b. An apparent breccia found in some dolomite limestones, probably formed by algal crusts. A.G.I. c. Particles of irregular or partially irregular shape, held together by a matrix of lighter color and coarser texture. The matrix is more argillaceous than the fragments and the clay crystals in the matrix may be wholly or partly dolomite. A.G.I.

psuedoatrolite. A titanium-iron oxide resemb ling andalusite, but having a coarser texture. From porphyry rocks, as andesite. Fay.

psuedocannel coal. Also called humic cannel coal. A nonbanded coal consisting largely of a mixture of transverse humic and sapropelic material. A.G.I.

psuedocellite. See blank carburizing. ASM Gloss.

psuedochryssolite. Synonym for moldavite (of Zippe). Fay.

psuedoconglomerate. a. A rock so broken up into displaced fragments and interpenetrated by intrusive or precipitated material as to appear like a conglomerate. Fay. b. A rock made up of rounded fragments and formed by cataclasis. A.G.I.

psuedocrococite. Quartz pseudomorphous after crocidolite. Same as tiger eye; hawk's eye. English.

psuedo cross-stratification. Inclined bedding which by unusual sorting, commonly in response to ripple mark migration, produces foreset beds that appear to dip into the current. Pettijohn.


psuedoeycite. A mineral nodule that re- placed another and has retained the growths of sulfide minerals which more or less closely simulate the eutectic texture in metal. See also graphic granite. A.G.I.


psuedofoam peat. Peat, which, in spite of its fibrous condition, is soft, noncoherent, plastic, and on drying, shows great shrink- age. See also fibrous peat; amorphous peat; woody peat; mixed peat. Tomkejeff, 1954.


psuedohexagonal. Of a crystal or axis, ap- proximating in form to the hexagonal type. Webster 3d.

psuedoimage. A name that may be applied to any mineral resembling jade in appearance, for example, bovenite. English.

psuedojadeite. a. A mineral similar to jadeite. From Tawmaw, Upper Burma. English. b. Name given to the molecule, (Ca,Mg,Fe)Al(SiO3)2, associated to be present sometimes in isomorphous replacement with the normal jadeite molecule, NaAl(SiO3)2.

psuedoleucite. Pseudomorphs of a mixture of nepheline, orthoclase, and analcime after leucite, found in the syenites of Arkansas, Montana; Brazil. Dana 17.

psuedomaschite. A hydrous phosphate of copper occurring in massive forms of bright green color, 5CuO.P2O5-2H2O, resembling malachite; monoclinic or triclinic. Larsen, p. 153.

psuedomorph. a. A crystal, or apparent crys- tal, having the outward form proper to another species of mineral, which it has replaced by substitution or by chemical alteration. Fay. b. One mineral that has replaced another and has retained the form and size of the replaced mineral. Bateman.

psuedomorphous quartz. Quartz under the forms of many of the mineral species, which it has taken through either the alteration or replacement of crystals of those species which it has replaced. A.G.I. The most common quartz pseudomorphs are those of calcite, barite, fluorite, and siderite. Silicified wood is quartz pseudomorph after wood. Fay.


psuedo mud cracks. See parting cast. Pettijohn.

psuedomud pseudomorph. See blank nitrizing. ASM Gloss.


psuedophyle. A green mineral resembling ser- pentine and mentioned as a possible jade substitute. Classified by Dana as a variety of peridotite. Monoclinic, Mohs' hardness, 2.5; specific gravity, 2.8; refractive index, 1.57 to 1.58; birefringence, 0.003.

psuedosparite. Limestone consisting of rel- atively pure Dolomite occurring as a primary constituent of a crystal- line eruptive rock, so as to appear like a conglomerate. Pettijohn.

psuedosphere. A spherulite in which the rays are composed of two different determinable substances, usually quartz and feldspar. Fay.

psuedosulfitation. Occasionally till deposits which have been overdironed by ice (drum- lins, etc.) exhibit a structure concentric with their surfaces and somewhat resembling stratification. This is not true bed- ding. It is caused in part by the plaster- ing of layer on layer by the ice and in part by shearing of the till by the great pressure of the ice. Stokes and Varnes, 1953.


psuedosymmetrical. Crystal structures in which the atoms are only slightly dis- placed from positions which would be in agreement with a higher symmetry. Thus, a monoclinic, pseudotetragonal mineral con- tains atoms only slightly displaced from positions which would be in agreement with a tetragonal symmetry. English.

psuedosymmetry. Apparent symmetry of higher grade than that proper to the minerals generally due to twinning. Also called mimery. Fay.


psuedotektke. A tektite that contains crystal- lites. Hau.

psuedotjeungite. A mineral very similar to thuringite, but with the composition A12O3.Fe2O3.2SiO2. Billans 17, M.M., 1946.

psuedolapaz. Quarts simulating topaz. From Striegen, Silesia, Poland. English.

psuedoviscosity. Viscous resistance offered by a slurry, sludge, mud or suspension of minerals in water as a pulp, due to the specific surface involved, with possibly an element of thixotropy under stated con- ditions of pH value, agitation, flow, tempera- ture and solid to liquid ratio. The pseudoviscous effect is distinct from vis- cosity due to molecular shear. Fey 3, 1959.

psuedowollastonite. Flow in which deforma- tion is at a constant rate. Lewis, p. 579.

psuedovolcconoma. Applied to a large, circular hole or crater generally not associated with any positive indication of recent vol- canic activity; for example, a crater of doubtful meteors origin which is thought to be the result of phreatic explosion or caldiron subidence. A.G.I.

psuedowollastonite. wollastonite heated above 1,180° C develops a basal cleavage, be- coming a pseudohexagonal calcium meta-
sillicate dimorphous with wollastonite, CaO•SiO₂. Also called beta-wollastonite; earlier called bourgeoisie. Larsen, p. 71; Mineralogical Magazine, v. 17, No. 82, April 1916, p. 336.


omain. All lands and waters in the government of the United States, including lands owned by the several states, as distinguished from lands owned by individuals and corporations. Eey.

land. In the United States, the portion of the public domain to which title is still vested in the Federal Government. A.G.I.

land and public use. There is a clear distinction between public lands and lands that have been severed from the public domain and reserved from sale or other disposition under general laws. Such reservation sever the land from the mass of the public domain and appropriates it to a public special use. Standard, 1964, p. 66.

limited liability company. An association of individuals, at least seven in number, who together subscribe the necessary means or capital, that is, money, property, or other credit, to engage in a joint undertaking.Truscott, pp. 250-251.

ineral land. Land belonging to the United States containing a deposit of mineral in some form, metalliciferous or nonmetalliciferous, in quantity and quality sufficient to justify expenditures in the effort to discover, mine, and purchase under the mining laws. Ricketts, 1.

on, A tool for widening the top of a wine glass in the handmaking process; from Italian word meaning a virgin. Dodd.

rcherite. A reddish-brown tabular or acicular orthorhombic mineral with 1 perfect cleavage, Bi₂O₃•V₂O₅•MnO₂ hardness, 4; and specific gravity, 3.2 to 3.6. Lassen, p. 412. A vanadium ore. Osborn.

rack. A wall or pillar built of waste rock to support the roof. Fay.

rking. Producing wrinkles or buckles in the surface of a billet. Fay.


namic, A wall or pillar built of waste rock to support the roof. Fay.

s and public use. The terms "public land" and "public use" are used in public legislative acts to describe the conditions under which public land may be leased or used for particular purposes. Fay.

hrome, a. Study of atmospheric humidity, the relative humidity, specific volume, weight ratio of moisture to air, dry-bulb thermometer readings, vapor pressure, dew point of moist air, and the effects of these parameters on the temperature readings of the two thermometers. Standard, 1964. Another name for psychrometry.

ometric. An instrument for measuring the vapor pressure and the relative humidity of the air. It consists of a dry-bulb thermometer and a wet-bulb thermometer, the latter having its bulb covered with a layer of muslin kept moist with water. The rate of evaporation from the moist muslin depends upon the quantity of moisture in the air. The more rapid the evaporation the greater the cooling, and hence the greater the difference in the temperature readings of the two thermometers. Standard, 1964.

cal quantities of moisture in the air. The name sometimes refers to mixtures of manganese minerals. Color, black; streak, brownish-black; luster, submetallic; Mohs' hardness, 5 to 6; and specific gravity, 3.7 to 4.7. Found in the United States (Arkansas, Virginia, and Georgia), India, Republic of South Africa, Cuba, and the U.S.S.R. An important ore of manganese. C.C.D 64, 1961.

also called psilomelane. A natural oxide of variable composition, CaO•SiO₂. Also called wolkmeite; earlier called bourgeoisite. Larsen, p. 71; Mineralogical Magazine, v. 17, No. 82, April 1916, p. 336.

nt, in an oxidizing atmosphere, in order to separate the ore. Fay.

nt, a. One who converts cast iron into wrought iron by puddling. Webster 3d. b. A rabble used in puddling. Webster 3d.

tium. A system of small pipes admitting compressed air to a tank containing zinc chloride, to effect a thorough solution for use as a timber preservative. Webster 2d. c. A machine for breaking up alluvial wash, consisting of a shallow tank in which arms rotate slowly. The coarse stones are forced down sluice boxes along which the gold settles. Nelson.

ting rolls through which puddle balls are passed to be converted into bars. Standard, 1964. Also called puddle train. Fay.

der's mine. In metallurgy, a fixing or settling for finishing the lining of a puddling furnace. A mineral, usually serpentine ore made to a paste with water. Standard, 1964.

uing or rolling of rolls for reducing squeezed puddle balls to puddle or muck bars. Fay.

dration of a bath of molten pig iron by hand or by mechanical means, in an oxidizing atmosphere, in order to oxidize the carbon, silicon, and manganese and thus produce wrought iron. C.T.D.


ning machine. U.S.; Aust. A machine used for mixing sulfuriferous clays with water to the proper consistency for the separation of the ore. Fay.

cess. Production of wrought iron from molten pig iron in an oxidizing atmosphere by mechanical means. Fay.

oize with water down sluice boxes along which the gold settles. Nelson.
pudding process

flows the circular pan in which stirring
rakes revolve, while the heavy fraction
containing the values sinks and is peri-
ously removed. Pryor, 3.

puddock. Scot. Cast-iron plate forming the
crossing of flanged mbe.car rails. Fay.

Pudding, for waterproofing, is cement
added to cemented to seal back water,
for example, in concrete tanks. Pryor, 3.

pudding. Blowing chips out of a hole
means of exhaust air from the drill.
Nichols.

pudded bar. In powder metallurgy, a cored
bar expanded by internal gas pressure.
Rolle.

pudded compact. A compact expanded by in-
ternal gas pressure. ASTM B 245-63.

puffer. a. A small stationary engine used for
hoisting material on construction work, in
operating a haulageway, or for hoist-
ing at shallow mines, especially in pros-
pecting and development work. Fay. b. See

puffer boy. a. A person employed to operate
an engine used for hauling loaded mine
cars through the workings. Fay. b. See the
operator of any small stationary hoisting en-

puffer man. N. of Eng. One who operates a
bituminous coal mining, one who oper-
ates the stationary engine used for hoisting
coal or rock in a shallow shaft, especially
for prospecting or development work. Also
called puffer; puffer boy; puffer tender.
D.O.T. 1.


puffing. a. A shift or task group informally recognized by
the group as a spokesman. Takes up matters
with management on behalf of the team.
(In some pits, used as a term of abuse.)

puffin. Eng. Travein, hard enough to
use for building, so called from its cavern-
ous structure. Arkell.

pug. a. Crushed strata or clay. See also bu-
cas. A large lump of ground up by a
coal cutter. Nelson. c. In metallifer-
ous mining, the parting of soft clay which
usually is a long longitudinal shaft fitted with knives which slice through
the clay, mixing it with water which is
added by sprays from the top. The knives
are canted to give some screw action,
forcing the clay along the barrel and out
with the aid of water. C.T.D. T.C.D.

pug mill. a. A machine for mixing water and
clay, consisting of a long horizontal
barrel within which is a long longitudinal
shaft fitted with knives which slice through
the clay, mixing it with water which is
added by sprays from the top. The knives
are canted to give some screw action,
forcing the clay along the barrel and out
one end. AISI, No. 24. b. See paddle-
type mixing converter. ASA MH 41-1958.

pug-mill operator. One who prepares
ground, sifted, and filtered clay for molding
by mixing it with water; in a rotary-type
miller called a pug mill. This machine is
frequently operated in conjunction with
an auger mill and a cutting machine, the
same worker tending the operation of all
three mule machines at the same time. Also
called clay pugger; mixing-mill operator.
D.O.T. 1. b. One who mixes ground
preheated materials and a portion of
hard coal in a pug mill to form a viscous mixture suit-
able for processing into pellets. Also called mixer;
pug miller; pug-mill tender. D.O.T. 1.

pugs. Scot. A stratum of hard coal in a free
coal seam of Lanarkshire. See also pug, f. Fay.

pug tub. See settler. Fay.

pulaskie. A foyaitic igneous rock, occurring
in dikes, and composed of cryptoperthite,
barkevikite, biotite, and augite, and ac-
cessory nepheline, sodalite, etc. It is a
neptunian, often in nepheline. Web-
ter 2d.

pulaskite. A phanerocrystalline rock com-
posed essentially of augite, leucite, and
anorthite. Holm, 1928.

pull. a. The linear advance resulting from the
pull of up to 9 feet has been achieved.
In British coal mining, a pull of 6 to 7 feet
are common, while the trend is towards
a pull of 8 to 9 feet has been achieved.
In British coal mining, a pull of 6 to 7 feet
are common, while the trend is towards
a pull of up to 9 feet has been achieved.
In British coal mining, a pull of 6 to 7 feet
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a pull of up to 9 feet has been achieved.
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a pull of up to 9 feet has been achieved.
pull holes

Lewis, pp. 444, 447.
pulling, Eng. See posting.
pulling casing. Removing pipe from a drilled well.
pulling core, rope. Eng. A short, light hemp rope for pulling the ends of winding ropes over the pulleys.
pulling pillars. The common expression used for mining the coal in the pillars of a mine; robbing pillars. See also pulling stumps.
pulling stumps. The process of taking out the pillars of a coal mine. See also pulling piles.
pulling the plug. Can. Withdrawal of market support in a given stock by the once-interested broker promoter.
pulling up. One phase of forming clay objects on the potter's wheel in which a plastic clay lump is raised into a column by applying pressure with the hands. Bureau of Mines Staff.
pull lift. A modern sylvestor used on construction work in which a frame with a constant pull of three tons. It can be carried by one man. 

Ham.
pull-over mill; drag-over mill. A two-high mill in which the piece is rolled in one pass by exhausting the lungs and filling them with oxygen-enriched air. Fay.
pull shovel; dragshovel; hoe. A shovel with a hinge- and stick-mounted bucket that digs while being pulled inward. Nichols.
pull-up stakes. To strike camp; to remove from one place to another, as in search of new diggings. See also stake.
pullway. The path from the face to the loading point taken by the scraper of a scraper conveyor, unit. 

Nelson.
pull wheel. A large driving wheel or sprocket.
Nichols, 2.
pulmonary. Dusts harmful to the respiratory system. They include silica (quartz, chert); calcite (sulphate, talc, mica, siliimanite); metal fumes (nearly all); beryllium ore; tin ore; iron ores (some); coal (anthracite, bituminous). Hartman, p. 41.
pulmonary. A mechanical device designed to perform artificial respiration, in cases of asphyxia, electric shock, drowning, etc., by exhausting the lungs and filling them with oxygen-enriched air. Fay.
pulpy. A mixture of ground ore and water capable of flowing through suitably graded channels as a fluid. Its dilution or consistency is specified either as a solid-liquid ratio (by weight) or as a percentage of solids (by weight). Pryor, 2. b. Pac. Pulverized ore mixed with water; also applied to dry, crumbly ore. Fay. c. To reduce to a soft mass. Gordon.
pulp. a. A mixture of ground ore and water by which continual, short, intense surges of water are introduced under pressure into long holes or bore holes, and partly by the direct action of the steam on the water, without intermediate means of communication, called a vacuum pump. Webster, 3d. c. A type of steam siphon frequently used on construction work for pumping water. Buck. d. A displacement pump with valves for raising water by steam, packed with a small fractional pressure, and partly by the direct action of the steam on the water, without intermediate means of communication, called a vacuum pump. Webster, 3d. c. A type of steam siphon frequently used on construction work for pumping water. Buck.
pulser. A type of device that records an event on a scale. 

NCB.
pulser-coil discriminator. An electronic circuit which accepts only those pulses having amplitudes greater than a preset level and produces an output pulse of fixed amplitude (and sometimes of fixed width) for each input pulse accepted.

NCB.
pulser-coil method. The instantaneous value required for the leading edge of a pulse to rise from some specified small fraction to some specified larger fraction of the maximum amplitude.

NCB.
pulsion stone. a. A very large grindstone employed in pulp mills for crushing or grinding wood into fiber. Fay. b. S. Surin, b. ACSG, 1963.
pulverized coal. That which has been tumbled, comminuted, or ground to very small particles (as in fine powder or dust). Webster, 3d.
pulverization. a. In soil stabilization work, the breaking up of individual particles as suggested. Separation of the particles is the first step towards good dispersion of stabilization additives and moisture. Nelson. b. The reduction of metal to finely divided particles, particularly of sedimentary rocks by chemical means; or grinding) to very small particles (as in fine powder or dust). Webster, 3d.
pulverizer. A cultural term designating a silt- or clay-colored constituent of fine-textured rocks of constructional but not clastic origin. It corresponds to the term siltite of the clastic textural terms. A.G.I.
pulverization. a. Soil stabilization work. Pulverization means the separation of particles from each other rather than the breaking up of individual particles as suggested. Separation of the particles is the first step towards good dispersion of stabilization additives and moisture. Nelson. b. The reduction of metal to finely divided particles, particularly of sedimentary rocks by chemical means; or grinding) to very small particles (as in fine powder or dust). Webster, 3d.
to a fine dust by grinding mills. The latter are often air swept, the velocity of the air being so regulated that particles of coal, when sufficiently reduced, are carried away in finely pulverized coal particles of which about 99 percent are below 0.01 inch in diameter will burn very rapidly and will not undergo slag formation. Finely pulverized and conveyed from the mill by air into the boiler plant. Nelson.

Pulverized coal dust. Dust of which 95 to 98 percent will pass a 100-mesh screen and of which 75 to 95 percent will pass a 200-mesh screen. Quickly ground—quickly ground ash or furnace slag. A very finely divided volcanic ash or other ashes. Abl. Used as an abrasive; lightweight concrete aggregate. Found in New Mexico, California, Idaho, New Zealand; Haiti; or Mauritius. Also used as abrasive soaps. Stokes and Varner, 1955.

Pumicite. Lithified volcanic ash. See also pumice.

Pumicite. A highly porous igneous rock, usually containing 65 to 75 percent SiO₂ and 3 to 5 percent alkalies, 3 percent MgO, 3 to 5 percent Al₂O₃, 6 to 12 percent water, accumulated underground in low places, into a drainage ditch flowing to a natural outlet or pumping station. T. L.

Pump lift. Eng. The lower end of a plunger or pumping shaft. A Scottish oil shale which yields 16 to 22 gallons of crude oil per ton, together with 50 to 60 pounds of asphalt. Stokes and Varner, 1955.

Pumping engineer. A mixer used in soil stabilization materials, which can be burned as it issues from a suitable nozzle through the heating process. Used as an abrasive; lightweight concrete aggregate. Pumicite. A very finely divided volcanic ash or furnace slag. Abl. Used as an abrasive soaps. Stokes and Varner, 1955.

Pumicite. Lithified volcanic ash. See also pumice.
**pump lift**

*pump can suck up water. Theoretically, this should be about 34 feet at sea level; practically, the limit is about 26 feet. Long.*

**pump liner**

*A replaceable cylindrical or ceramic-coated metal sleeve installed in a pump cylinder inside of which the piston works. Long.*

**pump lining**

*Synonym for pump liner. Long.*

**pump load**

*The back pressure and/or resistance to flow of fluids that a pump must overcome to force a fluid to flow through a pipeline, drill string, etc. Long.*

**pumpman**

*Mineworker who operates mine pumps. Bureau of Mines Staff.*

**pump packing**

*The material placed around pump rod. The rod or system of rods (usually heavy beams) connecting the steam engine at the surface, or at a higher level, with the pump piston below. See also balance bob. Fay.*

**pump radiation**

*A flat iron ring that, when lapped with terred baize or coarse cloth, secures the joints of water columns. Fay.*

**pump rod**

*The rod or system of rods (usually heavy beams) connecting the steam engine at the surface, or at a higher level, with the pump piston below. See also balance bob. Fay.*

**pump station**

*a. In mining, chamber near the shaft at depth, where pump is installed. Also, the pressure im-
posed on the fluid ejected from a pump. Long.*

**pumping**

*A rigid iron ring that, when lapped with terred baize or coarse cloth, secures the joints of water columns. Fay.*

**pump slip**

*The leakage past the valves and the plunger in a reciprocating pump which should not be greater than 2 or 3 parts in 1000 of the bore. Leach, p. 636.*

**pump stroke**

*The distance through which the piston in a pump travels from one extreme position to the other within the cylinder. Long.*

**pump sump**

*A tank into which the circulating water gravitates and from which it is recirculated by means of a pump. B.S. 3552, 1962.*

**pump surge**

*Pulsating effect transmitted to a pipeline or drill string at the completion of each compression stroke of a reciprocating piston pump. Long.*

**pump tree**

*Eng. A cast-iron (wrought iron was formerly used) pipe, generally 9 feet in length, with a water column or set is formed. Fay.*

**pump**

*The action of ramming wet concrete or earth to drive the air out of it and thus to consolidate it. *Hann.*
pure oxides

theses represent their melting points. Osborne.

push button. A. A cylinder in which the body is elongated in one direction and shortened at right angles to this of such an amount that the stopper is handheld. A.G.I.

Pureba gas mask. An all-service gas mask that can be used in atmospheres containing up to 2 percent of carbon monoxide for a period of 2 hours. McAdam, pp. 62-64.

purifiers. In the destructive distillation of coal, iron vessels containing several layers of bog iron ore (Ferric oxide, Fe2O3) in granular form, mixed with moist sawdust to the whole porous, used to remove impurities, such as ammonia gas, sulfur dioxide, and hydrogen sulfide from coal gas. Cooper, pp. 396-397.

purins. Timbers spanning from truss to truss, and supporting the rafters of a roof.

pur. High purity iron. Osborne.

purple. purple. A synonym for true.

purple blende. An old synonym for kermesite.

purple clay. A fine-grained, plastic, Florida kaolin; it fires to a good white color. Dodd.

purple cock ore. Same as borine. Fay.

purple of Cassius. Produced by adding a mixture of starch and starch and carbonates to a very dilute solution of gold chloride; hydrated stannic oxide is precipitated, and the red gold chloride is reduced to stannous. The red to violet color is due to the precipitation of the finely divided gold on the surface of the stannous. C.T.D. Used in painting and staining porcelain and glass.


purple slate. See colored slates. AIME p. 793.

purple stone. See Cornish stone. Hes.

purple. Fault that occurs with a fault occasionally found in sheet glass as a result of the presence of sheet glass furnaces from which the glass was drawn. See also collet. Dodd.


g-party. Eng. To haul a tub to and from the face. When the tub is pulled by hand, it is called hand putting; when drawn by a pony, pony putting. In Cumberland, to pull a tub by hand is called trailing. Also called trail. SMRB, Paper No. 61. f. S. Afr. A pit or well. Putnam.

putty. A fine-grained, plastic, Florida kaolin; it fires to a good white color. Dodd.


puter grades. See helper grades.

puter man. One who operates an electric pusher that discharges coke from ovens; also, supervises charging of ovens with coal and levels the coal, using an electrically driven leveling bar. Also called pusher doorman, pusher engineer, and pusher operator. D.O.T. 1.

puter. a. The man in charge of haulage hands in a coal mine. Also called master hauler (hauler). C.T.D.


puter track. A building that is often used in a coal mine to convey the coal from the face to the tramway. The coal is delivered to the conveyor. Nelson.

put-down collet. A fault occasionally found in sheet glass as a result of the presence of sheet glass furnaces from which the glass was drawn. See also collet. Dodd.

put-downs. A. A tunnel or a number of such tunnels in a single kiln, instead of on the usual cars; when there are a number of such tunnels in a single kiln, it is known as a multipassage kiln. See also multipassage kiln.

put-down punt. The concave bottom of a glass wine bottle or other container. Dodd.

push. a. In mining, a laborer who pushes loaded mine cars on tracks from under-ground working places to haulage roads where they are picked up by a locomotive (train) at the bottom of the shaft, or slope bottom for hoisting. May, at bituminous mines, shift empty and loaded cars in and about the tipple where coal is prepared for market. Also called car puller; car shifter; headman; mate; puller; scaler; trammer. D.O.T. 1. b. In mining parlance, one who is engaged for the purpose of encouraging or hastening the movement of the ore. Also calledigger boss. Ricketts, T. A. A tractor that pushes a scraper to help it pick up a load.

push-brown conveyor. Two endless chains cross-connected at intervals by bars or rollers and driven by electric motors. See also pusher grades.

pusher grades. See helper grades.

pushing. Relay switch worked by pressure of finger, to initiate switch movement which controls an operating motor. Pryor, 3.

pusher man. One who operates an electric pusher that discharges coke from ovens; also, supervises charging of ovens with coal and levels the coal, using an electrically driven leveling bar. Also called pusher doorman, pusher engineer, and pusher operator. D.O.T. 1.


pusher grades. See helper grades.

pusher man. One who operates an electric pusher that discharges coke from ovens; also, supervises charging of ovens with coal and levels the coal, using an electrically driven leveling bar. Also called pusher doorman, pusher engineer, and pusher operator. D.O.T. 1.

pusher. a. A coal miner who takes empty tubs from a nearby junction to the working face and brings back the loaded ones. Except in small mines, man handling of tubs is now obsolete. Also called hurrier; hunt-er; kibbler. Nelson. b. One who hauls by hand. Mason. c. A small motor or steam engine. Mason. d. Underground worker who conveys coal by tram from working face to main underground haulage. Mason. 3. e. Eng. A man or boy who conveys coal from the working place to the tramway. Same as haulier; trammier; drawer, a. Fay. f. N. of Eng. In single place systems a man, usually a young lad, who conveys tubs between the workings and a flat. He may have a pony. Trist. g. See pusher. D.O.T. 1.

pusher filling. A miner who fills his tub, pushes it back to the nearest junction, and returns with an empty tub. Obsolete equipment. See also pusher filling.

pusher-out. See hanger-on, a. C.T.D.

pushing. A. A kind of pusher. Hes.


putter fill. A miner who fills his tub, pushes it back to the nearest junction, and returns with an empty tub. Obsolete equipment. See also pusher filling.


put-put. A gold-washing tray used in Madras. Fay.


putting. Eng. Ponies 10 or 11 hands high, trained in railroading, hauling, and switching cars. Fay.

put-to-stand. 5. Staff. Stoppage of coal accounted for as lost work. Fay.

putty. a. Tin oxide, sometimes mixed with lead oxide, used for polishing glass, metals, etc.

push-pull wave. A wave that advances by alternate compression and rarefaction of a medium, causing a particle in its path to move forward and backward along the direction of the wave's advance. In connection with waves in the earth, also known as primary wave, compressional wave, longitudinal wave, or P-wave. D.O.T. 1.

push-up. Alternative name for pushed punt. See also pushed punt. Dodd.

pusher. A bulldozer exerting pressure backward. A.G.I.

push welding; poke welding. Spot or projection welding in which the force is applied manually by one electrode, and the work or a backing bar takes the place of the other electrode. ASM Gloss.
In physics, putty powder is often used as a material for experimental work. See also work, put, and put work.

Put work, in solid-state physics, is defined as the work required to separate two nearest-neighbors of opposite charge in an ionic solid. The put work is equal to the electron affinity of the ion involved, multiplied by the charge on the ion.

Pyramidal. A. In crystallography, pertaining to a crystal system in which the faces are pyramids. B. In an oblate spheroid, having a greater polarization than a prolate spheroid.

P.V.C. Polyvinyl chloride.

Pyro- or pyr- are prefixes used in chemistry to denote a compound or process that involves heat. For example, pyrolysis is the process of decomposition of a material by heat, often in the absence of oxygen.
pyrolysis. A common expression for the compound tetraiodium pyrophosphate, \(\text{Na}_2\text{P}_2\text{O}_5\), either hydrous or anhydrous. A.G.I.


pyroxene. A mineral of the hydrocalcite group occurring in goldite submetallic scales also brownish with partly to greyish luster, 6.5MgO. FeO. CO. Li,AlO,; hardness, 2 to 3; specific gravity, 2.07; a silvery-white variety is known as iegromerite. Lassen, p. 80.

pyroxolite. A fire-red basic vadacite of manganese and lead, \((4,\text{Mn},\text{Pb})\)O.\(\text{V}_2\text{O}_5\); H.O; Orthorhombic; minute acicular crystals. From Lamn san, Sweden. English. A vanadium ore. Osbome.

pyrobitumina. a. A dark-colored, solid, infusible substance, associated with a matrix of silicified sand, in kerogen shales and which yield liquid and gaseous hydrocarbons on heating. A.G.I.

pyrobituminos. Yielding bituminous products on heating. Webster 3d.

pyrobituminous shale. Another name for oil shale. Tomkiewicz, 1954.

pyrobole. See pyrobole. A.G.I.

pyrocumulus. Trade name for pyroceram. A.G.I.

pyroclast. a. A fragmentary and usually devitrified glass; one equivalent material made in the United Kingdom under license known as Prosil. See also devitrified glass; Pyroil. Dodd.

pyroclastics. A complete series of sodium, calcium and niobium, \(\text{NaCaNb}_2\text{O}_6\).. Tantalum, rare-earth metals, and other elements may be present. Isometric. Color, brown to black; streak, light brown; Mohs' hardness, 5 to 5.5; specific gravity. 4.2 to 6.4. Forms a series with microcline. Koppite is a variety of pyroxene. Found in M airon; California, Colorado; Africa; Europe. One ore of niobium. Dana 17; C.C.D. 64, 1961.

pyroclase. Manganese hydrate, a mineral occurring in foliated forms with pearly luster, resembling brucite. It is white when fresh, but changes to brown and upon exposure to moisture. Trigonal. Fay.

pyroclastic. Produced by explosive or aerial ejection of material from a volcanic vent. Applied to the deposit as well as the texture formed. Stites and Varnes, 1955.

pyroclastic deposits. Deposits made up mainly of rock material that has been expelled aerially from a volcanic vent, such as agglomerate, tuff, and ash. The fragmental material is usually a great block to the finest dust or ash. Such deposits are usually designated according to the lavas to which they are related in composition. Stites and Varnes, 1955.

pyroclastic rocks. a. A general term for unconsolidated volcanic rock, including volcanic agglomerates, breccias, tuff, breccias, tuffs, conglomerates, and sandstones and shales. Any rock made up of unworked solid material of whatever size explosively or spherically ejected from a volcanic vent. Webster 3d.

pyroclasts. a. A general term for fragmented deposits of volcanic ejecta, including volcanic agglomerates, tuff, and ashes. Holmes, 1920. b. The term is not strictly the equivalent of fragmental volcanic since much of the superficial material of certain types of flows, such as lavas of Hawaii, is fragmental. Neither is pyroclastic material always the product of explosive eruptions, for Phlegraean Fields and also large amounts of pumiceous cinders are produced during the most quiet volcanic activity of the Kilauean type. It appears that the most careful usage would limit the term to detrital material which has been ejected mainly from a volcanic vent. A.G.I.

pyroclasticite. Crystallized from a molten magma. Webster 3d.

pyroelectricity. Positive and negative changes of electricity which simultaneously develop on different parts of the same crystal when its temperature is suitably changed, for example, in tourmaline. C.T.D.


pyroelectric material. A term introduced to designate minerals developed at high temperature in melts containing only a small proportion of volatile (hyperfusible or fugitive) constituents. The first stage of consolidation of magma, during which only pyrogenic and other gases were formed, is referred to as the orthomagmatic stage. Synonym for pyrogenic. Webster 3d.

pyrogenic rock. o. The anhydrous minerals of igneous rocks, usually developed at high temperature in magmas containing only a small proportion of volatile (hyperfusible or fugitive) components. Examples are the feldspars, pyroxenes, and olivines. A.G.I.

pyrogenic. A term essentially equivalent to igneous; formed through the effects of high temperature. A.G.I.

pyrogenic ore minerals. Ore minerals which crystallized from magmatic minerals of igneous rocks. Schieferdecker.

pyrogenic rocks. Used by Grabau for all rocks resulting from cooling of a molten magma. See also pyrolytic. Synonym for igneous rock. A.G.I.

pyrogenous. a. Formed by fusion; igneous, as pyrogenous rocks. Standard, 1964.

pyrogenous rock. Native magnesium disoxide, \(\text{MgO}\); a soft, iron-black or dark steel-gray mineral. Tetragonal. The principal ore of magnesium. Also used as an oxidizer and a decolorizer. C.T.D.; Webster 3d.

pyrolysis. Chemical decomposition by the action of heat. Barre 1; Mitchells, W."c.

pyrolytic. a. Pyrolysis is the decomposition of a material by heat; a pyrolytic coating is a thin coating produced by the breakdown of a compound on a hot surface. Some types of resin are made by the pyrolytic coating of an electrically resinoid and carbon. Pyrolytic coatings of BN, SiC, and graphite, have been applied to components for their protection during exposure to high temperatures.

pyrolytic graphitic. Graphite formed by pyrolysis of a carbonaceous gas. C.T.D.

pyrolysis. The decomposition of a coal, especially lignite, by heat in the absence of an atmosphere. Applied to the deposits as well as the effects of heat upon the magnetic properties of substances. Webster 3d.

pyrometer. An instrument for measuring temperatures above the range of thermometers usually by the increase of electric resistance in a metal when heated; by the generation of electric current by a thermal couple when acted upon by direct heat or focused radiation; or by the increase in intensity of light radiated by an incandescent body as its temperature increases. Webster 3d.

pyrometamorphic. Contact metamorphism. Hest.

pyrometers. a. An instrument for measuring temperatures beyond the range of thermometers usually by the increase of electric resistance in a metal when heated; by the generation of electric current by a thermal couple when acted upon by direct heat or focused radiation; or by the increase in intensity of light radiated by an incandescent body as its temperature increases. Webster 3d.


pyrometamorphic. Formed by metasomatic changes in rocks, principally in limestone, or near intrusive contacts, under influence of magmatic material above a high temperature and pressure. A.G.I.

pyrometamorphic deposits. Closely allied to hydrothermal deposits is the group known as pyrometamorphic. This group includes contact metasomatic deposits in limestone not the products of granite intrusives, but the inclusive term, pyrometamorphic, recognizes the fact that the group is not restricted to the vicinity of contacts. Although carbonate rocks are the typical hosts, a few pyrometamorphic deposits occur in schists and gneisses, and may not originally have been contained alkali earth carbonates. Calcium and magnesium, if not supplied by the host rocks, must have been introduced by ore solutions, as the distinguishing trait or the deposits is the presence of silicates of these elements. But shallow intrusive deposits may be regarded as hydrothermal deposits whose host rock was limestone. McKee, 1939.

pyrometamorphism. Contact metamorphism. Hest.

pyrometric cone. A small, slender three-sided pyramid made of ceramic or refractory material for use in determining the time-temperature effect of heating and in obtaining the pyrometric cone equivalent (P.C.E.) of refractory material. A.R.F. Practically all pyrometric cones are made in series, the temperature interval between successive cones usually being 20°C. The best known series are Segar cones (Germany), Orton cones (United States), and Staffordshire cones (United Kingdom). Dodd.

pyrometric cone equivalent. The number of...
pyrometric cone equivalent

that standard pyrometric cone whose tip would touch the supporting plaque simulta-
neously with a cone of the refractory material being investigated when tested in ac-
cordance with the Method of Test for Ceramic Envi-
ronmental. ASTM. ASTM Designation: C24. The terms fussion point, softening point, deformation point, and melting point have heretofore been loosely used for pyrometric cone equivalent. Abbrevia-
tion, PCE. ASTM C71-64.

pyrometry. The techniques and methods of measuring high temperatures; especially the art of using a pyrometer. Webster 3d. pyromorphite: green lead ore. A chloroph-
osphate of lead, Pb5Cl(PO4)3, a member of the apatite group. Hexagonal. A mineral of secondary origin; weakly radio-
active; yellow, brown, green, gray, or white; found in the oxidized zone of lead deposits. Some specimens of pyromor-
phite have been reported containing uranium. A.G.I.; Dana 17; Crosby. p. 131. pyromorphite: crystallizing from a molten state. Webster 3d.

pyromorphite. An explosive containing the ingredi-
ents of gunpowder, and also aniti-
mony, bismuth, and carbon tetrachloride and chromite, and flour. Fay.

type. The fiery-red garnet; a silicate of magnesium, iron, and aluminum, in a crystallizing in the cubic system. It is often perfectly transparent and then prized as a gemstone; red, yellow, or colorless. Fay.

pyropine. A variety of opal that by the absorption of melted glass is made trans-
lucent when hot, but becomes opaque again on cooling. Standard, 1964. Syno-
m for fire opal. Fay.

pyropine. A deep blood-red scaly mineral with 1 perfect and 1 less perfect cleavage, Mn3TiO6; Moth's hardness, 5; specific gravity, 4.94. Larsen, p. 94; Dana 6d, p. 1045.

pyropine. Alloys capable of pro-
ducing sparks when struck sharply at a certain angle; used as flints in lighters. Nelson.

pyropine. A variety of splatterite that gives off sparks or glows when cold and bared. Some pieces are so sensitive that the effect is obtained by scratching them with a fingernail. Hess.

pyropilite. A natural hydrous aluminum silicate, Al2SiO(OH)4, found in meta-
orphic rocks; monoclinic. Color, white, green, gray, brown; luster, pearly to greasy; good micaceous cleavage; specific gravity, 2.8 to 2.9; Mohs' hardness, 1 to 2. Found in North Carolina, California; Newfoundland; Japan. Used in ceramics, slate pencils, substitute for talc. Also called pencil stone. Fay; Dana 17; CCD 6d, 1961.

pyropilite. Same as pyrophyllite. A coarse, nearly opaque, variety of topaz. Fay.

pyrophosphate. Yellowish-white resin and wax that flows off specks or glows when cold, and pyropilites are frequently closely mixed, and are called pyrophytic brown coal. Stutter 1960, p. 120.

pyrophylite brown coal. Closely mixed resin and wax coal and brown coal. See pyrophilite.

pyrophylite. The irreversible de-
formation suffered by many ceramic ma-
terials when heavily stressed at high tem-
peratures. The term has been applied particularly to the slow deformation of fireclay refractories when loaded at high temperatures. Dodd.

pyroplastic. The physical state induced by soaking heat which permits a refractory body to be readily deformed under pres-
sure or by its own weight. Dodd.

pyroplastic deformation. The physical state induced by soaking heat which permits a refractory body to be readily deformed under pres-
sure or by its own weight. Dodd.

pyroplastic deformation. The irreversible de-
formation suffered by many ceramic ma-
terials when heavily stressed at high tem-
peratures. The term has been applied particularly to the slow deformation of fireclay refractories when loaded at high temperatures. Dodd.

pyrole. A brown, greenish-black resin that occurs in brown coal, near Aussig, Bohemia; specific gravity, 1.05 to 1.18. Fay.

pyroantracone. A chrysis or shell containing suffi-
cient hydrocarbons to burn with a bright flame, or one yielding volatile hydrocar-
bons or inflammable gas when heated. Fay.

pyroantracone. A device that, by a change in shape from its black oxide or during its temperature or, more correctly, the combined effect of time and temperature (which has been called heat work). The bat known pro-
duction point, deformation and a time and temperature (which has beencalled heat work). The bat known pro-
duction point, deformation point, and melting point have heretofore been loosely used for pyrometric cone equivalent. Abbrevia-
tion, PCE. ASTM C71-64.

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duction point, deformation point, and melting point have heretofore been loosely used for pyrometric cone equivalent. Abbrevia-
tion, PCE. ASTM C71-64.
of water, quantity of gas. Zimmerman, p. 87.


g. Quaquaversal. A small capacity water tunnel commonly used in the Middle East. Sandstrom.

Q factor. Q, the factor of merit, is the ratio of reactance to resistance and indicates the relative effectiveness of capacitor reactance with respect to resistance. It increases as the effective series resistance of the capacitor decreases. A high Q value thus indicates high capacity quality. For values greater than 10, Q is almost equal to the reciprocal of the power factor. Snow.

q shell. Seventh (outermost) electron shell.

square. A four-sided plane figure of any shape, having an area equal to the product of the sides multiplied by half the sine of the angle between them. Ham.


quadrature. A gruitone with a calcareous cement. Fay.

quantum. A. A block of pairs, each having four leaves, reeved with rope or cable and used to increase the lifting capacity of a crane. a. A square block and tackle. Long.

quacuum. Soft, wet, mired land that shays or yields under the foot. Webster 3d.

quakie. A bog that shays under foot, consisting of growing peat saturated with water. Snow.

quakies. A. A quarter of a circle; an arc. Webster 3d. b. Any of the four parts into which a plane is divided by two perpendicular lines. Webster 3d. c. A one-fourth part of the perimeter of the face of a bit crown. Long. f. A curved scale for measuring angles. Webster 3d.


quadrilateral. A. A four-sided plane figure of any shape, having an area equal to the product of the sides multiplied by half the sine of the angle between them. Ham.


quantitative survey. See ventilation survey.
quarry

A large open pit, or mine, in which stone or other material is extracted. The term is also used to describe the material extracted from such a deposit. The word "quarry" comes from the Old French "quarier," meaning "to divide" or "to separate." In its proper significance, a quarry is a stone mine and may be located on land or under water. Terms such as quarrying, quarrying machine, and quarry worker can be found throughout the text.

quarry bar. A horizontal bar supported at each end by legs and used to carry material. See also floor level.

quarry bird. A blasthole drill.

quarrying machine. Any machine by which to drill holes or cut tunnels in native rock; a gang drill, or tunneling machine, but most commonly a small form of locomotive, bearing rock-drilling mechanism, and operated from a heating car or locomotive. The term is also used to describe the metal component of a coal mining machine. See also constructional work.

quarrying. The activity of extracting stone or other materials from a deposit.

quarryman. A man employed at the face of a quarry, stripping, digging, excavating, and loading rock or economic product. Quarrymen can only be learned by experience. Nelson. b. One who operates a jackhammer to drill holes in quarry stone, and of whom wedges into the holes to break or split off slabs or blocks of stone. Also called hammerman; plug-and-feather driller; rockman; rock splitter. D.O.T. 1. In crushed rock quarries, a laborer who performs any one or combination of such duties as: loading rock into boxes or capes out of quarry pit; assisting in moving power shovels from one loading position to another; dumping rock from cars into crusher or storage bins; feeding rock into a crushe; tending belt conveyor that transports crushed rock from crushe to storage bins; loading crushed rock from storage bins into trucks or railroad cars. D.O.T. 1. d. In building stone quarries, as to clean and regularize the material by dressing it, to dress and ready it, to measure and weight it, to cut or break it, to load it, and to sell it.

quarrying machine. A machine employed at the face of a quarry, stripping, digging, excavating, and loading rock or economic product. Quarrymen can only be learned by experience. Nelson. b. One who operates a jackhammer to drill holes in quarry stone, and of whom wedges into the holes to break or split off slabs or blocks of stone. Also called hammerman; plug-and-feather driller; rockman; rock splitter. D.O.T. 1. c. In crushed rock quarries, a laborer who performs any one or combination of such duties as: loading rock into boxes or capes out of quarry pit; assisting in moving power shovels from one loading position to another; dumping rock from cars into crusher or storage bins; feeding rock into a crushe; tending belt conveyor that transports crushed rock from crushe to storage bins; loading crushed rock from storage bins into trucks or railroad cars by a large crane. Webster 3d.

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quartz. a. A quartz rock derived from sandstone, composed dominantly of quartz, and characterized by such thorough inhomogeneity, e.g., through cementation with y-silica or through recrystallization, that it is essentially homogeneous and breaks with various grains and matrix or interstitial material with approximately equal ease. Such a stone possesses a very low degree of porosity and the broken surfaces are relatively smooth and vitreous as compared with the relatively high porosity and the rough surfaces of sandstone. ASTM C119-50. There are two types (1) metasandstone, a metamorphic rock usually derived from sandstone, and (2) orthoquartzyte, a sedimentary rock consisting of grains of silica sand, cemented slickly by at least 10 percent of precipitated silica. HW. b. Stone composed of silica grains so firmly cemented by silica that fracture occurs through the grains rather than around them. Balmuto B. 3. 630, 1965, p. 876. c. Accenta in a rock or sandstone by drillers, a very hard, dense sandstone. Land. d. A granulosaic metamorphic rock consisting essentially of crystals of quartz, e.g. Sandstone cemented by silica which has grown in optical continuity around each fragment. Holm. e. Quarzite. Of or consisting of quartz or quartz rocks. Fay. f. Quartz locustings. See banded quartz-hematite ore. Hess. g. Quartz keratophyre. A type of soda trachyte carrying accessory quartz. C.T.D. h. Quartz latency. The deposit of quartz in the form of veins or ore. Hess. i. Quartz monzonite. A plutonic rock containing accessory quartz. C.T.D. j. Quartz veins. A deposit of quartz in the form of veins or ore. Fay. k. Quartz vein. A deposit of quartz in the form of veins or ore. Hess. l. Quartz vein. A deposit of quartz in the form of veins or ore. Hess. m. Quartz vein. A deposit of quartz in the form of veins or ore. Hess. n. Quartz vein. A deposit of quartz in the form of veins or ore. Hess. o. Quartz vein. A deposit of quartz in the form of veins or ore. Hess. p. Quartz vein. A deposit of quartz in the form of veins or ore. Hess. q. Quartz vein. A deposit of quartz in the form of veins or ore. Hess. r. Quartz vein. A deposit of quartz in the form of veins or ore. Hess. s. Quartz vein. A deposit of quartz in the form of veins or ore. Hess. t. Quartz vein. A deposit of quartz in the form of veins or ore. Hess. u. Quartz vein. A deposit of quartz in the form of veins or ore. Hess. v. Quartz vein. A deposit of quartz in the form of veins or ore. Hess. w. Quartz vein. A deposit of quartz in the form of veins or ore. Hess. x. Quartz vein. A deposit of quartz in the form of veins or ore. Hess. y. Quartz vein. A deposit of quartz in the form of veins or ore. Hess. z. Quartz vein. A deposit of quartz in the form of veins or ore. Hess.
that the series may be represented as binary on a phase diagram. *ASM Gloss.*

**quaternary**. Consisting of four components. *Ref.*

**Quebec City** series. Same as Quebec group.

**quaternary**. The younger of the two geologic periods or systems in the Cenozoic era. Subdivision of the Tertiary and Pleistocene, hut Pleistocene is generally subdivided into Pleistocene and Recent. *G.I.*

**quaternary steel**. Steel composed of the usual elements, as nickel and chromium. *Webster 3d.*

**Quaternary.** The youngest of the two geologic periods or systems in the Cenozoic era. Includes beds from the Precambrian to the end of the Tertiary up to and including the Pleistocene. *ASM Gloss.*

**queen**. A fissure, joint, or small cavity, as in a rock or vein of quartz. Also called quarry lode. See also queery ground. *Fay.*

**queener.** A fissure, joint, or small cavity, as in a rock or vein of quartz. Also called quarry lode. See also queery ground. *Fay.*

**queensware.** Glazed English earthenware of better quality than porcelain. Also called *semi-porcelain.* *Webster 3d.*

**queenstone.** A hydrous basic mafic igneous rock consisting of olivine (harrangite known). *ASM Gloss.*

**quequetite.** See copiapite. *Larsen, p. 263.*

**queuey ground.** Ground in a loose, incoherent condition; often a small lode. *Fay.*

**quick**. A. Nov. Eng. A fissure, joint, or small cavity, as in a rock or vein of quartz. Also called quarry lode. *Fay.*

**quickage.** Aging induced by rapid cooling after solution heat treatment. *ASM Gloss.*

**quickness.** A. Generally means cooling steel from above the critical range by immersing in oil or water, in order to harden it. Also applied to cooling in salt and molten metal baths or by means of an air blast, or in oil. *Webster 3d.* B. To produce a condition where the character of metal is changed so that some or all of the martensitic structure is transformed to ferrite or bainite. *ASM Gloss.*

**quick-cool**. A. To cool suddenly (as heated steel) to a temperature in water or oil. *Webster 3d.* B. To produce a crust or a succession of crusts on (molten metal); each crust removed as it is formed. *Standard, 1964.*

**quickzag**. Aging induced by rapid cooling after solution heat treatment. *ASM Gloss.*

**quebracho.** Aqueous extract of a bark of the quebracho tree, contains up to 65 percent tannin. Used in froth-flotation as depressant. *Sinclair, W. E., pp. 254-255.*

**quebracbo.** Aqueous extract of a bark of the *quebracho* tree, contains up to 65 percent tannin. Used in froth-flotation as depressant. *Sinclair, W. E., pp. 254-255.*

**quebracho.** Aqueous extract of a bark of the *quebracho* tree, contains up to 65 percent tannin. Used in froth-flotation as depressant. *Sinclair, W. E., pp. 254-255.*

**quebrachol.** A manganese-garnet (spessartite) frit to a blast of air and water, or to pass through a series of boxes (four in number) the first three of which contain screening material consisting of wire mesh of different sizes. They are superimposed one above the other. A regular shaking movement results in the shortest fibers in the sample passing through from the top box to either box 2 or 3 according to its length, while the finest material falls into the bottom pan. After a two-minute test, the fiber in each tray is weighed and the results indicate the proportionate lengths of fiber contained in the product. *Sinclair, W. E., pp. 254-255.*

**quebracho.** Aqueous extract of a bark of the *quebracho* tree, contains up to 65 percent tannin. Used in froth-flotation as depressant. *Sinclair, W. E., pp. 254-255.*

**quicklime.** A common name for an oxide of calcium made by calcining calcium carbonate (quicklime sizes). *ASM Gloss.*

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quicklime sizes

ble or crushed—2½ inch and smaller, (3) ground, screened, or granular—½ inch and smaller, (4) pulverized—sub-
stantially all passing a No. 20 840-micron sieve. ASTM CS1-47.

quick sand, a. Sand saturated with water; (1) underground, quicksand tends to run with salt, softening and being rain-
ported at all points. Foroping with closely placed faceboards and the use of bottom boards is required; in major jobs freezing is adopted, and (2) at the sur-
face, quicksand has no bearing capacity, but can be proved in this respect by thorough draining. Nelson, b. Sand which is (or becomes, upon the access of water) quick, that is, yielding, easily moving, or, as say. Also called running sand.

quicksand. Containing or abounding in quicksand. Fay.

quicksanton. A hydraulic cement. A hydroalumina-calcium silicate or calcium sulfate-base ce-
ment that, because of its special composition and fineness of grind, sets in a shorter period of time than ordinary build-
er's or portland-type cements. Long.

quicksaw. A saw which has a quick-leveling head. Ham.

quicksilver. a. A common name for mercury; one of the metallic elements, remarkable for its low melting point, being liquid down to minus 40°F. Fay. b. To overlay with, or as if with quicksilver, especially to coat (glass) with an amalgam of quick-
silver an tin in making mirrors. Webster 3d. c. Symbol for Hg, the reflecting surface of looking glasses. Stand-
ard, 1964.

quicksand. A wooden box placed in a sloping position, and fixed upon rockers, in which gold-bearing gravel is washed, the quicksand being mercury in the lower part of the cradle. Fay.

quicksilvering. The process of coating with mercury. See also quicksilver, c. Standard, 1964; Fay.

quicksilver rock. An altered serpentine con-
sisting mainly of dark opal and chlorite-
dony and commonly associated with the ore in mercury deposits in serpentine.

quicksilver water. See quicksilvering. Fay. quick test. A shear test of a cohesive soil with a small knife inserted. Fay. c. Shear test. See also drained shear test; unconsoli-

quicksilver. A dilute solution of nitrate of mercury and gold, used in the process of water eiling. Fay.

quicksilvering. a. The degree of purity of gold

quicksand. a. A slow-burning fuse made formerly of the quill of a feather filled with powder-
dust, or of a shoe-shaped, bushing sitting around and splined or keyed to the drive rod or screw in a drill swivel head. It transmits pressure from the drive motor to the drive rod and causes the drive rod to be rotated. Long. c. Sometime. Inteirely used as a name for drive rod and/or drivescrew. Long.

d. A sleeve or hollow shaft that slides over, or revolves upon, a solid shaft; used in the design of some clutches or in a flexible coupling of the driving shaft and the driven shaft of two machines. Long. e. A hollow or tubular shaft, designed to slide or revolve, carrying a rotating member within itself. ASM Gloss. f. Quick shaft. A light drive shaft inside a heavier one, and turning independently of it. Nichols.

quicksand. Light carmine-red particles found in a limestone near Quincy, France; color apparently organic; a doubtful mineral. Dana ed., 1970.

quicksilvery electrode. A half cell with a platinum or gold electrode in contact with a solution saturated with quick-
hydromagnesite. (CaMg3(PO4)2(OH)2). Lowenheim.

quicksand. Equals quicksand. Webster 3d.


quicksand. a. A metric unit that equals 100 kilograms. Webster 3d. Abbreviation, q. Zimmerman, p. 87. b. Any of various units of weight, used especially in Latin American and Mediterranean countries, that equals from 100 pounds to about 130 pounds; e.g., the en. Webster 3d. f. Handbook of Chemistry and Physics, 45th ed, 1964, p. 710.

quicksand. a. A release of a claim; a deed of release; specifically, a legal instrument by which some right, or river. Also abbreviated r. Zimmerman, p. 92. Abbreviation for resistor. Zimmerman, p. 92. Symbol for ohm. Zimmerman, p. 76. i. Abreviation for rain. Also abbreviated r. Zimmerman, p. 88. j. In earthquake seismology, a phase designation applied to Rayleigh waves. Syno-
ym for Lg. A.G.I.

quicksand. a. A release of a claim; a deed
quicksand. a. A release of a claim; a deed
for production rate. Zimmerman, p. 163.

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for production rate. Zimmerman, p. 163.

quicksand. a. A release of a claim; a deed
for production rate. Zimmerman, p. 163.
rabbler. a. An iron scraper serving for a rake in removing scoriae from the surface of melted metal. Fay. b. A charcoal burner's sharp metallic tool to remove coke from underneath to the base of a masonry fire by hand or mechanically. Webster 3d.


racking. a. An inclined trough for washing or racing. In S. Wales, a term for topping. Webster, 1954.

race. a. An aqueduct or channel for conveying water to or from the place where it performs work. The former is termed the head race, and the latter the tail race. Gray, 1935. b. See raceway. c. Eng. The space in which a winding drum revolves. Fay. d. To scrape or clean, as a grater to make it round and more abrasive. Standard, 1964. e. A small thread of spar or ore. Fay. f. Scot. A set or train of hitches coupled together. Fay. g. See flume. B.S. 3618, 1963. h. A groove along which some part of a machine moves, such as the annular ring in a ball bearing that guides and holds the balls in place. Long. i. The excessive speed at which an engine runs when the governor fails to control its speed. Long. j. Raceway. The term is applied to conduits, moldings, and other hollow material, often concealed, through which wires are fished from one outlet to another. Crispin.

rack. a. An engine or channel for conducting water to or from the place where it performs work. Fay. b. A device for vertical or horizontal transport of logs. Long. c. To move the drilling machine away from the borehole collar by sliding it on its base, using the rack-and-gear pinion to facilitate moving the machine. Long. d. To stack and arrange the drill rods in an orderly fashion in the tripod, mast, or derrick, or horizontally on a rack provided on the ground. Long. e. To place core on a rack. Long. f. See rem. ASM Gloss.

rack. a. An inclined trough for washing or separating ore. Nelson. b. A toothed or notched drill-bar-slide and meshing-gear pinion used to facilitate the moving of a drill to clear the borehole when hoisting or lowering the drill string; generally limited to larger, skid-mounted machines. Long. c. A framework of wood or metal for the orderly storage of core, pipe rods, etc., in a horizontal position. Long. d. Tilting table on which concentrates are separated from passing flow of finely ground pulp, system being arranged to be periodically self-flushing. Rack is an old term for concentration in sluice boxes. Also called reck;ragging frame. Pryor, 1930. e. A screen composed of parallel bars to exclude large particles. Long. f. 1. I. In placing a frame used for suspending and conducting current to one or more cathodes. See Journ. Amer. Luminet. 2. See race. See raceway. 3. See rack. 4. Long.

rack-a-rock. a. Mining explosive based on mixture of nitrocellulose, chlorate and nitrobenzene. Pryor, 1930.

rack back. To move the drilling machine from passing flow of finely ground pulp, system being arranged to be periodically self-flushing. Rack is an old term for concentration in sluice boxes. Also called reck; ragging frame. Pryor, 1930. e. A screen composed of parallel bars to exclude large particles. Long. f. 1. I. In placing a frame used for suspending and conducting current to one or more cathodes. See Journ. Amer. Luminet. 2. See race. See raceway. 3. See rack. 4. Long.

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radial machineman

moving across the working face. Also called arcwall machineman. D.O.T. 1.

radial peeler. Laminar. A heavy coal cutter for use in headings and rooms in pillar methods of working. The machine weighs about 12 hundredweight and is usually mounted on a light carriage to suit the mine track. A percussive drill, with extension rods, makes a horizontal cut about 3½ feet deep and 15 feet wide at any height in the heading. The central column is tightened between roof and floor about 4½ feet from the face. The machine can also be used for drilling shoftering holes. Nelson.

radial pressure. The radial pressure of wire rope is a function of the rope tension, rope diameter, and tread diameter. The radial pressure can be determined by the following equation: \( P = \frac{F}{D} \) where \( P \) equals radial pressure in pounds per square inch; \( F \) equals rope tension in pounds; \( D \) equals rope diameter in inches; and \( t \) equals rope diameter in inches. ASA M11.1-1960, LBL.

radial ram. The angle between the tooth face and a radial line passing through the cutting edge of the cutter parallel to the cutter axis. ASM Gloss.

radial removal. The total variation in the radial distance of all cutter teeth in a plane of rotation. ASM Gloss.

radial striking. A method of caving by which all the ground around a central raise is caved by a series of slices or drum or drum in inches; and \( d \) equals rope diameter in inches. ASA M11.1-1960, LBL.

radial stress. The change in length per unit length in a direction radially outward from the charge. R. 1., 3536, 1937, p. 4.

radial vent. A radiation detector mounted on one side of the pipe. A radiation detector is mounted in a lead-shielded holder on one side of the pipe. Radiation pyrometers are used for measuring temperatures to 7,000°F. The device is used in automatic control systems in mineral dressing and the like. Nelson. p. 505.

radial ventilation. A ventilation system in which a number of downcast shafts are arranged to permit the entry of air into the working area. The downcast shafts are served by a common upcast shaft, which is divided into sections by means of air, or in drum holes to detect, and/or indicate the occurrence or the nearby presence of radioactive materials. All radiation detectors, whether gamma-ray, Geiger counter, Geiger-Mueller counter, or scintillation counter detector, are used for this purpose. Radiation detector. ASM Gloss.

radial zone. Sometimes known as compound ventilation. ASM Gloss.

radial dose. Accumulated exposure to radiation during a specified period of time. ASM Gloss.

radial energy. The energy of a given photon or particle in a beam of radiation, usually expressed in electron volts. ASM Gloss.

radial gauge. An instrument for measuring the intensity and quantity of radiation. ASM Gloss.

radial hazard. The danger to living things resulting from the presence of radiation, generally refers to the danger to health from exposure to radiation. Hem.

radial traverse. The process of emitting radiant energy in the form of waves or particles; also, the path of an electron, or other charged particle, through a medium. ASM Gloss.

radial velocity. A linear velocity perpendicular to the cutter axis. ASM Gloss.

radial velocity. A linear velocity perpendicular to the cutter axis. ASM Gloss.

radial virial. A device for metering fuel material. ASM Gloss.

radial zone. Sometimes known as compound ventilation. ASM Gloss.
radioactive dating

radioactive decay: The change of one element into another by the emission of charged particles from the nuclei of their atoms.

radioactive dating; radiocarbon dating. A method for determining the age of rocks and minerals through the study of the radiocarbon of carbon 14; a radioactive isotope of carbon; it has a half-life of 5,730 years.

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radioactive dating: A method for determining the age of rocks and minerals through the study of the radiocarbon of carbon 14; a radioactive isotope of carbon; it has a half-life of 5,730 years.

radioactivity: The property possessed by certain elements, such as uranium minerals, of spontaneously emitting alpha, beta, and/or gamma rays; that disintegrates the nuclei of their atoms.

radioactive minerals: Six radioactive metals. See radnata. 41.

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radiograph. A. A siliceous earth composed of radiolite. A variety of natrolite, especially radioisotope; radioactive isotope. A. An unproductive mine. Pryor, 3d.
radiography. A. A nondestructive method of inspection of solids by transmitted light. When the exciting current is energized, a current is induced in the detector coil, and this current is then amplified and displayed on a meter. The latter transmits readings of temperature and pressure at any point on the ground. This equipment can be used for weather forecasting under all weather conditions and at considerable heights.
radiology. The science of radioactive substances, X-rays, and other high-energy radiations. Specifically, the use of sources of radiant energy in the diagnosis and treatment of disease. Webster 3d.
radiometry. A. The science of radioactive substances, X-rays, and other high-energy radiations. Specifically, the use of sources of radiant energy in the diagnosis and treatment of disease. Webster 3d.
radiometric assay. A test with a radioassay unit to determine the isotopic composition of a sample. See also equilibrium, c; c-, c-.
radiometric ore sorter. A device for separating ore from gangue by the use of a radiation detector based on the absorption of gamma rays by the ore before and after primary crushing. Each sorter head comprises a light source and detection unit, and scintillation counter. Each rock particle first falls in front of the light source and the amount of light intercepted produces a signal proportional to the amount of light that passes through the rock. The signal is then amplified and the radiation from the rock is directed to the radioactive detector. The radioactive detector then measures the percentage of radiation from the rock and the ore is rejected or accepted by the sorter. This system is particularly useful for the detection of ore bodies that are difficult to see with other methods.
radiometric prospecting. Use of portable Geiger-Muller apparatus for field location of ore deposits. See also equilibrium, c; c-.
radiocell. See radiocell.
radiojod. See radiojod.
radiodex. Common opal of a smoky color. See also equilibrium, c; c-.
radioisotope. A. A white, hydrous calcium carbonate. See also equilibrium, c; c-.
radiometer. An F.M. apparatus using the principle of a radioisotope. See also equilibrium, c; c-.
radiometric assay. A test with a radioassay unit to determine the isotopic composition of a sample. See also equilibrium, c; c-.
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radius B

radius C. A name for polonium 214, a member of the uranium disintegration series; symbol, RaC; and half-life, 1.64 X 10^-4 seconds. NRC-ASA NI.1-1957; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-80.

radius C*. A very short-lived radioactive element of the uranium disintegration series, formed by the decay of 0.04 percent of the atoms of radium C. It is on the 10th generation of elements formed in the decay of uranums 238. Symbol, RaC*; atomic number, 81; atomic weight, 211.3. Blatt and Lederer, 2, p. 208. Actinon, ThC* (thallium 208), and AcC* (thallium 207), and thallium (being thallium 210); emits beta particles and gamma rays; half-life, 1.32 minutes; and degrades to radium D (lead 210). Hesi; Glazstone, 2, p. 139.

radius D. A name for radium 210, a member of the uranium disintegration series; symbol, RaD; and half-life, 21 years. NRC-ASA NI.1-1957; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-77.

radius E. A name for bismuth 214, a member of the uranium disintegration series; symbol, RaE; and half-life, 21 years. NRC-ASA NI.1-1957; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-78.

radius E*. A name for thallium 206, a member of the uranium disintegration series; symbol, RaE*; and half-life, 4.50 minutes. NRC-ASA NI.1-1957; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-80.

radius F. A name for polonium 210, a member of the uranium disintegration series; symbol, RaF; and half-life, 138.40 days. NRC-ASA NI.1-1957; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-77.

radiometric. A mixture of black pitchblende, yellow uraninite, and orange gummite. Schaller.

radium. See uranium minerals. Pryor, 3.

radiation. Horizontal distance from the center of rotation of a crane to its hoisting hook. Nichol.

radiation safe load indicator. A freely suspended pendulum hanging from a crane jib over a board on which are marked the maximum safe load at any angle, together with the safe load for each radium. Hesi.

radius of curve. A term used in laying mine track and is the calculation as to which will connect two pieces of track at a desired angle of direction from each other with a smooth curve section. Bureau of Mines Staff.

radius of gyration. The value used when calculating the moment of inertia of a shaped form, which is the radius of a circle whose moment of inertia is equal to the moment of inertia of the shape. The value of radius of gyration is given the symbol \( r_g \). Tate. See moment of inertia of a circle for derivation of the relationship.

radius of influence of a well. The distance from the center of the well to the closest point at which the parametric surface is in its moment of inertia, the radius of gyration is given the symbol \( r_g \). Tate. See moment of inertia of a circle for derivation of the relationship.

radius of rupture. In crane tests, the average distance from the center of the explosive charge to the periphery of the crater at the surface. R. H. S. 255, 1954, p. 4.

radius ratio. The ratio of the radius of the smaller ion to that of the larger ion. It may not exceed 1. Harris.

radome. A protective cone for the radar equipment in the nose of an aircraft, rocket, or space vehicle. A high altitude in the skin temperature may exceed 500' C and ceramic radomes become necessary; alumina and zirconium glass ceramics have been used. Dodd.

radon; radium emanation. A. A heavy, radioactive group of elements in the thorium series (inert gases) of Radon. Used in medicine and radiotherapy. Symbol, Rs; atomic number, 86; mass number of the most stable isotope (atomic weight), 222; density of gas, 9.73 grams per liter; melting point, -71' C; and boiling point, -61.8' C. Webster 3d; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-2, p. 130. b. Radon is the heaviest known gas. Colorless as a gas; yellow to orange-red as a solid; opaque crystals; specific gravity of liquid, 4.4 (at -62° C); and of solid, 4.0; insoluble in water; and slightly soluble in alcohol and 18 percent nitric acid. All 18 known isotopes from radon 204 to radon 224 are radioactive. Radon 222; emanates from radium 222; is an alpha particle emitter; radon 220 or thoron; emanates from thorium; half-life, 5.45 seconds; and an alpha particle emitter; radon 219 or acton; emanates from actinium; half-life, 3.92 seconds; and an alpha particle emitter; radon 218; is a large gas ray emitter. One part of radon exists in 1 sextillion parts of air. Handbook of Chemistry and Physics, 45th ed., 1964, pp. B-81, B-131.

Radstockian. A subdivision of the Coal Measures—based mainly on the contained floras. In part it is represented by the Upper Coal series with coal seams of S. Wales; no coal seams in the Midland and N. Wales coalfields. Nelson.

raft. The coarse ore after crushing by Cornish rolls. Fay.


raffinate. The aqueous solution remaining after uranium has been extracted by the solvent; the tailing of the solvent extraction system. Newton, p. 440.

raft wheel. A revolving wheel with side buckets for elevating the raff. Fay.

raft yard. N. A measuring yard on the surface, in which the smiths, wrights, carpenters, etc. work. Fay.

raft. See boat coal. A.C.I.

raft foundation. A slab of mine timbering in which the timbers appear like roof rafters. Fay.

ragged. Pulling down loose coal at the face before loading or setting supports. Nelson.

rag. A groove or channel in a masonry joint or in a special masonry unit (raggle block), to receive roofing, flashing, or other material which is to be sealed in the masonry. ACSG, 1961.


ragging-off. Pulling down loose coal at the face before loading or setting supports. Nelson.

ragman. A kind of paving stone. Arkell.

ragged rolls. Rolls with rough surfaces to facilitate the gripping of the steel in the first stages of rolling as distinguished from the smooth-finishing rolls. Merrisvera, 4th, p. 426.


ragged rolls. Pulling down loose coal at the face before loading or setting supports. Nelson.

ragged rolls. Pulling down loose coal at the face before loading or setting supports. Nelson.
rain gauge. A device for measuring the depth of rainfall. It consists of a graduated cylinder or a funnel and a container to collect the water. The water is then measured to determine the amount of rainfall.

rainfall. The total amount of water that falls from the sky in the form of rain. It is measured in millimeters or inches and can vary significantly depending on the location and season.

rainwater. Water that has fallen from the sky in the form of rain. It is considered to be the purest form of water as it has not come into contact with the atmosphere or soil.

rain wash. The process by which rainwater erodes the surface of the ground, carrying away soil and other materials. It is a natural process that helps to shape the landscape over time.

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rain water. The purest form of naturally-occurring water on earth. It is described as soft water because it is free of minerals and other impurities. Rainwater is typically used for drinking purposes.

rainfall. The total amount of rain that falls over a given area as measured in a rain gage. It is typically measured in millimeters or inches and can vary significantly depending on the location and season.

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raked shaft. See raise. Fraentzel.

raise & tier. a. Shales containing vein, or lode, rutting through the strata. See sherake, M. and n.

raise classifier. A type of mechanical classifier utilizing reciprocal rakes on an inclined plane to separate coarse from fine material contained in a ore pulp, overflowing the fine material and discharging the coarse material by means of an inclined raking system. Bureau of Mines Staff.


raise blade. A dozer blade or attachment made of spaced tines. Nichols.

raise classifier. A type of mechanical classifier utilizing reciprocal rakes on an inclined plane to separate coarse from fine material contained in a ore pulp, overflowing the fine material and discharging the coarse material by means of an inclined raking system. Bureau of Mines Staff.


rake blade. A dozer blade or attachment made of spaced tines. Nichols.

rake classifier. A type of mechanical classifier utilizing reciprocal rakes on an inclined plane to separate coarse from fine material contained in a ore pulp, overflowing the fine material and discharging the coarse material by means of an inclined raking system. Bureau of Mines Staff.

ram. a. To stem; tamp. Mason. b. Ore. Black ram, bog iron ore; gold ram, gold ore.

ramming mix. A ground refractory material for use as a raw mixture for packing sand, refractory, or other material into a compact mass. ASM Glass. d. The packing of molten sand around a pattern in a mold. Freeman.

ramming and patching refractories. Those which can be rammed to form a monolithic furnace, or specially shaped. Bureau of Mines Staff.

ramming bar. N. of Eng A beater. A tamping or stemming bar for rod. Fay.

ramming material. A coarsely-graded refractory batch which, when moistened, can be rammed into position, in a furnace hearth for example. The rammed mass becomes strong and monolithic by vitrification or sintering in place. Dodd.

ramp. a. A change in frequency underlaid by a portion of the light that has been scattered in its passage through a transparent liquid, solid, or gas, the characteristics of which determine the amount of change Webster, 3d

ramping. a. Stemming; tamping. Mason. b. Same as scaling.

ramping and patching refractories. Those which can be rammed to form a monolithic furnace, or specially shaped. Bureau of Mines Staff.

ramming bar. N. of Eng A beater. A tamping or stemming bar for rod. Fay.

ramming material. A coarsely-graded refractory batch which, when moistened, can be rammed into position, in a furnace hearth for example. The rammed mass becomes strong and monolithic by vitrification or sintering in place. Dodd.

ramp. a. A change in frequency underlaid by a portion of the light that has been scattered in its passage through a transparent liquid, solid, or gas, the characteristics of which determine the amount of change Webster, 3d

ramping. a. Stemming; tamping. Mason. b. Same as scaling.
A suffix that is a particle: normal-no normalization. A flusk is a common term for a glass beaker. A tank is a large vessel for storing or processing liquids or gases. A furnace is a device that uses heat to process materials. A cavity is a space or hollow area. A converter is a device that changes one form of energy into another.
range

Example The side building on the side of a lake may be ranged.
rare earth elements

rare earth hydrides. Yellow hydrides of rare-earth metals, containing two or seven elements, soluble in water, used in glass as a deactivator and as an ultraviolet absorber. (C.D. 64, 1964.

rare earth metals. A group of widely distributed metals, comprising scandium (atomic number 21), yttrium (atomic number 39), and 13 elements of atomic numbers 57 to 71, inclusive. These have the same arrangement of the two external shells of electrons in their atoms, and resemble each other very closely in their chemical and physical properties. Except for cerium, these metals are divided into three groups of the rare-earth metals, the cerium group, the lanthanum group, and the actinide group, which includes actinium, thorium, uranium, neptunium, lawrencium, and californium. Also sometimes included are beryllium and aluminum. (C.D. 64, 1964.

rare gases. A term for the noble gases, helium, neon, argon, krypton, xenon, and radon, which constitute group 0 of the periodic table. Each of these elements is an ordinary element except for the rare gases, inert gases, noble gases. The six gaseous elements, krypton, xenon, and radon, which constitute group 0 of the periodic table, are the rare gases. (C.D. 64, 1964.

rarefaction. The process or act of making rare or less dense; increase of volume, density. Rarefaction causes a colorless, odorless gas. Each of these six elements at ordinary temperatures is a colorless, odorless gas. Every rare element except for radon can be obtained from the atmosphere. (C.D. 64, 1964.

rare metals. A loose term for the less common and more expensive rare metallic elements. Included are the alkaline-earth metals barium, strontium, and beryllium, the transition elements, cobalt, copper, nickel, and the rare earth metals, and the noble gases, helium, neon, argon, krypton, xenon, and radon. Rare metals are called group 0 metals, for the elements are not earths and resemble one another in their atomic number, 18. (C.D. 64, 1964.

rate of action or of proportional plus reset action, the component or proportional plus reset signal. In any sequence of chemical reactions used to leach a product from its ore, the slowest in the chain. (C.D. 64, 1964.

rate of change. The determination of the rate of change of a characteristic decreases at a given point in a given time. A commonly used unit for expressing the sound pressure level rate of decay is the decibel per second. (C.D. 64, 1964.

rate of decay. The time rate at which the sound pressure level or any other stated characteristic decreases at a given point in a given time. A commonly used unit to express the sound pressure level rate of decay is the decibel per second. (C.D. 64, 1964.

rate of fuel. The rate of fuel is the term used in Jalisco for ore mining. (C.D. 64, 1964.

rate of penetration. The inclinon of profile gradeline from the horizontal, expressed as a percentage. (C.D. 64, 1964.

rate of reaction. The rate of reaction is the term used in Jalisco for ore mining. (C.D. 64, 1964.

rate of sound. The rate of sound is the term used in Jalisco for ore mining. (C.D. 64, 1964.


raw earth. A thin-walled hollow cylinder made of ceramic stoneware, glass, bone, tar, or metal, for the parking of absorption solutions. These are usually made in various sizes from about 1/4 X 1 inch (10.700) cubic feet) to 2 X 2 inches (170 cubic feet) and even up to 6 X 8 inches.

rass. a. A substance grading about halfway between lead, copper, and iron musings and having an oblong, rectangular, or oval horizontal section. See Fig.

rasping. A. A thin and flat shovels and looks like an oblique stroke of a sharp punch instead of a coal seam, often containing native silver. Fay.

rasping or grating. A. A file. Also called rasp-cut file. (C.D. 64, 1964.

rasp. a. An instrument used in a borehole for cutting out the top, or within the seam. The color of a rock formation in a unit of time, such as the basis of rating. (C.D. 64, 1964.


ratline. A lead-gray sulfide of lead, stored when not in use. See also reduction ratio. Ratline. South Australia, p. 101.

ratrake. A lead-gray sulfide of lead, stored when not in use. See also reduction ratio. Ratline. South Australia, p. 101.

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ratrake. A lead-gray sulfide of lead, stored when not in use. See also reduction ratio. Ratline. South Australia, p. 101.

ratio of reduction. The ratio of the upper particle size in the reduced material to the upper particle size of the feed material. B.S. 3132, 1962.

ratio of toluene ranges (height ratio). The ratio of the breadth of the peak of the toluene material to the height of the peak to the station to the height at the reference station. Heiskanen, 1947.

rat-tail. Drilling or prospecting ahead in a oil well to sound out or test deeper formations before putting in casing. Heiskanen, 1947.

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Ravage A. Ore that has undergone no treatment, such as burning or reduction, prior to being placed under the stamp mill. B.S. 3552, 1962. b. Mineral as severest preparation other than possibly screening. Bureau of Mines Staff.

Raybestos. Trademark for insulating material. See also Raybestos manula. hews. 1954

Rayleigh wave. A wave surface associated with the free boundary of a solid. The wave is of maximum intensity at the surface and diminishes rapidly as one proceeds into the solid. Therefore, it has a tendency to hug the surface of the solid. Such waves have been used quite effectively in detecting surface cracks and flaws in castings. HGC. Synonym for R-wave.

Rayon flash dryer. A suspension-type dryer which employs the principle of flash drying of fine coal. The coal is transported vertically through a drying column by a stream of hot gases. The source of heat for this system is usually an automatic stoker. In this system the hot gases are drawn into the drying column by the action of the fan connected to the cyclone collector vent. The coal to be dried is continuously introduced into the hot gas stream. Virtually instantaneous drying occurs. The dry and moisture-laden gases are drawn into the cyclone collector. The dry coal drops to the bottom of the collector and the moisture laden gases are drawn to the fan to the atmosphere. Kentucky, p. 320; Mitchell, p. 683.

Rayon mill. Grinding mill in which spring-loaded rollers bear against a horizontal revolving brush employed for surface preparation. 1934

Raymond standard bed A. A powdered sample of white sand, glass beads, or other non磁性 material, used to measure the bearing capacity of sand in which the pile load is applied. 1912

Raynor refractories A. A substance which undergoes chemical change when it comes into contact with another substance. Osborne.

Reaction. Physically, a force opposing a given force in terms of Newton's law. Chemically, either (1) change in pH value or, (2) molecular alteration. Type (1) is typified by the equation A + B = C + E and (2) a redox reaction by A + B + E (or...
reaction

reaction. See roasting and reaction process.

Reactor. a. A term used mostly in microscopic work, for the curious rims of hydrous alteration to the lines of material, that may be continuous, like the plagioclase or forsterite-fayalite series, or discontinuous like the olivine-pyroxene-ampfibole series. See also Bowen's reaction series. A.G.I.

reaction-determining. A process in which sintering and chemical reaction between two or more components take place simultaneously. For example, Si and C can be reaction-determined to produce SiC; compacted Si powder can be reaction-determined in Na to form SiNa. See also sintering.

reaction turbine. A steam or water turbine in which the jets or nozzles are on the moving part, as distinct from an impulse turbine which has only fixed jets. Hem.

reaction velocity. Rate of change in quantity of chemical reaction, the units of measurement being moles per minute per liter, for which see equilibrium constant. The rate of reaction depends on concentration of each reactant, and on the nature of the reaction and potential. It can be modified by mechanical, thermal, or electrical means. Some reaction machines (e.g., those used in condensation polymerization hydrolyses) may be described as reaction turbines.

reaction pair. Any two minerals, one of which is formed at the expense of the other by reaction with liquid, respectively, any adjacent pair in the discontinuous reaction series. A.G.I. Thus forsterite at high temperature is converted into enstatite at a lower temperature, by a chemical reaction involving the addition of silica from the magma. Forsterite and enstatite form a reaction pair.

reaction principle. a. The statement that the common minerals of igneous rocks have a reaction relation to one another, in contrast to the mere juxtaposition of different mineral aggregates. The minerals can be arranged in two series, the feldspars and one of the ferromagnesian minerals, such that in each second series, any number is derived from the preceding member by reaction with the magma and is capable of forming the following member by continued reaction with the magma. See also Bowen's reaction series. A.G.I. b. The conversion of one mineral species stable at high temperature into a different one at lower temperatures.

reaction process. See roasting and reaction process.

reaction rim. a. A term used mostly in microscopic work, for the curious rims of hydrous alteration to the lines of material, that may be continuous, like the plagioclase or forsterite-fayalite series, or discontinuous like the olivine-pyroxene-ampfibole series. See also Bowen's reaction series. A.G.I.

reaction series. Any series of minerals in an igneous rock, related in such a way, that each member of the series can be regarded as derived from the preceding member by reaction with the magma. The series may be continuous, like the plagioclase or forsterite-fayalite series, or discontinuous like the olivine-pyroxene-ampfibole series. See also Bowen's reaction series. A.G.I.

reaction-stirring. A process in which sintering and chemical reaction between two or more components take place simultaneously. For example, Si and C can be reaction-stirred to produce SiC; compacted Si powder can be reaction-stirred in Na to form SiNa. See also sintering.

reading. a. The act or process of enlarging a microscope, i.e., to enlarge a borehole. Long. b. A kind of chisel for cutting two V-shaped grooves from a round blasthole in the line of the desired rift. Webster 3d. See also reaming. b. Fay. c. Synonym for reaming bit. Long. d. Synonym for reaming shell. Long. e. Synonym for gage stone. Compare kicker. Long. f. A rotary cutting tool with one or more cutting elements called teeth, used for enlarging a hole to size and contour. It is supported principally by the metal around the hole it cuts. ASM Gloss.


reamer b2. a. A cutter just above a diamond bit, used to assure a full-size hole. Nichols. b. Synonym for reaming shell. Long.

reamer stone. See gage stone. Long.


ream. a. The act or process of enlarging a borehole. Long. b. A quarryman's term for the process of cutting grooves on opposing sides of drill holes in order to permit straight splitting of a stone. See also reamer, b. Fay.

reaming barrel. A heavy-wall tube or rod, 5 ft. or more in length, used for forming a reaming bit or as a connecting link between a reaming-bit assembly and the drill rods. The diameter of the reamed bit is slightly smaller than that of the attached reaming bit. Long.

reaming bit. A bit used to enlarge a borehole. Long.
reaming diamond. See gage stone. Long.

reaming pilot. a. See pilot, a. Long. b. A smooth bar used to guide a reaming bit or casing bit in the hole. B.S. 3678, 1963, Sec. 3.

reaming pilot adapter. An adapter or coupling in a reaming pilot assembly attached to the reaming pilot adapter. It passes through the reaming shell and casing bit to which it is attached, the pilot bit. Long. reaming ring. Synonym of reaming shell.

reaming shell. A short tubular piece designed to couple a bit to a core barrel. The outside surface of the reaming shell is provided with inset diamonds or other cutting media set to a diameter to cut a specific clearance for the core barrel. Also called core shell; reamer; reamer shell. Long.

reaming shell bit. A sleeve set with diamonds on the outer surface of the shell itself or in inset strips. Usually placed between the reaming shell bit and drill bit and made larger in diameter than the latter to maintain the gage of the hole. A casing reaming shell is similar but larger in diameter. See also core shell; swelled coupling. Cumming.

reaming stone. See gage stone. Long.

ream out. To enlarge by reaming. Long.

rear-dump scraper. A two-wheel scraper that dumps at the rear. Nicholls.

rear dump truck and dump truck. A truck or semitrailer that has a box body that can be raised at the front so the load will slide out the rear. Nicholls.

reaper. a. Vertical or nearly vertical strata, Mason. b. Staff. See edge coal. Fay.


recess. A groove or depression in a surface. See also chamfer. Rees.

receiver. An apparatus which serves to equalize the pulsations of the air as it comes from the compressor and causes a more uniform flow of air through the pipeline. A receiver of proper size placed near the compressor will prevent the discharge pressure at the compressor from reaching an abnormally high figure and thus bringing a heavy strain on the machine. Another function of a receiver near the compressor is to collect moisture and oil carried in the air. A receiver at the end of the pipeline prevents the pressure from dropping to an abnormally low figure in case of a sudden draft on the pipeline. Lewis, p. 682.

recrystallizing. Introducing spiegeleisen into the converter after the blow to add the desired element. Menzerum, 4th, p. 408.

rectangular. To form anew by running, as molten metal, into a mold; cast again; as, to recast a cracked bell. Standard, 1964.

reciprocating. Having a straight back-and-forth or up-and-down motion. Nichols.


reciprocating drill. A piston drill often referred to as a hammer drill. Ham.

reciprocating engine. An external or internal-combustion engine, which has a piston moving under pressure within a cylinder. Lea.

reciprocating feeder. a. A feeder in which the material is carried on a plate subjected to a reciprocating motion and so constructed that when the plate moves in the reverse direction the material remains stationary. The rate of feed is normally varied by adjusting the stroke of the reciprocating plate. B.S. 3552, 1962. b. A device used to empty a bin or hopper from the bottom by horizontal reciprocating action of its parts, usually after primary crushing. A.C.S.G., 1966.

reciprocating flight conveyor. A reciprocating beam or beams with hinged flights arranged to advance bulk material along a conveyor trough. A.S.C.E. M44-1958.

reciprocating pump. A pump consisting of a piston or plunger which lifts water to a higher level by a series of to-and-fro movements. See also pump. Nelson.

reciprocating rotating engine. A type of en-
reciprocating rotating engine

gine, from 5 to 50 horsepower, used for
hauling two double-cylinder reciprocating
screen dryer. Usually an in-
reciprocating slide-valve engine. One of the
most common types of steam engines; it con-
reciprocity theorem. The reciprocity theorem states that if, in any electric network com-
reed, clay beams. Inside the
reconstruction. The recovery of coal or ore
reconstructive transformation. Polymorphic
reconsolidation. The recovery of reconsolidated
record. To enter in the book of the proper
record. A device for saving waste enamel
recomposing rock. Consolidation or crum-
reconciled. An instruction which
recompression. A procedure
reconfiguring. A computer
reconstituted. A term applied to an artificial
gem composed of fused particles of a naturally
precious stone. Recomposed rub-
reconstructed amber. Same as pressed amber.
reconverted granite. Synonym for recom-
reconstructed ruby. Particles of genuine ruby
fused together. The term is often used in-
concerning synthetic rubies. See synthetic ruby.
reconstructive. To recon-
reconstructed sapphire. An incorrect name for
synthetic sapphire. Blue corundum has never
been reconstructed commercially, if
at all. See synthetic sapphire.
reconstructed stones. Stones made by fusing
small particles of the genuine stone. They differ from synthetic stones. See synthetic sapphire.
reconstructed turquoise. An imitation turqui-
record. To enter in the book of the proper
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record. To enter in the book of the proper
recovered grade. The mill-head grade less metallurgical losses. It must be determined by a metallurgical test if a close calculation is necessary. For preliminary esti-
mations without significant difference in the district will serve as a basis. McKinstry, p. 483.


recovery. a. S. Afr. The amount of gold or metal, expressed in weight, money, pennweights per ton, etc., which is obtained
from the treatment of ore. *Beerman.*
b. The proportion or percentage of coal or ore mined from the original seam or deposit. *Fay.*
c. A general term to designate the valuable constituents of an ore which are obtained by metallurgical treatment; as, the recovery was 90 percent.

recovery is better used in connection with
which are obtained by metallurgical treat-
ment. *Fay.*
d. The proportion or percentage of coal or ore mined from the original seam or deposit. *Fay.*

recovery plant. A plant designed for separat-
ing or recovering grades. *ASM Gloss.*

recrystallization. a. The formation of new
grain structure from that existing in cold-
worked metal, usually accomplished by
heating. *ASM Gloss.*

recrystallization annealing. Annealing cold-
worked metal to produce a new grain
structure without phase change. *ASM Gloss.*

recrystallization temperature. a. The approxi-
imate minimum temperature at which
complete recrystallization of a cold-worked
metal occurs within a specified time. *ASM Gloss.*
b. The temperature of first welding of certain materials. This term also generally includes phase changes in the solid
state, such as sintering, grain growth, and precipitation or exsolution phenomena. *ACSG, 1963.*

recrystallize. To purify a substance by re-

recrystallized silicon carbide. A refractory
made of about 98 to 99 percent SiC. *Bureau of Mines Staff.*

rectangle. A four-sided parallelogram having both opposite sides equal and parallel, and two opposite sides equal and parallel. *ASM Gloss.*

rectangular drainage pattern. The rectangular
pattern is characterized by right-angled
bends in both the main stream and its
tributaries. It differs from the trellis pattern
in that the former is more irregular; there is not such perfect parallelism of side streams; these latter are not necessarily as conspicuous as the former, and secondary
tributaries need not be present. Structural
control is prominent, as the pattern is
directly conditioned by the right-angled
joints of the rocks. *A.G.I.*

rectangular interference ripples. Interference
ripples with rectangular pattern. *Pettofjohn.*

rectangular kiln. A periodic kiln, rectangular

rectangular shaft. a. A shaft excavated to
serve as an exhaust passage for the air in the

red cake. The amount of gold
which usually are sandstones and shales,
thrown into the arc. *ASM Gloss.*

red cake. The vanadium concentrate in a
similar ore. *Fay.*

red beds. A layer of peat marking a sharp change in the character of the
peat and resulting from a profound change

recrystallized. a. The process by which electric
energy is transferred from an alternating-
current circuit to a direct-current circuit. *Coal Age,* 1.
b. The purification of a

rectifier. Equipment used in mines to convert
alternating current to direct current. *Bu-
tin Min. Staff.*

rectifier anode. An electrode of the rectifier
into which the current flows from the arc.

rectifier cathode. An electrode of the rectifier
which usually are sandstones and shales,
made of about 98 to 99 percent SiC. *ASM Gloss.*

recuperation or recovery of heat from the
rectifier. A pearly-white hydrated aluminum
silicate, similar to kaolinite. *Standard,*
recuperative furnace. a. A furnace for the
recuperation or recovery of heat from the
b. Preheating equipment, and the essential
gaseous reactants used for the purpose of transferring heat from
the waste gases of combustion to the hot
furnace have a recuperator. *ASTM C162-66.*

recuperative heating. See recuperator.

rectifier. a. A continuous heat exchanger
which is used to conduct the products of combustion, still hot
through blue walls. *ASTM C162-66.*
b. A system of thin-walled refractory ducts used for the purpose of transferring heat from
a furnace to cold air or gas. *HW.*
c. Preheating equipment for recovering
sensible heat from hot spent gases from a furnace and using it for heating incoming
charge or fuel gases; essentially, a low-pH,

rectifier. Equipment used in mines to convert
alternating current to direct current. *Bu-
tin Min. Staff.*

red cake. The vanadium concentrate in a
milking operation. *Ballard.*
red chalk

red chalk. a. Red ochre mixed with more or less clay. Fay. b. Eng. A thin bed of brick-red chalk occurring in the Cretaceous rocks of Lincolnshire and Norfolk. It is equivalent in age to the gault clay of southern England, and separates the carpholite chalk above. C.T.D. "red clay; red mud." A more or less brown to red deep-sea deposit, which usually contains manganese nodules or a film of manganese. It is the finest divided clay suspen- sion that is derived from the land and transported by ocean currents, accumu- lating far from land and at the greatest depths. It has a high proportion of volcanic material due to lesser dilution of this material owing to weakness of accumulation of the clay portion. The color is believed to be caused by oxidation. A.G.I. Also called brown clay.

red cobalt. An early name for erythrite. Fay.

red copper ore. Cuprite. Fay.

red copper oxide. See cuprite.

red crag. a. Eng. A division of the Pliocene of East Anglia. Arkell. b. A local group of richly fossiliferous sands which accumulated as shell banks in landlocked bays in the Pliocene Sea; restricted in distribution to the counties of Norfolk and Suffolk, England. C.T.D.

red cross. A class of high explo- sives characterized by the low-freezing point. Fay.

red cross extra. Trademark for a high-density, general-purpose ammonia dyna- mite of 20 to 60 percent strength. Used for quarrying, stripping, agricultural work, and general construction work. CCd 64, 1961.


redd. a. Eng. To clear away fallen stone or debris. caved, or lost because of junk in the hole. Tomkeieff, p. 60. d. Scot. To scour through, take down, or to rip. Fay. e. Scot. To clear out pillars of coal. Fay. e. Scot. Pit rubbish or debris. See also red, b. Fay.


reddle. A bed of shale, in the Carboniferous limestone, Hunts quarry, Porthwyvaen. Arkell.

reddleite. A hydrous phosphate of iron and manganese resembling scorodite in form. From redding, Conn. Fay.

reddle. A variety of ocherous red iron ore used for marking, especially sheep; red ochre. Also called red chalk and spelled riddle or riddle. Standard, 1964.

reddleman. A dealer in reddle or red chalk. Fay.

red dog. Material of a reddish color resulting from the combustion of shale and other mine waste in dumps on the surface. Bureau of Mines Staff.

reddeman. Scot. One who works at night cleaning up and repairing roadways, etc. Fay.

red earths. The characteristic soils of most tropics regarded as forming a group intermediate between the brown earths and the laterites. They appear to develop from crystalline rocks of metamorphic or igneous rocks, and closely similar soils extend over outcrops of these rocks beyond the metaliferous earths into more arid regions. These soils are characterized by the presence of free aluminum and ferric oxides, mixed with an equal or greater quantity of aluminum silicate clay. Tropical soils containing more than 30 percent of free sesquioxides in the clay fraction are usually regarded as impure laterites. Stokes and Varnes, 1955.

red edge. Numerous rouge pits located around the edges of a large sheet of polished plate glass. ASTM C162-66.
red rock

red rock. a. Drillers' term for any reddish sedimentary rock; may be shale, sandstone, or limestone. A.G.I. Supp., b. A red, predominantly granite like phryic rock of low porosity intimately associated with some large gabbroic masses, such as the Dulluth gabbro. A.G.I. Supp.

redruthite. Corn. Copper glance; same as chalcocite. Fay.

reduction. b. The conversion of a metal from a higher to a lower state of oxidation. Fay. c. The conversion of a metal to the metallic state by heating it in a reducing agent. Reynolds. d. The process of reducing. Reynolds. e. A reducing environment; for example, coal, coke, or other reducing agents. Newton, A.G.I. Supp.

reduction furnace. The furnace in which ores, particularly iron ores, are reduced by heating in contact with a reducing agent. Used to obtain metallic oxides by heating in contact with a reducing agent. Reynolds, A.G.I. Supp.

reduction officer. The term reduction is used for a train of gunpowder (fuse) in a reducing environment; for example, coal, coke, or other reducing agents. Newton, A.G.I. Supp.

reduction plant. A mill or a treatment place where the ore is converted to smelt before the mill and extraction plant is called the reduction plant. Reynolds, A.G.I. Supp.

reduction ratio. A. The reduction of levels. The calculation of reduced levels, usually expressed as a percentage of the average of the smallest aperture passing all of the feed to that passing all of the product. Another basis of expression is the ratio of the average size of feed to the average size of product. Taggart, p. 308. See also overall reduction ratio. b. The ratio of the variation of oxygen. Bureau of Mines Stall.

reduction roasting. Heating oxygen-containing ores below its melting temperature with a reducing agent. Used to obtain a compound of lower, or no, oxygen content or to obtain the metal. Bennett, 2d, 1962.

reduction scale. A form of scale used by surveyors to reduce chains and links to acres and rods by inspection, and also in mapping and drawing to different scales. Fay.

reduction value. a. A reducing agent. See also reducing atmosphere. b. A reducing medium. Reynolds.


reducing bushings. Steel, fiber, plastic, or wood inserts used to reduce the arbor hole of a grinding wheel to fit a smaller spindle. ACSG, 1963.

reducing conditions. Prevail in the kiln if there is not enough air available to make a complete combustion of the carbon particles and carbon compounds in the flame zone. Reynolds.

reducing fire. Smoky impure fire; opposite of oxidizing. Nod.

reducing frame. a. The inner core of the blowpipe flame, characterized by the excess of carbon or hydrocarbons of the gas, which, when reduced, tends to combine with the oxygen of a mineral brought into it. Fay. b. A gas flame produced with excess fuel. ASM Gloss.

reducing furnace. A furnace in which ores are reduced by heating in contact with a reducing agent. Reynolds, A.G.I. Supp.


reducing roasting. Heating oxygen-containing ores below its melting temperature with a reducing agent. Used to obtain a compound of lower, or no, oxygen content or to obtain the metal. Bennett, 2d, 1962.

reducing scale. A form of scale used by surveyors to reduce chains and links to acres and rods by inspection, and also in mapping and drawing to different scales. Fay.

reducing agent. a. A chemical which, at lower temperatures, lowers the oxidation potential of another batch chemicals. ASTM C162-66. b. One which readily parts with valence electrons and, by combining with the members of the valence shell of these electrons. Pryor, 3. c. A substance that causes reduction. ASM Gloss.


schieferdecker. A white, very soft resin, CaH4O, reeves. A North Carolina term for cross-grain. Stowe.
reference size. The separation size or the reference station. A station for which tidal differences in mines down to about 10 feet per second; also, a station for which independent daily predictions are given in the tide or current tables from which data is plotted. A.C.I.
reference velocity. A.G.I.
recommended by Tiddeman in 1889 to conical limestone masses, 200 to 300 feet high, more or less circular in ground plane and commonly surrounded by black shales. Also called knoll reef. It is more or less synonymous with reef core. Schieferdecker.
reference vs. The process of tying in points, which the bearings to other points can be
reeve culler. A type of cutting-off table. Dodd.
reef wall. An elongated reef core. Schieferdecker.
reef rock. See bedrock, b.
reef wash. 

current is obtained from the measurement of the torque which has to be applied to the wire to bring the vane back to its vertical position. The instrument is mounted on a tripod, and the arrangement is such that the torsion can be applied, at a point 2 feet away from the vane, by means of a shaft and bevel gearing. The instrument has been used to measure low air velocitiesthe in mines down to about 10 feet per minute and up to 180 feet per minute. Robert., i, p. 54.
reeve. b. In bitumen oil mining, one who works on electric locomotive, power being transmitted through electric cable wound around reel on locomotive, tending cable to see that it is wound up and fed from reel so that it will not pull or break from point where electric current is supplied. Also called nipper. D.O.T. I. A spool-shaped device (cathead) used as a hoist by winding or wrapping the attached rope or cable. Long. r. A device for hoisting that has been largely replaced by round ropes. A flat rope is used for the reel, which is wound on a wheel shaped like a clock spring. The reel is like a conical drum that increases in diameter by the thickness of the reel as each turn. Reels are more suitable for hoisting from a single level than from different levels. Lewis, p. 265. A deep-water anchorage or sea anchor.
reef. In the diamond mines, the barren shales, Larat and Bendigo, in 1851. To them a
refikite. a. White, very soft resin, CaH4O,
refinkite

found in the lignite of Montoirio, Abruzzo, Italy. Pay.

refined. free from impurities; to free from dross or alloy: to purify, as metals; to cleanse. Webster 3d. b. To treat cast iron in a refining furnace so as to remove the silicon. Webster 3d.

refined asphalt. Natural asphalt from which coarse mineral matter and water have been removed by heat treatment. Nelson.

refined coal tar. Coal tar from which moisture and more volatile constituents have been removed. Nelson.

refined iron. Wrought iron made by puddling pig iron. C.T.D.

refiner. A compartment of a glass tank fur-
refining heat. A medium orange heat, about
refining. a. The purification of crude metallic
refinery gases. These consist mainly of

reflecting levet. Surveyor's level with mirror
reflectance. The fraction of incident light re-
reflection. a, The bounding back of light rays

removed by heat treatment. Nelson.

in the refinery furnace so as to remove the

cleanse. Webster 3d. b. To treat cast iron

from dross or alloy: to purify, as metals; to

pig iron. C.T.D.

and afterwards quenched. Webster 2d.

and toughness to steel that is raised to it

655°C, which imparts fineness of

and silver. Fay. b. See fining,

products, as the refining of base bullion

and C4 hydrocarbons, with smaller propor-

and C 4 hydrocarbons. See also electrolytic copper and Hoopes process. C.T.D.

after the crude metals have been extracted

and afterwards quenched. Webster 2d.

and toughness to steel that is raised to it

655°C, which imparts fineness of

and silver. Fay. b. See fining,

products, as the refining of base bullion

and C4 hydrocarbons. See also electrolytic copper and Hoopes process. C.T.D.

refine the structure, particularly the grain

after the crude metals have been extracted

and afterwards quenched. Webster 2d.

and toughness to steel that is raised to it

655°C, which imparts fineness of

and silver. Fay. b. See fining,

products, as the refining of base bullion

and C4 hydrocarbons. See also electrolytic copper and Hoopes process. C.T.D.

refining heat. A medium orange heat, about

655°C, which imparts fineness of

and silver. Fay. b. See fining,

products, as the refining of base bullion

and C4 hydrocarbons. See also electrolytic copper and Hoopes process. C.T.D.

refraction. a. See also interference methanometer. Nelson. b. An instrument designed for measuring the refractive indices of various substances. Anderson.

refractories. Nonmetallic materials suitable for use at high temperatures in furnace construction. While their primary function is to resist high temperatures, they are usually called upon to resist other destructive influences such as, abrasion, pressure, chemical attack, and fuel gases in temperature. HW. China clay, ball clay, and fire clay are all highly refractory, the best qualities fusing at about

grooves to facilitate the reading of the liquid level. Dodd.

refracting. The melting of an electrodeposited followed by solidification. The surface has the appearance and physical characteris-
tics of being hot-dipped (especially tin or tin-alloy plates). ASM Gloss.

reflux. A distillate fraction having a certain boiling range which is introduced into fractionating equipment to bring about a cooling effect; resulting in a more intimate contact between the vapors and thus in more efficient fractionation. Shell Oil Co.

reflux valve. An automatic nonreturn valve which opens freely to permit fluid to pass in one direction but closes under its own weight when motion ceases or when the fluid commences to flow in a reverse direc-
tion. Also called check valve; returning valve. B.S. 3618, 1963, secs. 4.

refractor. a. When a train of waves ap-

proaches a shoreline at an angle, the wave crests are bent because the first portion to reach shallow water travels more slowly than the portion still advancing in the deeper water. This process of bending wave crests is known as refraction. A.G.I. b. The bending of wave crests by currents. A.G.I. c. A change of direction of a ray of light when it passes from medium to another of different optical density. A.G.I. d. The de-

reflection from a straight path by a light ray or a wave of energy in passing obliquely from one medium (as air) into another (as water, glass) in which its velocity is different. Webster 3d. c. The refraction of light passing through the earth's atmosphere. Atmospheric refraction includes both astronomical refraction and terrestrial refraction. A.G.I.

refraction. a. That part of the transmission loss which is due to the change in temperature, refractive index, and other properties of the medium. These losses arise from irregu-
larities in the medium. Hy.

refraction method. A seismic method of ge-
ophysical prospecting. Nelson.

refraction shooting. The detonation of heavy charges of explosive material, respectively shallower holes or pits. The effects may be measured over a wide area. The firing creates the shock waves in the seismic method of prospecting. Nelson.

refractive index. Ratio of speed of heat, light, or sound traversing a medium to that in the

air. Ratio of line of angle of incidence to

sine of angle of refraction of light refracted

from vacuum into a medium, as measured in a refractometer. Property used in identifi-

fication of translucent minerals by observa-
tion of their bending of an incident ray of

light. Pryor, 3.


refractors. Nonmetallic materials suitable for use at high temperatures in furnace construction. While their primary function is to resist high temperatures, they are usually called upon to resist other destructive influences such as, abrasion, pressure, chemical attack, and fuel gases in temperature. HW. China clay, ball clay, and fire clay are all highly refractory, the best qualities fusing at about
refractories

1.700° C. Other materials are silica, magnesite, dolomite, alumina, and chromite. Also silica, C.T.O.

refractoriness. The capacity of a material to resist high temperature. In the refractories industry, a product intended to function unaltered at elevated temperatures is referred to as a refractory equivalent. A comparative value used to determine the refractoriness of a material. Henderson.

refractories under load. A measure of the behavior of a small brick section when heated at a steady rate, normally 10° C per minute, to 1500° C, or 50 pounds per square inch. The temperature is noted when the brick has lost 5 percent in height by subsidence or shear. Francis, 1965, v. 2, p. 633.

refractory. a. A material of a very high melting point with properties that make it suitable for such uses as furnace linings and kiln construction. ASTM Gloss. b. The quality of resisting heat. ASTM Gloss. c. S. Afr. Ore difficult of treatment, usually containing a second metallic constituent. For example, a gold ore must be roasted to reduce gold sulfides to an oxide and permit the gold to be recovered. Beerman. d. A piece of pottery ware covered with a vaporable flux which adheres to and imparts to the skin to form a glaze on other articles. Fay.

refractory alloy. See refractory metal.

refractory bonding mortars. High-temperature bonding mortars containing various materials and exhibiting various properties, but primarily intended for providing structural bond between refractory units in high-temperature industrial furnace constructions.

refractory brick. a. A brick made from refractory material such as fire clay, basalt, diabase, olivine, and other refractory agglomerates of not less than cone 21. ACSB-1. See also fire clay.

refractory chrome ore. A refractory ore consisting essentially of chrome-bearing spinel with only minor amounts of accessory minerals and with physical properties that are suitable for making refractory products. ASTM C71-64.

refractory coating. A refractory material for the protection of the surfaces of refractory brickwork or of metals (for example, pyrometer sheaths or aircraft exhaust systems). Examples of such coatings include Al₂O₃, ZrSiO₄, MoS₂, and for the protection of metals refractory enamels. Refractory coatings for furnace brickwork are sometimes known as slags. Dodd.

refractory concrete. Concrete made with high-alumina or calcium-aluminate cement and a refractory aggregate to withstand very high temperature. Taylor.


refractory mortar. A finely ground preparation which becomes plastic and flowable when tempered with water and is suitable for laying and bonding refractory brick. A.R.I. For various types, see entries under air-setting fire clay; ground fire clay; and high-clay ACSC, 1963.

refractory ore. Ore difficult to treat for recovery of the valuable substance. A.R.I. See also refractory porcelain. That made to resist heat or acid, or both. Bureau of Mines Staff.

refractory stone. Consists of sandstone, quartzite, mica schist, soapstone, or other rock that will withstand a moderately high temperature without fusing, cracking, or disintegrating. It may be used in solid blocks or crushed and mixed with a binder to form bricks. BuMines Bull. 630, 1965, p. 866.

refractory ware. Usually hollow ware—a sagger, pyrometer tubes, crucibles, etc.; also refractory brick and shapes. Bureau of Mines Staff.

refractibility. The capacity of being fractured. See also refraction. Shipley.

refrangible. Capable of being refracted, as rays of light. Gage.

refrigerant. A substance which will absorb heat while vaporizing and whose boiling point and other properties make it useful as a medium for refrigeration. Strock, 10.

refrigeration. a. In special application to mining, cooling of air before release in lowest levels of deep, hot mine; also, expansion of compressed air for some purpose (an extravehicular suit if used, as discriminately). Fricke, 21. b. The process of absorption of heat from one location and its transfer to and rejection at another: place. Arbitrarily expressed in units of tons and is equal to the cool cooling load divided by 12,000 (a ton of ice in melting in 24 hours liberates heat at the rate of 200 British thermal units per minute, or 12,000 British thermal units per hour). Hartman, pp. 327, 331.

refrigeration plant. a. A surface plant to form the protective barrier of ice in the freezing method of shaft sinking. The cooling agent used is ammonia which, in its gaseous state, is compressed to about 120 pounds per square inch when it passes through the top of the conduction system and bottom of the liquid as liquid ammonia under pressure. It then passes through a regulator valve into the coolers where it immediately evaporates. The latent heat of evaporation is extracted from the brine circuit—the brine being passed through the finned tubes of the brine cooler. The ammonia gas then passes back for reuse. The brine emerges from the cooler at a temperature of about 4°F and is pumped down the boreholes to freeze the water around the shaft sinking. Neol. b. A surface plant to cool liquids. These liquids or ice are sent underground to cool the air in the shaft or headframe. By this method, the air in deep mines is cooled considerably and the working environment is improved. See also deep mining. Nelson.

refrigeration ton. The heat required to melt one hundred pounds (2000 pounds) of ice in 24 hours. The latent heat of ice being 144 British thermal units per pound; 1 refrigeration ton = \( \frac{144 \times 2000}{24} = 12,000 \) Btu/hr. Sinclair, p. 66.

refuge hole. A place formed in the side of an underground haulageway in which a man can take refuge during the passing of a train, or when shots are fired. Also called refuge stalls. Fay. See also manholes. Nelson.

regelial doctrine. The old doctrine that all mineral wealth was the prerogative of the crown or the feuonym lord. The conces- sion system, in which the state or the private owner has the right to grant concessions to leases to mine operators at discretion and subject to certain general restrictions, had its origin in this doctrine. Almost all mining countries of the world, except the United States, follow this system. Hoo, p. 335.

regal warming. A method of shaft sinking. The cooling agent used is ammonia which, in its gaseous state, is compressed to about 120 pounds per square inch when it passes through the top of the conduction system and bottom of the liquid as liquid ammonia under pressure. It then passes through a regulator valve into the coolers where it immediately evaporates. The latent heat of evaporation is extracted from the brine circuit—the brine being passed through the finned tubes of the brine cooler. The ammonia gas then passes back for reuse. The brine emerges from the cooler at a temperature of about 4°F and is pumped down the boreholes to freeze the water around the shaft sinking, Neol. b. A surface plant to cool liquids. These liquids or ice are sent underground to cool the air in the shaft or headframe. By this method, the air in deep mines is cooled considerably and the working environment is improved. See also deep mining, Nelson.

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refuse collector. A device used in a washbox to remove the reject from the washing compartment, operated manually or automatically. B.S. 3552, 1962.

refuse extractor. A reject gate in the form of a rotary (or star) valve. B.S. 3552, 1962.

refuse rotor. A screw conveyor fitted at the bottom of some washboxes to collect the fine reject which has passed through the apertures in the screen plate. B.S. 3552, 1962.

regain. The ratio of normal moisture weight to the weight of material holding the moisture, expressed in percent. Strock, 10.

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regeneration. a. In mineral leaching, regeneration is the process of recovering the dense medium; recovered dense medium is called regenerated dense medium. Anhydrite produced by regeneration is anhydrite produced by the dehydration of gypsum. A.G.I. Supp.

regenerated crystal. A large crystal that has grown in a mass of crushed material like mylonite. See also integration. A.G.I. Supp.

regenerated dense medium; recovered dense medium. Medium obtained from the medium recovered and purified (wholly or partly) from contaminating fine coal and clay. B.S. 3552, 1962.

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regenerative checking. Brick used in furnace regenerators to recover heat from hot outgoing gases, and later to receive this heat to cold air or gas entering the furnace, so called because of its checkboard pattern in which the bricks are arranged. HW.

regenerate furnace. In hydraulics, the condition of a river with respect to the rate of its flow as measured by the volume of water passing different cross sections in a given time. Webster 3d.

regenerators. a. A stream or system. The order or characteristic of a stream, in other words, its habits with respect to velocity and volume, form of and changes in channel, capacity to transport sediment, amount of material supplied for transportation, etc. Also applied to a stream which has reached an equilibrium between erosion and deposition, or, in other words, to a graded stream. USCS Bull. 730, 1923, p. 89.

regional. a. Extending over large areas in contradistinction to local or restricted areas. Fay. b. In gravity prospecting, contributions to the observed anomalies due to density irregularities at much greater depths than those of the possible structures, the location of which was the purpose of the survey. The term is also employed in an analogous sense in magnetic prospecting. A.G.I.

regional anomaly. The more localized departures in the earth's field from the values that would be predicted if the field were to originate with a single magnet oriented along the magnetic axis. These have magnitudes as large as 10,000 gammas, which is about a third the total intensity of the earth's magnetism. Fay.

regional geology. Geology covering a wide area. It comprises rock waste of all ages and soils. Fay.

regolith. The layer or mantle of loose, incoherent rock material, of whatever origin, that nearly everywhere forms the surface of the land and rests on the hard rocks or bedrocks. It comprises rock waste of all sorts, volcanic ash, glacial drift, alluvium, windblown deposits, vegetal accumulations, and soils. Fay.

regolite. A 12-inch scale divided into tenths and hundreds of a foot, used for accurate measurement in connection with a steel band which is graduated only in feet. See also band chain. Ham.

regional layer or mantle of loose, incoherent rock material, of whatever origin, that nearly everywhere forms the surface of the land and rests on the hard rocks or bedrocks. It comprises rock waste of all sorts, volcanic ash, glacial drift, alluvium, windblown deposits, vegetal accumulations, and soils. Fay.

regosol. Soil without definite horizon characteristics developing from deep unconsolidated rock or soft mineral deposits. Schieferdecker.

regradation. The process of forming a new graded level of equilibrium in a land surface by streams when an old one has become deformed. Fay.


regressive overlap. Synonym for offlap. A.G.I.

regressive ripples. A series of asymmetric current ripples with steep sides pointing in the direction of the current. Pettijohn.

regressive sand wave. A sand wave that migrates up-current. See also antidune. Pettijohn.


regular-lay right lay. Synonym for right regular lay. Long.

regular-lay left lay. Synonym for left regular lay. Long.

regular-lay right lay. Synonym for right regular lay. Long.

regional. a. A polygon having equal sides, and the angles between these sides are equal. Jones 2, p. 109.

regular system. The cubic system. C.M.D.
regular ventilating circuit

regular ventilating circuit. All places in the mine through which there is a positive flow of air (without the aid of a blower or of ventilation tubing. Grove. regulated feed. In contrast with choke feed, feed is regulated by means of a throttle below the full capacity of the crusher. South Australia, p. 101.

regulated split. In mine ventilation, a split where it is necessary to control the volumes in certain low-resistance splits to cause air to flow into the splits of high resistance. Build Mines Bull. 569, 1960, p. 18.

regulating course. A layer of stone placed way) to minimize interference with traffic. They are usually set in doors as additional cycle. Henderson.

regulating gate. A gate used to vary size of opening so as to control the flow of material. See also bin gate. ASA MH4.1-1958.

regulating rod. A nuclear-reactor control rod for making fine adjustments in reactivity. See also shim rod. L&L.

regulating unit. One which converts the output of one device into a step or proportional movement of the device which operates the process, usually by means of a relay. Pryor, 3, p. 32.

regulating valve. A device used on a centerless grinder to regulate speed and pressure on the part being ground. ACSG, 1963.

reiteration. In surveying, angular measurements taken before and after the heating. A.R.I.

rectangular bar. A 6-quart wine bottle. Dodd.

rectangular bed. A plough developed from the plough chains run in two tubes along the exhaust side of the plough. Nelson.

rectangular bin. A 6-quart wine bottle. Dodd.

rectangular frame. See frame for reinforcing molded brick, cement, or other mortars. ACSG. 1963.

rectangular panel. A plough developed from the plough chains run in two tubes along the exhaust side of the plough. Nelson.

rectifying furnace. The furnace in which metal ingots, billets, blooms, etc., are heated to bring them to the temperature required for hot-working. C.T.D.

rectification. The heating of a refractory to a temperature usually higher than that to which it has previously been subjected to determine its linear or volume stability by measurements taken before and after the heating. A.R.I.


rectification. Application of extra enamel in certain areas of the surface prior to firing. Bryant.


rectified brickwork. Brickwork embodying expanded metal, steel-wire mesh, hoop iron, or thin steel rods in the bed joints. Steel rods can also be bedded vertically through a properly bonded wall at the points where the vertical points intersect or, in conjunction with concrete grouting, as partially destressed metal. Ham.

rectified center. Designating a wheel with steel rings molded into the wheel structure near the hole for additional strength. ACSG. 1963.

rectified concrete; ferrocement. Concrete in which metal is embedded in such a way that the two materials act together in resisting forces. The reinforcing bars are very weak in tension compared with its strength in compression. Approximate values for comparison being: tensile strength, 600 pounds per square inch; compressive strength, up to 8,000 pounds per square inch. The idea, therefore, of a reinforced concrete lining for shafts or tunnels is to reinforce the sides subject to tension loading with steel rods. Mild steels have a tensile strength of about 60,000 pounds per square inch. Stress calculations are usually made on the assumption that the steel takes all the tensile forces and the concrete all the compressive forces. Nelson.

rectified concrete lining. Reinforced brick lining in which the continuous longitudinal vertical or collar joint is filled with grout as they are built. No masonry headings are used in this type of construction. Abbreviation, RGM. ACSG.

rectified masonry. Masonry in which metal reinforcing steel, grout, and/or mortar combined to act together in resisting forces. ACSG, 1963.

rectified products (abrasives). Bonded products with some type of mechanical addition as an integral part of the product to increase the strength of the product. ACSG, 1963.

rectified wheel. A grinding wheel in which some type of mechanical addition has been made as an integral part of the wheel to increase its strength. ACSG, 1963.

rectification. rods, bars, or fabric, usually of steel, embedded in concrete for the purpose of resisting particular stresses. They are not used as tendon steel. Among other materials used in reinforcement, bamboo has been applied successfully, and hesian is suitable for reinforcing molded plaster. See also reinforced brickwork; reinforced concrete. Ham.

rectangular wheel. A grinding wheel with iron, or thin steel rods in the bed joints. Steel rods can also be bedded vertically through a properly bonded wall at the points where the vertical points intersect or, in conjunction with concrete grouting, as partially destressed metal. Ham.

rectification. In surveying, angular measurements taken before and after the heating. A.R.I.

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rectification. In surveying, angular measurements taken before and after the heating. A.R.I.
relative humidity. The amount of moisture contained by an atmosphere compared with the maximum amount that it could contain at the same temperature. A high relative humidity is detrimental to the efficient working of the human body, and becomes a problem in hot and deep mines. See also refrigeration plant, b. Nelson.

relative movement. In studying structural features, for example, the thickness of a formation is generally impossible to determine which block actually moved relative to some plane or point of reference, such as sea level, the equator, Rialto, the North Pole, or center of the earth. Thus, most displacements can be discussed only in terms of relative movement. That is, block A moved north relative to block B. A.G.I.

relative permeability. The ratio of the effective permeability to the maximum permeability of the medium. That is, block A moved relative to block B. A.G.I.

relative roughness. The dimensions ratio e/d where e is the average height of the surface irregularities and d is the diometer of the pipe. The physical interpretation of this functional equation is that the friction factors of pipes are the same if their flow patterns in every detail are geometrically and dynamically similar. The parameter indicates the height of the irregularity above the boundary surface only, hence it is apparent that, dependent on the value of e/d, if the boundary layer adjacent to the surface, the projection can either lie submerged within the boundary layer or else projected outside it. Roberts I, p. 12.

relative settlement. See differential settlement. Ham.

relative stability. Dating of events by means of their place in a chronological order of occurrence rather than in terms of years. Compare absolute time. Leit.

relative water content. See liquidity index. ASCE P1826.

relativity. A principle that postulates the equivalence of the description of the universe, in terms of physical laws, by various observers, or for various frames of reference. A theory that utilizes such a principle is called a relativity theory. An example is Einstein's restricted theory of relativity, in which the relativity principle applies to all inertial frames of reference. NRC-ASA N1.1-1957.

relaxation. a. Relief of stress by creep. Some types of tests are designed to provide information on the reduction of stress by relaxation. ASRM G11.

relief texture. Texture of a rock that its remainder is at height of the irregularity above the boundary surface only, hence it is apparent that, dependent on the value of e/d, if the boundary layer adjacent to the surface, the projection can either lie submerged within the boundary layer or else projected outside it. Roberts I, p. 12.

release fractures. Fractures that form perpendicular to the greatest principal stress axis in a specimen that is compressed and has yielded plastically while under hydrostatic pressure. On the assumption that these fractures form when the load is removed, they have been called release fractures. A.G.I.

release mesh. a. In liberation of specific mineral from its ore by comminution the opencast, the released mineral. A.G.I.

relief haulage. Single-track, high-speed mine haulage from one relief to the other. Each operator has his own track section between relay stations, and since no other haulage equipment is available except that section, he can run his motor wide open without fear of anything getting in his way. Side track at each relay station is provided to allow the operator to pick up or drop off loads or empties then make the return run. Kentucky, pp. 223-226. Also called interstage.


relief station. See pumping station. Merseeau, 4th, p. 199.


release mineral. A mineral formed during the crystallization of a magma as a consequence of an earlier phase failing to react with the liquid portion of a magma to form pyroxene may result in the enrichment of the liquid in silica, which finally crystallizes as quartz, the released mineral. A.G.I.

release rock. A rock that is a newly extruded volcanics and not a newly extruded volcanics. A.G.I.


relief. On a geologic map, the reliability of method. In geochemical prospecting, the reliability of a method refers to the probability of obtaining and recognizing indications of a mineralized district by the method being used. Reliability depends not only on whether a readily detectable target exists, but how effective the exploration method is in locating it, but also on the extent to which the anomaly is specifically related to ore and the extent to which it is possible that non-significant anomalies may confuse the interpretation. Hauk, 2, p. 323.

relief. When a block is stopped in such a manner that its remainder is at height of the irregularity above the boundary surface only, hence it is apparent that, dependent on the value of e/d, if the boundary layer adjacent to the surface, the projection can either lie submerged within the boundary layer or else projected outside it. Roberts I, p. 12.

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relief

relief. a. The character of the surface of a mineral section as observed under the microscope. Webster 3d. b. The elevations on a topographic map. Webster 3d. On a topographic map these may be indicated by hachures, shading, or contour lines. The term may also be used to designate the difference in elevation between the hilltops or summits and the lowlands of a particular region. Stokes and Barnes, 1953. c. The result of the removal of tool material behind or adjacent to the cutting edge to provide clearance and prevent rubbing (heel drag). ASM Gloss.

relief angle. The angle formed between a relieved surface and a given plane tangent to a cutting edge or point on a cutting edge. ASM Gloss.

relief borehole. A borehole that is loaded and fired for the purpose of relieving or removing part of the burden of the charge to be fired. The borehole is drilled closely along a line, which are not loaded, and which serve to weaken the rock so that it will break along that line. Nichols. c. A port or passage way through which the core, as it advances into the inner tube of a double-tube core barrel, forced through the inner tube and outside of the barrel through the inner tube head. Long. d. A borehole drilled ahead of underground openings to tap and drain a water-bearing formation. Also called cover hole; pilot hole. Long.

relief blasting. Minute overbreak, cavernous, porous limonite occupying the site of a former grain of sulfide. A.G.I.

relief cutting. Also called contour topographic relief by contour lines, hachures, coloring, shading, or similar graphic methods. Webster 3d. b. Ordinarily used in the United States for hypsometric map. Straley, 2.

relief valve. a. A valve which will allow air or fluid to escape if its pressure becomes higher than the valve setting. Nichols. b. Synonym for pressure relief valve. Long. c. A valve which automatically allows air or fluid to escape when the pressure inside the system reaches a predetermined value. The valve is then closed when the pressure drops below a certain level. Long.


relieving. Buffing or other abrasive treatment of an embossed metal surface to reveal the base-metal color on the highlights contrasted to that of the finish in the recesses. ASM Gloss.

relieving arch. An arch built over a lintel, or similar opening in a wall, and intended to divert the superimposed load above the opening to the piers or abutments on both sides, thus leaving the lintel or flat arch from excessive loading. Also known as discharging arch; safety arch. ACSG.

relieving cut. In a round of shots planned for removing arches. See also relieving shot.

relieving hole. a. A borehole that is loaded and fired for the purpose of relieving or removing part of the burden of the charge to be fired. The borehole is drilled closely along a line, which are not loaded, and which serve to weaken the rock so that it will break along that line. Nichols. c. A port or passage way through which the core, as it advances into the inner tube of a double-tube core barrel, forced through the inner tube and outside of the barrel through the inner tube head. Long. d. A borehole drilled ahead of underground openings to tap and drain a water-bearing formation. Also called cover hole; pilot hole. Long.

rem. The quantity of any isolating radiation, such that the energy imparted to a biological system per gram of living matter has the same biological effectiveness as an absorbed dose of one rad of X-radiation. ASM Gloss.


remagnetization. Part of the magnetization of a body that does not disappear when the external magnetic field disappears. Schieferdecker.


remilling. The treatment of milling enamel or glazed reclaim collected from the spray booth. A further addition of clay is usually made to the material before remilling. Enam. Diet.

remingtonite. A hydrated carbonate of cobalt found in Maryland. Fay.

remnant. When a block of ground is stoned in such a way that at some time its remnant is surrounded on all sides by stoned ground, that remnant is termed a remnant. Sptaling.

remolded soil. Soil that has had its natural structure modified by manipulation. ASCE P1826.

remolding. Disturbance of the interval structural structure of clay or silt; when remolded, such material will lack shearing strength and gain compressibility. In consequence driven piles are not recommended in certain clays. See also thixotropic fluid. Ham.

remolding index. The ratio of the modulus of deformation of a soil in the undisturbed state to the modulus of deformation of the soil in the remolded state. ASCE P1820.

remolding sensitivity. The ratio of the unconfined compressive strength of a specimen of the same soil after remolding at altered water content. Also called sensitivity ratio. Ham.


remote control. a. The control of plant operation by personnel housed under conditions which can be remote, safe, and convenient from the plant. The control of both electrical and electronic automatic control. In the control room, various plants can be started up by pushbutton and the governing of these plants is automatic and hand. Hy. b. A term applied to apparatus, to denote that its operation can be controlled manually, from a distance, by electrical or other means. B.S. 3618, 1965, sect. 7. c. Regulation of machine group of interdependent machines, or of processes which can be remote, safe, and convenient from the plant. In the control room, various plants can be started up by pushbutton and the governing of these plants is automatic and hand. Hy.

remote control switch; pilot switch. A switch operating in a low voltage control circuit to open or close a contactor or other similar switch. A.S.T. 3618, 1965, sect. 7.

remote underwater manipulator. Used to study the ocean bottom (down to 2,000 feet) for prolonged periods (speed 3 mi/hr). It is equipped with television cameras and a mechanical arm and hand. Hy.

renewal. A very rare, strongly radioactive, orphorombic, yellow mineral, Pb(UO2), PbO, (OH), PbO2. May be derived from or contain uranium. Also called radite. Fr. a. Derived from or containing fossils derived from an older formation; as, remanite deposits. Standard, 1964. b. Recreated, as a glacier formed by the falling of fragments of ice (glacier remanite). Standard, 1964.

renewing. The breaking of coal into lumps and remolding. The application, by means of a crawel used as a clutch, of a coat of mortar. Taylor.

rendering. The breaking of coal into lumps with a minimum of smalls. The relative looseness of low explosives makes them suitable for rending coal since they lack the greater shattering power of high explosives. Mason, 1, p. 159.

rendezvous. A point of junction of intersecting thoroughfares, used by transport to assemble vehicles. B.S. 3618, 1965, sect. 7.

rendrake. A mineral, (Ca,Fe)3(Fe,Ge,Zn,Sn)3(S,As), reported to contain up to 8 percent germanium. Found in Republic of the Congo. Crosby, p. 36.

reniform. kidney-shaped; applied to certain minerals. Fay.

renk. a. An average or standard distance for the working of the plant. Pryor, 2.

Renn-Walz process. A method of reclaiming by melting the waste materials produced in the smelting of zinc and lead ores. This material, which cannot be treated in the blast furnace because of the presence of other metals, is brought up to 1,000° C in the preheating zone of the Renn-Walz process by reacting with the blank gases and this drives off CO2 from the carbonates. The process differs from the Krupp-Renn method in that it is a single-stage reduction process and in which the metals are in the oxide form. The metal vapors are oxidized by excess air and carried off in the flue gases, which are subsequently filtered. Osborne.

rent and royalty. a. The amount paid by a coal mining operator to the owner for each ton of coal mined and usually expressed in cents per ton. \textit{Bureau of Mines Staff}. b. In mining leases, words used internationa]tally to convey the same meaning. \textit{Rickett}, 11.


rep. a. A miner who repairs and enlarges underground roadways. He is a skilled man on excavation of roadways to neat lines and the setting of supports. The nature of his work usually means working on the afternoon or night shift, and he is paid either per shift or on piecework rate. He works with an assistant. \textit{Bennett}, 2d, 1962; \textit{SuPP}.


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repairman. a. A workman whose duty it is to repair tracks doors, brattices, or to reset timbers, etc., under the direction of a foreman. \textit{Zem}, b. A repairer. Fay.

replicated. a. In crycrystalligraphy, three or more crystals united according to the same law. Fay.

replication. In survey, repeating angular measurement by unclamping lower plate of theodolite after first measurement and resighting on back station; then clamping this and freeing azimuth plate and again sighting on foresight, therefore doubling original observation. Fay.

repetition of beds. The duplication of beds of rocks through faulting or intense folding. \textit{Stokes and Varnes}, 1955.


replaceable hydrogen. Hydrogen atoms in acid molecule which can be replaced by those of metal. \textit{Pryor}, 3.

replaceable insulators. Diamond insulators and other geometric forms fastened to and/or supported by the bit blank by brazing or mechanical locking so that they may be replaced when diamond wear exceeds a specified amount. \textit{Long}.

replaceable pilot. A central interchangeable pluglike portion of a coring bit probing or leading the outer portion of such bits. \textit{See also pilot, Long}.

replacement. a. The process of practically simultaneous capillary solution and deposition by which a new mineral of partly or wholly differing chemical composition may grow in the body of an old mineral or mineral aggregate. \textit{A.G.I. Supp}. b. Same as metasomatism in mineralogy. \textit{BuMin Style Guide}, p. 61.

replacement ore body. a. Mass of ore formed by the dissolution of previous minerals and their replacement by others. \textit{Sikimatos}.

replacement rock. a. Metal or the metals arranged in order of the magnitudes of their oxidation potentials. \textit{Ganow}.

replacement vein. a. A vein in which certain minerals have passed into solution and have been carried away, while other minerals from the solution have been deposited in the place of those removed. The process is called metasomatic replacement. Also called constitution vein. Fay.

replace switch. A device consisting of a united pair of iron plates hinged to shoes fitting over the rails to replace, or replace tracks doors, brattices, or to reset tracks. Also called retrack. \textit{BuMin Style Guide}, p. 61.

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research reactor

used for training, materials testing, and production of radioisotopes. In Atomic Energy Commission usage, the term is limited to respect of deep-thrust level of 10 megawatts or less. L.O.L.}

residence. 1. In surveying, fixing of station not
workable or probable working, depending on
manner of prospecting for deposit. 2. See developed reserves; development sampling; economic coal reserves; ore reserves; probable reserves; workable. Nelson.

recess. A natural underground container of liquids, such as oil or water, and gases. In general, such reservoirs were found in local formation of strata, by changes of local conditions. These, however, are classifications in the broadest sense. A.G.I. b. Openings in the ground in which water is stored. Legrand. c. An artificially built, dammed, or excavated place for holding a reserve of water. Zern. d. Rock formations having productive possibilities, the pay section. Wheelers

reservoir. 1. Crude petroleum as it exists in the hole. Long. 2. In mining, a place for holding a reserve of water. Legrand.

reservoir rock. A porous and permeable rock in which commercially important oil and gas accumulations are found. See also cap rock.

reservoir oil. Crude petroleum as it exists in the hole. Long. 2. In mining, a place for holding a reserve of water. Legrand.

reservoir action (nonstandard). In flotation
processes, the component of control action in which the final control element is moved at a speed proportional to the magnitude of a proportional position action. This term applies only to a multiple action including proportional position action. Forrester, p. 549.

reset bit. A bit made by reusing the sound diamonds salvaged from a used bit and setting them in the crown attached to a new bit blank. Some new diamonds usually are added to those salvaged, since generally not all of the salvaged or recovered stones are reusable. Also called replacement bit.

resettable; resaltable. A salvaged diamond or used diamonds in good condition; hence, diamonds that can be used again by being reset in another tool or bit. Also called usable diamond; usable; usable stone. Long.

reset the chuck. Synonym for rechuck. Long.

resetting. A. The actual process of producing a reset bit. See also reset bit. Long. b. To rerun a cutting string into a borehole by placing it in a point at end lower in the hole. Long.

resident engineer. An engineer employed, usually in the field office rather than in the main office, to handle the employer's engineering work. Bureau of Mines.

residual. a. Characteristic of, pertaining to,
or consisting of residue. Remaining essentially in place after all but the least soluble constituents have been removed; said of the material eventually resulting from the decomposition of rock. Fay. b. Standing, as a remnant of a formerly greater mass of rock or area of land, above a surrounding one. This term has not been generally planated; said of some rocks, hills, mountains, mesas, plateaus, and groups of such features. Fay.


residual asphalt. Asphalt obtained by steam distillation of semisphagnetic or asphaltic petroleum. Bennett 24, 1962.

residual bond. A chemical bond that occurs in the solid and liquid states and manifests itself as that cohesion which holds distinct molecules to each other. It is much weaker than any of the three kinds of primary bond (covalent, ionic, metallic) and is sometimes regarded as physical rather than chemical. Gaudin, 2, p. 12.

residual boulder. A boulder of local origin produced by weathering. A.G.I. SupP.

residual clay. A clay deposit formed by the decay of rock in place. This type is abundant in the Southern States. Fay. b. See primary clay. Dodd.

residual concentration. Concentration of a valuable mineral after sampling and removal of valueless matter. A.G.I.

residual deposits. a. By the removal of soluble mineral material from the deposit by weathering, the portion of a magnetic effect remaining after removal of some type of residuum. Iron carbonates and silicates in the original rock may be converted into practically insoluble oxides, which form iron ores as rock weathers; silica may be leached from kaolin, leaving the insoluble hydrous aluminum oxide, bauxite, a most important aluminum ore. Such deposits are generally formed in warm moist climates and would not be found in areas which have been glaciated. Lewis, p. 276. b. See residual, a, as residual gravel, sand, clay, etc. Fay.

residual elements. Elements present in an alloy in small quantities, but not added intentionally. ASM Gloss.

residual errors. The differences between measured values and the most probable value. Uncertainty.

residual field. The same as residual magnetic field. ASM Gloss.

residual fuel oils. Topped crude petroleum or viscous residuum obtained in refinery operation. API Glossary.

residual gravity. In gravity prospecting, the portion of a gravity effect remaining after removal of some type of regional; usually the relatively small or local anomaly component of the total or observed gravity field. A.G.I.

residual gravity map. See local gravity map. Scheiderer.

residual liquids. Liquid of magma that remains after most mineral constituents have solidified. A.G.I.

residual magma. Synonym for ichor. A.G.I.

residual magnetic field. The magnetic field that remains in a structure after the magnetizing force is removed. ASM Gloss.

residual magnetism. a. In magnetic prospecting it is the remaining magnetic effect re-

remaining after removal of some type of regional; usually the relatively small or local anomaly components of the total or observed magnetic field. A.G.I. b. The
residual magnetism

magnetism remaining in a substance after the magnetizing force has been removed. A.G.I., p. 191; Pryor, J. 3.c. A property of a magnetic material, such as a ferromagnetic, that causes it to remain magnetized when the external magnetizing force has been removed. A.G.I. See remanence.

residual method. Method of magnetic-particle inspection in which the particles are applied after the magnetizing force has been removed. A.S.M. Glou.

residual minerals. The rock-forming minerals that are euhedral in the surface environment or unstable but react so slowly that they are not appreciably broken down. Hawker, p. 260.

residual ore. Residual ores are natural mineral pigments consisting of limonite, or hematite, mixed with varying proportions of clay. They range in color from yellow to chocolate brown and deep red; and in the trace are known as sienna,umber, and Indian red. They probably originate as colloid precipitates. A.G.I.

residual oil. a. The amount of liquid petroleum originating as colloid precipitates. A.G.I. b. Liquid or semiliquid products as asphaltum oil, liquid asphalt, black oil, petroleum tars, and residuum. CCD 6d, 1961.

c. Weathered material, including the soil, down to fresh, unweathered rock. Le-grand. A name given to a very dense, blackish to deep reddish-brown material, without definite organic structure, which appears as somewhat granular interstitial matter between individual microscopic ingredients in certain coals. See also desmite. Terns, 1954. d. The finely comminuted matter unresolvable in the thinnest sections by the best illumination under the highest powers of the microscope. Essentially characteristic of durains, it is generally opaque but not always. The essential characteristic is the impossibility of fragmentation into particles of one or two microns, or less. A.G.I. e. The material eventually resulting from the decomposition of rocks in place and consisting of the nearly insoluble material left after all the more readily soluble constituents of the rocks have been removed. See also residual, a. Fay. f. The residue left in the still after the distillation of crude oil has been completed, and not the residue from redistilled condensates. Also known as the cokings.

residual ore deposit. An accumulation of valuable minerals formed by the removal of unstable rock constituents by weathering or by leaching. Schilder.

residual placer. See residual ore deposit.

residual. The elements ordinarily present in steel in small quantities without definite intent on the part of the steel maker.

residual soil. Soil formed in place by the disintegration and decomposition of rocks and the consequent weathering of mineral materials. Presumably developed from the same kind of rock as that on which it lies. Fay.

residual stress. The stress which exists in an elastic solid body in the absence of, or in addition to, forces acting on the body by the external load. Such residual stress may be due to: (1) deformation, caused by cold-working, as in drawing or stamping; (2) change in the specific volume due to thermal expansion, a phase change or magnetostriiction; (3) by the joining together of structural parts by force, such as welding. Ham.

residual volume. In physiology—the amount of air that remains in the lungs even after the most forceful expiration. It normally amounts to between 1 and 1 1/2 liters. Note that the sum of the vital capacity plus the residual volume equals the total lung capacity. H.E.G.

residuals. Resulting from local rock decay; said of deposits of disintegration that have not been transported. See also residual, a. Fay.

residue. a. That which remains after a part has been separated or otherwise treated. ASTM STP No. 148-D. b. The waste or final material produced by the transformation of a natural substance under the conditions of a chemical process. c. The amount of valuable matter remaining in the ore after treatment, in percent or pennyweights per ton. Beerman. d. As applied to proximate analysis of coke, a calculated figure obtained by subtracting the sum of the percentages of moisture, ash, and volatile matter and ash from 100. B.S. 1016, 1961, pt. 16. e. See coke fracture. Roberts, L., p. 117, 1962.

residuate. a. The constituent petrological unit or maceral occurring as characteristic unresolvable granular and translucent groundmass in clara. A.G.I. b. Same as residuum, b. Terns, 1954.

resultant. That part remaining after any processing, such as separation. Shell Oil Cb, a. Weathered material, including the soil, down to fresh, unweathered rock. Le-grand. A name given to a very dense, blackish to deep reddish-brown material, without definite organic structure, which appears as somewhat granular interstitial matter between individual microscopic ingredients in certain coals. See also desmite. Terns, 1954. d. The finely comminuted matter unresolvable in the thinnest sections by the best illumination under the highest powers of the microscope. Essentially characteristic of durains, it is generally opaque but not always. The essential characteristic is difficult, the impossibility of fragmentation into particles of one or two microns, or less. A.G.I. e. The material eventually resulting from the decomposition of rocks in place and consisting of the nearly insoluble material left after all the more readily soluble constituents of the rocks have been removed. See also residual, a. Fay. f. The residue left in the still after the distillation of crude oil has been completed, and not the residue from redistilled condensates. Also known as the cokings.

resilience. The work which a body can do in springing back after a deforming force has been removed. It is measured by the elastic limit of the material, the resilience equals that proportion of the total work of deformation which the body can give back upon removal of the force. A.G.I. It is sometimes called elastic rebound. Stokes and Varnes, 1955.

resilient materials. The resilient type of coupling has many designs but essentially has torsional response to application or variation of the transmitted load. For the all-metal types, the resilient element may be in the form of laminated spring pads or a cylindrical grid member, connecting the driver and driven hubs. Resilience damp shock loads and also provides means of keeping gear teeth in contact, compensating for small errors in gear cutting. Other types use rubber or rubberlike material which may be in the form of a spider, segmental blocks, a number of balls or a molded disk with metal inserts, providing the connection between the driver and driven hubs. Pit and Quarry, 53rd, Sec. D, p. 67.


resin. a. A solidified and mainly amorphous product of secretions and excretions of certain trees, produced by condensation of a fluid on a loss of volatile oils. Resins represent a complex mixture of aliphatic and cycloaliphatic compounds, such as terpenes and oxygenresins, resin alcohols, resin acids, resenes (esters or lactones), etc. Resins are also are solubly distributed in alcohol, ether, or volatile oils and in this respect are distinct from gums (carbohydrates) which are soluble in water. Foss. sil resins may be subdivided into: (1) amber group resins—usually containing ter-

resin opal. A honey- to ochreous-yellow vari-


resinous MA Coal in which the attritus may consist of resinous cement. A term used in chemical elections. Zn resina, although some may have been contributed from the stems of other gymnosperms. Resins may be scattered and mixed at random with other constituents in the attritus, or be formed in the petals of the Medulloidea, although some may have been contributed from the stems of other gymnosperms. Resins may be scattered and mixed at random with other constituents in the attritus, or be formed in the petals of the Medulloidea, although some may have been contributed from the stems of other gymnosperms.

resin rodlets. A constituent representing resinous material of plants; most resin rodlets have been formed by the secretion of resin into canals or ducts by the surrounding epidermal cells. Mae. For the more familiar rods were formed in the petals of the Medulloidea, although some may have been contributed from the stems of other gymnosperms. Resins may be scattered and mixed at random with other constituents in the attritus, or be formed in the petals of the Medulloidea, although some may have been contributed from the stems of other gymnosperms.


resistivity. a. A measure of the electrical resistance, in ohms, of a substance. Nelson. b. The electrical resistance of the parts being welded are held and which are traversed by small vesicles or canals. They have infrequently been observed split lengthwise with an inner pattern of diakite forms included from either end toward a central flat-lying disk. When the rodlet is hollow, the space is commonly mineralized, kaolinite being a common filling. Common, but in relatively small quantity in banded bituminous coal. May occur genetically associated with anhydrite or fusain, or be scattered and mixed at random with other constituents in the attritus, or be formed in the petals of the Medulloidea, although some may have been contributed from the stems of other gymnosperms.

resistivity index. This quantity may be defined as follows: resistivity index = — , where I equals resistivity index, R, equals true resistivity of a rock, and R, equals resistivity of some rock containing oil or gas.

resistivity method. a. An electrical method of prospecting in which measurements are made directly by observing the ratio of voltage to current when a current is forced to flow through the section of ground to be tested. In the induction method, measurement of resistivity is indirect, the phase shifts or other electrical phenomena may be studied in the field. Resistivity surveys have been applied to several coal-mining problems. One in particular being the location of drift and of buried drift-filled channels. Nelson.

resistivity tests. A low voltage electrical test used in measuring the continuity of a non-conducting coating on a metallic base. A.G.S., S.

resistance welding die. The part of a resistance welding machine that is usually shaped to the work contour, with which the parts being welded are held and which conducts the welding current. A.G.S.

resinous cement. A term used in chemical elections. Resembling resin, as opal, and some yellow varieties of sphalerite. Fay.

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resolving power. In optical viewing, resonance method. A procedure to determine water breathing velocity as determined by the abnormally large response of a system having a natural vibration period to a stimulus of the same, or nearly the same, frequency. A.G.I.

resonance method. A procedure in which a transverse wave is imparted to the test object and excited over an appropriate range of frequencies. A displacement-type resonance with a real resonant frequency at which the thickness of the test object is equal to the half-wavelength of the ultrasound, and (3) inertial resistance introduced by the inertia of water which must be displaced during respiratory movements of the chest; and (4) miscellaneous factors such as the resistance of breathing bag fabric to inflation and deflation.

respiratory minute volume. The total amount of air moved in and out in the lungs in a minute.Minute volume is determined by multiplying the tidal volume times the frequency times the respiratory minute volume. Minute volume varies greatly with the body's activity. It is about 6 liters at complete rest and may be over 100 liters during very heavy work. Abbreviation, \( V_{\text{Em}} \).

respiratory quotient. a. The ratio of carbon dioxide expelled to oxygen consumed. It is a volume ratio. In other words, a normal adult will breathe only 0.07 X 0.9 = 0.063 cubic feet of carbon dioxide for every 1 liter of oxygen consumed. \( V_{\text{Q}} \).

respiration. The process of drawing air, or another breathing medium, into the lungs to supply oxygen and purify the blood. \( V_{\text{R}} \).

respirator. a. A device (as a gas mask) for protecting the respiratory tract (as against irritating or poisonous gases, fumes, smoke, dusts) with or without equipment supplying oxygen or air. Webster 3d. b. A device for maintaining artificial respiration. Webster 3d. c. The mining type is a fitting which covers the nose and mouth to prevent the entry of excessive quantities of dust. Tunnel miners and men at silver plants and blast furnaces also wear respiration. Sometimes a person who is known to be a smoker, or is associated with a smoker. \( V_{\text{R}} \).

respiratory cycle. One complete breath—an inspiration followed by expiration, involving any pause that may occur between the movements. \( HOG \).

respiratory exhalation. Resistance to underwater breathing has four components: (1) airway resistance caused by valves, length and diameter of tubing, and possibly external factors due to the density of the inspired gas at increased depth; (2) hydrostatic resistance caused by the difference in pressure between the mouth of the swimmer's center of breathing (most commonly believed to be at the bottom of his throat) and the level of the inlet or demand valve; (3) inertial resistance introduced by the inertia of water which must be displaced during respiratory movements of the chest; and (4) miscellaneous factors such as the resistance of breathing bag fabric to inflation and deflation. \( V_{\text{Em}} \).

respiratory state. The arrangement at the top and bottom of a shaft, or intermediate levels, for supporting the shaft cage while changing the tubs or cars. Also called chairs; catches; wings. \( V_{\text{R}} \).

resisting cable plug and socket. a. A plug and socket designed to be held together by an operating bolt, or screen and other equivalent device, the use of which enables the plug to be readily inserted or withdrawn. B.S. 3618, 1965, Sec. 7. b. A flameproof restrain plug and socket incorporates an interlock to ensure that the power connections are dead when they are separated, or until they make contact; the design is such that the enclosure is flameproof at all times when there is contact between the pin and tubes. B.S. 3618, 1965, Sec. 7.

restrictions. Used in mining, a system of earth fault protection in which the fault current is limited, without requiring the use of sensitive earth fault protection. B.S. 3618, 1965, Sec. 7.

resting. a. Striking a trimmed but unlit match. A device (as a gas mask) for protecting the respiratory tract (as against irritating or poisonous gases, fumes, smoke, dusts) with or without equipment supplying oxygen or air. Webster 3d. b. A sizing operation which is then extracted in a clean condition. \( V_{\text{R}} \).
resultant force. Two or more forces acting on a body may be replaced by a single force whose effect is exactly the same as the combined effect of the other forces. Such a force is called the resultant, while the other forces, to which it is equivalent, are called components. *Morris and Coope*, p. 194.

resultant field. The magnetic field which is the result of two or more magnetizing forces impressed upon the same area of a magnetizable object. Sometimes called vector field. *ASM Gloss.*

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retort

treat by heating in a retort, as gold amalgam, to drive off the mercury and recover the gold. Fay, p. 910.

retort carbon. Retort carbon, or retort gas. Gas resulting from the heating of coal, for example, in the by-product process of coke manufacture. Ben-


retort gas. Gas resulting from the heating of coal in retorts, for example, in the by-

retort gas tar. Obtained as a condensation product in the hydraulic main, scrubbers, or condensers in the manufacture of coke for illuminating purposes. It is less fluid and contains less of the lighter hydro-

carbon gases, more naphthenes, and more free carbon than tar from other sources. Retort gas tar contains 20 to 40 percent of free carbon and yields on dis-
tillation from 50 to 75 percent of pitch, or, if the distillation is carried all the way to 95 percent of pitch of coke. Chemical and Metallurgical Engineering, v. 27, 1926, p. 161-165.

retort house design. Mersereau, 4th, p. 163.

return. a. Any airway in which vitiated or foul air flows from the workings to the upcast shaft and the unsupported workings are abandoned and left to cave in. Pryor, 3. d. A system of robbing pillars in which the line of pillars being robbed retreats from the shaft toward the boundary, these pillars being removed (robbed) as the work retreats. See also longwall retreat. Nelson. c. A stopping system in which sup-
porting pillars of ore are left in while the mine is worked out, that is, the pillars are removed by the advancing face without pillars back toward the shaft. A method of working a mine which is designed to allow a stope to cave soon after it is worked out, thus releasing the weight on the supports in adjacent stops. Lewis, p. 438. b. A meth-
od of extracting coal from a coal bed by driving a narrow near surface drift toward the boundary, then opening out a face and working the de-

retreating. a. To work rooms, and pillars of ore are removed by the advancing face without pillars back toward the shaft, drift, or main entry. See also longwall retreat. Nelson.

retreat. a. To work rooms, and pillars of ore are removed by the advancing face without pillars back toward the shaft, drift, or main entry. See also longwall retreat. Nelson. c. A stopping system in which sup-
porting pillars of ore are left in while the mine is worked out, that is, the pillars are removed by the advancing face without pillars back toward the shaft, drift, or main entry. See also longwall retreat. Nelson.

retrievable wedge. A type of wedge that can be retrieved or removed, that is, the pillars are removed by the advancing face without pillars back toward the shaft, drift, or main entry. See also longwall retreat. Nelson.

retrievable inner barrel. The inner barrel assembly, or a wire-line core barrel, designed for removal of samples or cores from a borehole without pulling the rods. Long.

retrievable wedge. See retractive wedge. Long.

retrieval. To recover or remove from a borehole to fish. Long.

retrieving ring. A catch ring on a retractive wedge that operates as a lifting device on the deflection barrel or bit, or the main body, or the main sheave or main drum or the wire line to which the wire line is attached. Long.

return. a. To fish. Long.

return circulation. See return water.

return drum. This device, or drum, is employed as a driving mechanism for the conveyer belt or as an electrically operated driving and holding device. The return drum is so designed that it can be stopped or brought to a complete stop by a signal from the operator, or by a signal from a switch in the conveyer system. The return drum is a driving device and can be stopped and brought to a complete stop. Long.

return roller. A small drum or roller used as a driving mechanism for the conveyer belt or as an electrically operated driving and holding device. The return roller is so designed that it can be stopped and brought to a complete stop. Long.

return roller. See also return drum, return water.

return water. The drill fluid that reaches the surface after it has been circulated through the rods and past the drill bit. Long.

return water. The conveyer belt or as an electrically operated driving and holding device. The return roller is so designed that it can be stopped and brought to a complete stop. Long.

return water. See also return pipe, return water, return water, return water, return water, return water.

return water. The conveyer belt or as an electrically operated driving and holding device. The return roller is so designed that it can be stopped and brought to a complete stop. Long.

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revdanskite; revdanskite
drou nickel silicate from Revda (Rev-
dinsk), Ural Mountains, U.S.S.R. Also
spoken revy, revdanskite, revdanskite, rev-
dankanite, and revdanikite. English; Hey
2d, 1955.

reveal. That portion of a jamb or recess vis-
ible from the face of a wall back to the
frame placed between jambas. ACGS, 1961.

revenue. The receipt or income of partic-
didate directly to be written off against in-

reverberate, a. To deflect. flame, heat, st in
a reverberatory furnace. Fay, b. To re-
duce by reverbrated heat; to fuse. Fay.

reverberation. a. The persistence of sound in
an enclosed space as a result of multiple
reflections after the sound source has stop-
ped. The sound that persists in an enclosed
space, as a result of repeated reflection or
scattering, after the source of the sound has
stopped. H&G, b. The sound that per-
dure from the face of a wall back to the
side of the charge. Firing may be with
having a roof that deflects the flame and
the index level of the pulse trans-
sducer. Hy.

reverberation strength. The difference be-
 tween the level of a plane wave producing
in a nondirectional transducer a response
equal to that produced by the reverbera-
tion corresponding to a range of one yard
from the effective center of the transducer
and the index level of the pulse trans-
mitted, on any bearing, by the same non-
directional transducer. Hy.

reversal. a. A reversal. A curve. A
regenerative furnace. ACGS.

reverberatory kiln. Dodd.

reverberatory kiln. Trade mark. See also Davis
revergen kiln. Dodd.

reversal (of dip). A local change of approxi-
mately 180° in the direction of the re-
versal of dips. A.G.I.

reversal (of dip). An offset from the dip due
to the energy destroyed and dissipates it in
the liquid condenser at heat. Two phases
of the stator supply are interchanged by
bringing back the driver's lever to the off
position and then to that for the opposite
direction of rotation. The amount of
braking depends upon the position of the
lever, since the lower the resistance in the con-
trolled, and therefore in the rotor circu-
it, the greater the rotor current and the
braking torque produced. When the di-
rection of rotation of the stator magnetic
field is reversed, the voltage between the
stator and the rotor is doubled and the
in-duction of current is adequate to pre-
vent breakdown. Sinclair, V, p. 120.

reversal current. The current that com-
posed of the arcs of two circles of the same
or different radii, the centers of which lie
on opposite sides of the curve. Zern, p.
455. b. A curve formed of two arcs in the
shape of the letter S. Ham.

reversal heating. A method of narrow
heading ventilation in coal mines by means
of a brattice partition. The air is led to
the face from the sides of the curve. In this
way, the work in the heading are placed in
relatively clean air. Nelson.

reversed flush boring. See counterflush bor-
ing. B.S. 3618, 1963, sec. 7.

reversed loader. A front-end loader mounted
on a wheel tractor having
a reverse redrawing. A second drawing opera-
tion in a direction opposite to that of the original drawing.

reversal mill. See double-ended pick.

reversing. a. A reversal. A curve. A
regenerative furnace. ACGS.

reversing beam. A method used in
reverse redrawing. A second drawing opera-
tion in a direction opposite to that of the original drawing.

reversing clutch. A forward-and-reversing
transmission which is shifted by a pair of
friction clutches. Nichols.

reversing contacts. Magnetically operated
switches controlled through a master con-
troller operated by a hand lever on the
control platform or desk. They may be of
the air break or the oil break type. Sin-
vil, p. 111.

reversing doors. The system of doors or shut-
ters on or near a surface radial-flow fan for
reversing the direction of the air passing
through the mine. B.S. 3618, 1963, sec. 2.

reversing machine. A molding machine hav-
ing a roof that deflects the flame and
the index level of the pulse trans-
sducer. Hy.

reversing mill. A type of rolling mill in
which the stock being mechanically worked
by rolling passes backwards and forwards
between the same pair of rolls, which are
designed so that core tends to float within
the barrel when the fluid is circulated
down the outside of the rods and returned
to the surface inside the rods. Long.

reverse circulation. The circulation of bie-
coupled and cuttings-removal liquids, drill-
ing fluid, mud, air, or gas down the bore-
hole outside the drill rods and upward in
side the drill rods. Also called counter-
current; countercurrent. Long.

reverse circulation core barrel. A core barrel
"926."
reversing mill

reversing between each pass. See also continuous mill; three-high mill, b. C.T.D. reversing mill, c. threethree-high mill. Fay.

reversing shaft. A shaft whose direction of rotation can be reversed by the use of clutches or brakes. Nichols.

reversing thermometer. A mercury-in-glass temperature measuring instrument constructed so that when the thermometer is suddenly inverted, a separation of the mercury column occurs. Subsequent reading at a known temperature permits computation of the temperature in situ. The procted thermometer gives a reading unaffected by pressure, an unprotected thermometer gives a reading influenced by pressure. The difference between the two corrected readings is a function of depth. Hy.

revet. To face, as with slabs of stone or with any kind of masonry; furnish with a revetment; to revet an embankment, wall, or building. Standard, 1964.


revetment. a. A facing, sheathing, or retaining wall, as of masonry or other materials, a wall sloped back sharply from its base. Nichols.

revetment Lang. See tölle. Fay.

revived. Having had its ability to cut down its bed renewed or augmented through in creasing the earth's crust by a uplift or tilt; said of certain streams. Fay.

revolving. Of a series of products or equipment designed to aid patient resuscitation by giving him oxygen to breathe instead of fresh air. See also Novox reviving apparatus; Novita reviving apparatus. McAdams, p. 93.

revolution. A time of major crustal deformation when folds and faults are formed. Often accompanied by the emplacement of plutonic rocks. A.G.I.

revolution counter. See automatic counter. Hansen.

revolver press. A type of press for the shaping of clay roof tiles. It consists of a pentagonal or hexagonal drum, mounted on a horizontal shaft and carrying press molds on each flat surface. As the drum rotates, discontinuously, each mold in turn is brought beneath a vertical plunger which consolidates a clot of clay in the mold. While the drum is stationary (turing pressing) a clot of clay is fed to the mold next due to arrive beneath the plunger. Dodd.

revolving pot. A rotating circular container from which a DOAS machine gathers glass. ASTM C162-66.

revolving screen. A screen consisting of a cylindrical (sometimes conical) screening surface mounted on a revolving frame for sizing coarse material; it is still commonly in gravel-washing, coal-washing, and stone dressing, but is not used extensively in ore dressing. Also called trommel. Newton, p. 72.

reversible. a. A digging machine in which the upper works can revolve independently of the supporting unit. Nichols. b. A machine that has the machinery and deck attached on a vertical pivot, so that it can swing independently of its base. Nichols. c. The most widely used machine for excavating and loading in pits and quarries. It is designed to operate a dipper against a face or bank, which it displaces as it moves forward, and power is applied so effectively that the dipper can be forced into hard materials. Taken altogether, the digging action is exactly suited to the average pit and quarry excavation problem. The revolving shovel, mounted either on crawlers or on rubber tire traction, is extremely mobile and a moveup takes only a few seconds. The digging, swinging, and dumping motions are coordinated into a speedy, flexible operating cycle. The front-end attachments give the machines versatility. Working range is limited only by the boom length. Pit and Quarry, 3rd, Sec. A, p. 91.

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rewashing tube. A hollow cylinder, concentric with the needle of a feeder, revolving in the glass. ASTM C162-66.

rewashing washing section. The rotary washing screen is cylindrical in shape and made of three sections— a scrubber, a sand jacket, and a gravel-screening section— mounted on a steel frame. Pit and Quarry, 3rd, Sec. B, p. 174.

reward claim. A. A prospecting claim; often shortened to reward. Fay. A tract grant to one who first discovers gold in a mining property. See also B.S. 3552, 1962.

rewarded. Said of components derived from an older formation and incorporated in a younger deposit. Schei dacker.

rezco process. A method for producing low temperature coke in which the retort is a brick-lined cylinder, 10 feet in diameter and 25 feet high. A charge of 34 tons of coke is carbonized downward by burning gas at the top, passing the combustion products through the charge. Carbonization takes 6 hours, and cooling, by recirculating of combustion gases, a further seven hours. The process requires a careful selection of grade of the coke, which is a blend of 33 percent of doubles and 67 percent of coals of low heating power with some resistance to the flow of gases through the charge. Francis, 1965, v. 1, pp. 160-161.

rheoidal folding. In 1883 Reynolds found that as the velocity of flow of water was increased, slip faces of colored liquid remained axially in the stream until a certain velocity was reached, when the color was mixed so thoroughly with the water and the flow became confused. The velocity at which the flow turned from streamline to turbulent conditions is called the critical velocity. Reynolds deduced the general expression: \[
V_D w = C, \quad \text{where } V \]

equals the critical velocity, D equals diameter of pipe, w equals density of the fluid flowing or weight per cubic foot, \( \overline{m} \) equals viscosity of the fluid, which depends on the temperature, and \( C \) equals a constant known as Reynolds number or criterion. That Reynolds number depends on the density, velocity, and viscosity of the fluid and the diameter of the pipe. Lewis, p. 707.

Rheoidal number. A dimensionless number proportional to the pipe diameter or the duct diameter and to the velocity and the density of the fluid and inversely proportional to the viscosity of the fluid. A Reynolds' number above 2,500 indicates turbulent flow and below 2,000, streamline flow. Strack, 10. Symbols, R and R. Webster 3d; Zimmerman, pp. 92, 267. Used in fluid flow calculations to estimate whether flow through a pipe or a conduit is streamline or turbulent. \( R = \frac{D D}{\overline{m}} \), in which \( R \) is Reynolds' number; \( D \) is the inside diameter of the pipe or conduit; \( U \) is the average velocity of flow; \( \overline{m} \) is the density of the fluid; and \( \overline{m} \) is the viscosity of the fluid. Different systems of units give identical values of Reynolds' number. Values below 2,100 correspond to streamline flow, and values above 3,000 correspond to turbulent flow. CCD 64, 1961.

realite mastic. A preparation of claretiere containing asbestos fiber; it is used for surfacing floors. Fay

rel. value. In paper-strip chromatography, ratio of distance moved by component in solution under set to that of transporting solvent. Pryor. 3.


rhambolite. See schenbrander. Dana, 7, 1, p. 124.

rhombomancy. The alleged divination by rod or wand when searching for minerals. Fay.

rhambophane. A very rare, weakly radio active mineral (Ge,Y,La,Dy)(PO,\( H_2 \))O; possibly tetragonal or hexagonal; brown, pinkish- or yellowish-white; found as thin incrustations in ore bodies. Crosby, pp. 186-187.


Rhætic beds. Certain fossiliferous shales and limestones of the Upper Trias of Europe. Also called avicula contorta zone. Schieferdecker.


reid folding. Folding accompanied by slip parallel to planes at an angle to the bedding or earlier developed foliation. A.G.I. Supp.

Rheanuma furnace. A combination of the Hanecastle and flue furnaces, for four hearths, and with a combination flue under the lowest hearth and one over the upper hearth. It has mechanical rabbles. Fay.

Rheish furnace. A zinc distillation furnace which is a modified type of the Silican furnace. Fay.

Rhenium. A rare, silver-white metal; resembles platinum; oxidizes only at high temperatures and is very resistant to corrosion. It occurs in very small quantities in columbite and in platinum and molybdenum ores. Rolfe. Symbol, Re; atomic number, 75; and atomic weight, 186.2. C.T.D. Metallic lustre; hexagonal; valences, 1, 2, 3, 4, 5, 6, and 7; melting point, 3,180° C or 3,167° 60 °C; boiling point, 5,627° C (estimated) or 5,900° C (estimated); specific gravity, 21.02 (at 20° C); insoluble in water and in hydrochloric acid; slightly soluble in sulfuric acid; and soluble in dilute nitric acid and in aqueous mercuric nitrate. Its density is exceeded only by that of platinum, iridium, and osmium, and its melting point is exceeded only by that of tungsten and carbon. Handbook of Chemistry and Physics, 45th ed., 1964, pp. B-131, B-212.

Rheolaph. A heart-lung produced by syn- genetic deformation, slumped and related processes, as opposed to turbolaphs which are produced by turbidity currents. Peatjohn.

Rheolave system; launder washer. A washer in which the raw coal and water is fed into the head of an inclined launder equipped with openings in the bottom for the discharge of the heavy, high-ash material, the lighter coal being discharged with the bulk of the water at the far end of the trough. The Rheolave has declined in popularity. Nelson.

Rheolave washers. Apart from the launder washer, there are three types of Rheolave washer: (1) the sealed launder type for coarse sizes, from which the reject falls against an upward current of water and is removed by a gate which controls the feed to a downward elevator; (2) a system of two, three or four superimposed troughs for washing fine coal below about 1/2 inch. The troughs are equipped with several bottom discharge devices. The separation of the heavy shale from coal and middlings takes place progressively until finally the pure shale is discharged from the lowest trough, and (3) a system for washing slurry consisting usually of two troughs one above the other and equipped with a number of Rheo boxes of the open discharge type but designed to minimize the loss of coal with the fine shale. Nelson.


Rhomorphism. A process of at least partial transformation by which a variable or an adjustable resistance may be introduced into a circuit to regulate the strength of a current. A.G.I. See field coil. A.G.I.

Rhostat. A. instrument for testing blasting machines by inserting definite resist-
ance equal to a known number of electric blasting caps of a standard-length wire, using one electric blasting cap as an indicator. Fay.

Rhostat rope. A simple rope consisting of 8 strands of cotton yarn, each 5800 ft, p. 130.

Rhotropic brilliancy. That portion of the brilliancy characteristic of nonface-centered cubic metals which is caused by the presence of a stress concentration or at low temperatures or high strain rates, that may be eliminated by prestraining under mild conditions. A.G.I. Supp.

Rhigolone. This term is archaic and should not be used. ASTM D 288-57.


Rhino. A group of massive bouded unfossiliferous gneisses, arkoses, and conglomerates; part of the Harlech series of the Cambrian system, exposed chiefly in the Rhino Mountains in Merioneth, North Wales. C.T.D.


Rhodium. A rare element of the light platinum group in group VIII of the periodic table; found only in association with rhodium platinum-thorium-molybdenum. Used for plating silver and silver plate to prevent tarnishing. Symbol, Rh; valences, 2, 3, 4, and 5; isotomic; atomic number, 45; atomic weight, 102.905; specific gravity, 12.41 (at 20° C); melting point, 1966° ± 3° C; boiling point, 3727° ± 100° C; insoluble in water; slightly soluble in acids and in aqua regia; and soluble in sulfuric acid plus hydrochloric acid and in concentrated sulfuric acid. C.T.D.; Fay. Handbook of Chemistry and Physics, 45th ed., 1964, pp. B-131, B-213.

Rhodium. Gold. Gold occurring naturally all-


Rhodol. An artificial resin (cellulose acetate) used to imitate amber; specific gravity about 1.28; refractive index about 1.49. Fay.


Rhodoite. A variety of garnet, 3(Mg,Fe)2O3Si3O12; characterized by its rose- color and brilliant luster. Composition corresponds to 2 molecules of pyrope and 1 of almandine. Isometric Sanford 17.

Rhodite. A rose-colored, triclinic mineral, MnSiO3, sometimes used as an ornamental stone. Also called manganese spar. Dana 6d, p. 564.


Rhodite. A word employed by Wadsworth to designate smelting materials or fluxes. Fay.

Rhomb. In crystallography, for rhomboids, for rhomb facets, Shipley.

Rhomb. Same as rhomb. C.T.D.; Fay; A.G.I.


Rhombocad bemyll. Applied to certain North- westem porphyries, whose phenocrysts of orthoclase resemble a rhombohedron. The orthoclase is rich in soda. Fay.

Rhombic. Four-sided; each side of equal length but not at right angles to each other. Shipley.

Rhombic. The ordinary dodecahedron, formed by twelve plane pairs of lozenge-shaped faces. Shipley.

Rhombocedarmite. See orthoscopic. Dana 6d, p. 592.

Rhombocedarmite. See rhombic. Shipley.

Rhombocad bemitt. Synonym for phlogopite. Fay.

Rhombocad bermite. An old name for feldspar. Fay.

Rhombof. A. A rhombic crystal. Fay.

Rhombosil. A. A rhombic crystal. Fay.


Rhombocad. B. Pertaining to, or belonging in that group of the hexagonal system which is characterized by a vertical axis of threefold symmetry and three horizontal axes of two-fold symmetry. Fay.

Rhombocad. B. See orthoscopic. Dana 6d, p. 592.

Rhombocad. C. A. Same as the hexagonal system, except that the forms are referred to three axes parallel to the faces of the fundamental rhombohedron instead of to the usual four axes. Fay. b. The trigonal division of the hexagonal system, the
rhombohedral system

forms being referred to the same three axes as above. Neither usage has been generally accepted. Fay.

rhombohedron. A crystal form bounded by six faces of rhombohedral outline. Fay.

rhomboideal. A parallelogram that does not have any right angles, and one pair of opposite sides differ in length from the other pair of opposite sides. Jones, 2, 99.

rhomboid. Shaped like a rhomboid, as a rhombohedral face. Shipley.

rhomboideal ribbon mark. Ribbon mark with a reticulate, rhombohedral pattern. Pettijohn.

rhombo-poryphy. A variety of néritne containing rhomb-shaped phenocrysts of alkali feldspar. A.G.I.

rhombo spar. Synonym for dolomite. Fay.

rhyobasalt. Suggested for rocks which are rhyacolite. Sanidine. Webster 3d.

rhyodacite. The extrusive equivalent of a rhyolite. The general name for fine-grained rhyolite glass. Obsidian. Shipley.

rhyolite breccia. A rock composed of angular fragments of solid ore of a vein; an elongated pillar left for support, or side. T.I.M.E. g. A stringer of ore in a lode. Fay.

rib, a. The side of a pillar or the wall of an entry. B.C. d. The solid coal on the side of a gallery or longwall face; a pillar or barrier of coal left for support. Fay. c. The solid ore of a longgated pillar left to support the hanging wall in working out a vein. Fay. d. Scot. A thin stratum, as of stone, in a seam; a ribb, or so-called ribb. Fay. e. A stringer of ore in a lode. Fay. f. The termination of a coal face. Where solid coal is left at the term last rib, end, or side, is used; and where the coal face ends at the gob, the term is used loose rib, end, or side. In J.E. a side wall in an anthracite mine. Korson. b. See buttocck.

rhythmic driving. In this type driving, the drilling, loading, and blasting are carried out in one shift and the mucking and transportation in the following one. This enables every man in his tasks and machines, which is a highly mechanized job to be necessary condition for making the best use of expensive equipment. It also reduces or eliminates the loss of time for ventilation that in rhythmic driving is caused out between two shifts. Langefors, P. 205.

rhythmic sedimentation. A regular interbanding of two or more types of sediment on sedimentary rocks due to a seasonal change in the conditions of sedimentation, such as alternation in the time of the dry periods. C.T.D. See also varved clay.

rhythmic succession. The constant repetition of a definite unit in a vertical range of rocks; has been observed throughout the British Coal Measures. See also Coal Measure unit, Nelson.

rhythmites. a. Rhythmically laminations. A.G.I. b. Individual units of rhythmic beds. A.G.I. c. The couplet of distinct types of sedimentary units in a stratified sequence of sediments, that for instance a unit bed or lamina in rhythmically bedded deposits implies no limit to the thickness of bed, lamina, or complexity, but the term should exclude groups of beds, such as cyclothem, and carries no time or seasonal connotation much as varve. Compare cyclothem; varve. A.G.I.

rib. a. A more or less wedge-shaped inlet, gradually widening and uniformly deepening from its head to the sea, showing no trace of an included basin. A.G.I. b. The term ria, from the Spanish, may be advantageously used to cover all types of subaerially carved troughs, including von Richthofen's fjord, or Alman, and liman types. A.G.I.

ria coast. See ria shoreline. Shipley.

ria shoreline. Shorelines formed by the partial submergence of a landmass dissected by numerous river valleys, may be called ria shorelines, after the ria coast of northwestern Spain, which was produced by the drowning of normal river valleys along a mountainous coast; thus used, the term ria is not restricted to the narrow meaning assigned to it by von Richthofen, who first used it in a genetic sense; but is employed in the broader sense in which it has been used by Gulliver and others. A.G.I.

ribb. a. The side of a pillar or the wall of an entry. B.C. d. The solid coal on the side of a gallery or longwall face; a pillar or barrier of coal left for support. Fay. c. The solid ore of a longgated pillar left to support the hanging wall in working out a vein. Fay. d. Scot. A thin stratum, as of stone, in a seam; a ribb, or so-called ribb. Fay. e. A stringer of ore in a lode. Fay. f. The termination of a coal face. Where solid coal is left at the term last rib, end, or side, is used; and where the coal face ends at the gob, the term is used loose rib, end, or side. In J.E. a side wall in an anthracite mine. Korson. b. See buttocck.

ribbon brake. A friction brake having a metal strap which encircles a wheel or drum and may be drawn tightly against it. Standard, 1964. A hand brake. Fay.

ribbon courses. Successive courses of roofing tiles laid to alternately greater and lesser exposures. Dodd.

ribbon diagram. Geologic cross section drawn in perspective and joining control points along a sinuous course. A.G.I. Shipley.

ribboned structure. It was noticed in some parts of the ice of a glacier, an appearance which cannot be more accurately described, that, by calling it a ribboned structure, formed by thin and delicate blue and bluish-white bands on the surface, which appears to the ice in a vertical direction or rather which, by their apposition, formed the entire walls of the bands was parallel to the length of the glacier and, of course, being vertical, they cropped out at the
ribboned structure

surface, and wherever that surface was illuminated and smoothed by superficial watercourses, their structure appeared with the beauty and sharpness of a delicately chiseled G.I. ribbon flight screw conveyor. A screw conveyor having a ribbon flight screw. See also ribbon conveyor. AIME, p. 792.

ribbon jasper. See ribbon process. A process whereby molten ribbon quartz. Quartz, usually from veins, is formed into ribbons. See also ribbon. Fay.

ribbon process. A process whereby molten glass is delivered to a forming unit in a ribbon form. ASTM C162-66.

ribbon quartz. Quartz, usually from veins, is formed into ribbons. See also ribbon. Fay.


ribbon form. ASTM C162-66.

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ribbon flight screw conveyor. A screw conveyor having a ribbon flight screw. See also ribbon conveyor. AIME, p. 792.
rider bricks. Refractory bricks, which may be used to support the checkerwork in a regenerator. ASTM C162-66.

riders. One of a series of arches which support the checkerwork in a regenerator. See also rider arch.

ride-the-tow. Scot. To slip or slide down the inclined plane or chute or to power arbitrary movements. Didd.

ridge. A long elevation or line of a slope to pond rainwater above it. A.G.1. c. A planer prop or deflecting chute. Pryor, 3. d. A shallow rocky place in the surf; the ripling washup on the edge of the surf; the ripling washup on the beach; used in northeastern states as a synonym for riffle. A.G.I. f. A quarryman's term for use along the rim of a pitched surface. Nichols.

ridge and trough. A submerged ridge and trough which form approximately parallel to beaches having a cross-shore current. J. Geol., v. 48, No. 5, July-Aug., 1940, p. 467-477.

ridges. a. A relatively narrow elevation which is prominent on account of the steep faces on either side. Where a rise is in a near horizontal bed, the term "ridge" may be used. A.G.I. b. A long elevation of the deep-sea floor having steeper sides and less regular topography than a rise. A.G.I. c. A narrow, elongated crest of a hill or mountain; an elongated hill; a range of hills or mountains. A.G.I. d. The ana climbing parallel to the adjacent pairs of amphi- lacerous pores (in the regular echinoids). A.G.I. e. Som. A fault filled with fault rock (slope material). A.G.I. f. A prominent part of the structure. A.G.I. g. A ridge or many ridges. Hy.


ridge roll. A curved piece for covering the ridge of a roof laid with roof tile. Fay. See rippled shingles, shingled.
rift

or excavating the rock. *See* also grain. *Nelson.*

J. In sedimentary rocks, the horizontal plane of stratification, or the bed of the rock. *Stauffer.* k. An obsolete foliation, either vertical (or nearly so) or horizontal, along which a rock splits more readily than in any other direction. *See also grain, a. Fay.* l. See fault trace. *Fay.* m. A crack, as in the midocean ridges. *MacCracken.*

rift structure. Two faults, more or less parallel, with adjacent wedge or block of rock separated. *Challinor.*

rift valley. A relatively long and narrow troughlike valley formed by the sinking of one block of the earth's crust, causing the remaining block to remain above sea level. *Fay.* Also known as graben and trench fault.


rift valley. A relatively long and narrow troughlike valley formed by the sinking of one block of the earth's crust, causing the remaining block to remain above sea level. *Skow.*

rift, rift valley. A relatively long and narrow troughlike valley formed by the sinking of one block of the earth's crust, causing the remaining block to remain above sea level. *Stauffter.* Also called trough fault.

rift valley. A relatively long and narrow troughlike valley formed by the sinking of one block of the earth's crust, causing the remaining block to remain above sea level. *Washburn.* Also known as graben and trench fault.

rift time. a. The hours, days, etc. a drill rig is in the field. Also called setup time; rigging time. *Long.* b. Time devoted to the operator's working time. *Long.*

rift valley. A relatively long and narrow troughlike valley formed by the sinking of one block of the earth's crust, causing the remaining block to remain above sea level. *Hamm.*

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pile. Fay. b. To so mine ore that it runs down a slope to a chute or loading level. Ore is said to be rilled when the depression is a slope left in mining. Hess. c. A very small brook; a streamlet. Weh-ner 2.

rill-cast. Probably the same as furrow flute cast. See also furrow flute cast. Pettijohn.

rill-cut stopping. See rill stopping, b. Fay.

rill-cut vertical stopes. See rill stopping, b. Fay.

rill mark. Dendritic, bifurcating-upstream, rill common found on subaerial portion of beaches, sand bars, and sand flats formed by flow of thin sheet of water. Some rills show marks showing distributary pattern of down-current bifurcation. Pettijohn.

rill stope. Overhand stope so shaped that miners can stand on the ore they have severed, and work horizontally along the side walls of unbroken ore which confine the excavation. The stope is carried as an inverted stepped pyramid, its apex ending in a winze which leads to the trimming level, down to which ore gravitates or is excavated. Pryor 3.

rill stopping. a. A method of stopping, such as overhand, inclined, or pyramidal, in which the ore is cut back from the winzes in such a way that an inverted pyramid-shaped room is created, with its apex in a winze and base at the level. Sometimes called pyramidal stopping; inclined cut and filling; rill-cut vertical stopes; overhand stopping in inclined floor; rill-cut stopping. Fay. c. Cut-and-fill stoning in which slices are cut-and-fill in which slices are inclined to the horizontal. The slope of the slices is preferably such that both ore and waste will slide to the stope; otherwise these materials must be moved by scrapers or by hoisting. Lewis, p. 470.


rimstone. A basin formed within a rim built-up of calcite precipitated from slowly overflowing water. Schieferdecker.


rincon. Sp. Recess in a mountain or cliff such as would be formed by a river bend. Shakespe.

rine pan. A pan in which salt water is evaporated to obtain salt. Fay.

ring. a. A complete circle of tubbing plates around a circular shaft. Fay. b. Troughs placed in shafts to catch the falling water, and so arranged as to convey it to a certain point. Fay. c. Newc. A gutter cut around a shaft to catch and conduct away the water. Fay. d. S. A circular piece of wrought iron, about 8 inches deep, placed on the top of a skip of coal to increase its capacity. Fay. e. See wedging crib. Pryor. 3. a. A refractory ring that floats on the molten glass in a pot to keep any scum from the gathering area within the ring. Compare floaters, d. Dodd. g. The part of the mold that forms the rim of pressed glassware. Dodd. h. An arch of refractory bricks forming part of a furnace roof and unbounded with the adjacent arches. Dodd. i. A saggar without a bottom. Sometimes called a ringer. See also saggar. Dodd. j. The sound produced when two bricks are knocked together, or when one brick is struck with a hard object. A.R.I.

ringagae. Agate with concentric rings but with less distinct color contrasts than eye agate. Shakespe.


ring and circle shear. A cutting or shearing machine with two rotary-disk cutters driven in unison, and especially with a circle attachment for cutting inside circles or rings from sheet metal, where it is impossible to start the cut at the edge of the sheet. One cutter shaft is inclined to the other to provide cutting clearance so that the off-fall (or outside) remains flat and usable. See also circle shear. ASM Gloss.

ring arch. One composed of a series of straight, unbounded, rows, one brick wide. Bureau of Mines Staff.


ring complex. See ring dikes. C.T.D.

ring crib. Eng. A wedging crib upon which cutting is placed, involving a gutter or ring cast round the inner edge, to collect any water that may run down the walls of the shaft. Fay.

ring crusher. a. A type of hammer mill with a high-speed horizontal shaft upon which a series of steel rings are swung. ACG, 1963. b. Limpet mill, beater mill, or hammer mill, in which the beaters are loosely swinging rings. Pryor. c. See hammer mill, c. A. C. G.

ring-cut. Some six holes in a ring around one central hole used to carry cavity forward. Pryor, 3.

ring dikes. An arcuate, rarely circular dike with steep dip. Larger ring dikes may be many miles long, hundreds or thousands of feet thick; radius of arc is generally from one to 10 miles; although some ring dikes may form a nearly complete circle or ellipse, more commonly they encompass one-fourth to three-fourths of the circle or ellipse. A.G.I.


ringed out. A diamond bit in the face of which has been gouged a circular groove deeper than, and at least as wide as, the diameter of one row of the inset diamonds. Long.


ringens. a. A chart divided into five (5) shades or graduations of darkness as a means of designating the blackness of smoke emitted from industrial chimneys. The charts have been standardized and are used in the ceramic industry in compliance with the Clean Air Act of 1953 in which dark smoke is defined as grade 0, and lighter than, shade 2 on the Ringelmann chart. Dodd.


ring fault. A steep ring-shaped fault, complete or incomplete. Challinor.


ring hole. An opening in a tank through which glass is gathered. ASTM C-162-66.

ring holes. The group of boreholes radially drilled from a common-center setup. See also horizons; radical drilling. Long.

ring induction method. An inductive method in which the primary coil and the measuring coil are concentric. Schieferdecker.

ringing. The audible or ultrasonic tone produced in a mechanical part by shock, and having the natural frequency or frequencies of the part. Noise, decay rate of the tone may sometimes be used to indicate quality or soundness. ASM Gloss.


ring kiln. See kiln. A limelike made by digging a conical pit, filling it with alternate layers of limestone and fuel, and covering the top with sod. Schiefer, 1904.

ring lifter. Synonym for core lifter. Long.


ring main. Closed loop of piping, including provision for entry of material, circulation boost and controlled withdrawal points; used for circulating solids such as pulverized coal fuel, or fluids such as lime slurry, continuously without settlement or chokeup. Pryor, 3.

ringing. Ringlike ridges commonly appearing in a line, the higher side is upcurrent. Incomplete rings, forming semicircles with celerities downstream are common. Considered a species of saltation mark produced by fish vertebrae. Pettijohn.

ring mold. See neck mold. Dodd.

ring ore. Fragments of gangue covered with regular deposits of other minerals. See also orephere. Fay.

ring pipe. A circular pipe in which a large wheel is revolved for tempering clay. Fay.

ring riser. A riser block with openings matching those in the press bed. ASM Gloss.
ring-roll crusher

ring-roll crusher. A type of crusher in which high-speed rolls act on the inside circumference of a vertical cylinder to powder raw material like clay. Enam. Dict.

ring-roll grizzly. A sturdily built grizzly for handling large pieces of ore. This type of grizzly is incorporated into a series of grooved rollers moved mechanically or alternatively by the sliding ore. Underhill, p. 197.

ring press. A press consisting of rolls of unequal diameter, revolving one within the other and in the same direction. B.S. 3552, 1962.


ring-size. Particle size where the piece of ring-shaped occurrence. In some areas altered rocks have been found as a halo over an ore body. Fay, 1972.

ring roll grizzly. A sturdily built grizzly for handling large pieces of ore. This type of grizzly is incorporated into a series of grooved rollers moved mechanically or alternatively by the sliding ore. Underhill, p. 197.

ring section. Narrow, peripheral section cut from a glass article for optical examination. ASTM C162-66.

ring-shaped occurrences. In some areas altered rocks have been found as a halo over an ore body. Fay, 1972.

ring-type reaming shell. A reaming shell the inside diameter of which is set into a cast- or powder-metal band encircling the outside surface of the shell. Hy.

ring-type wedge. A deflecting wedge having a short metal sleeve attached to the uppermost edge of the wedge. The diameter of the sleeve is the same as that of the lower, full-circle part of the wedge. Long.

ring wall. The inner firebrick wall of a blast furnace. Standards, 1929.

ringlute. A very rare, weakly radioactive, monochlorine, yellow-brown to straw-yellow complex silicate of Sm, Cs, and Ti with small amounts of Th; formulas have been given as NaO.3CaO.7(OH)2.3SnO3.13Li2O.6SnO3.13FeO.6 and 3FeO.6SnO3.13FeO.6 TiO2.9SnO3.13FeO.6. Found in kalarite and in the Khibine (Kola) Peninsula, U.S.S.R. Related to ringlute; contains 13 percent bismuth. Weed, 1918.

ringmash. The coal micrometre of gate road to increase headroom. See also dint. Fraenkel.

ringmash. To cut or blast down the roof or earth material so that it can be broken by tractor-drawn rippers or similar equipment. Pryor, 1972.

ring miner. A detachable cutting bit, screwed or driven onto shank of drill steel used in preparing ground for blasting. Pryor, 1972. See also detachable bit.

ring current. A strong surge of current of short duration flowing seaward from the shore. It usually appears as a visible band of water near the shore, and it is the return movement of water piled up on the shore by incoming waves and wind. Schieffeler, 1972.

ring paste. Moor peat in the advanced state of decomposition. In its ripened form it is dollopetrite. Stutzer and Nos, 1940, p. 91.

ring ridges. A colorless, rose, violet, or yellow anhydrous chloride of ferrous iron, potassium, and sodium, FeCl3.3KCl.NaCl. Coarse, granular masses. Rhombohedral. From the so-called "Hartz Mountains," Germany. English.

ring scale. A Swedish standard scale for the estimation of slag inclusions in iron and steel. This scale contains 12 categories of micrographs, designed to show different typical fields of view, and arranged in groups according to the form and distribution of the inclusions and numbered according to their quantity. In the practical application, the appearance of the specimen under the microscope is compared with the micrographs in the scale. Osborne.

ringed water. A tool for removing slates, or edging them. Mason.

ringing. The relative ease of removing a substance from a metal surface with a liquid such as water. Enam. Dict.

ring roll grizzly. A sturdily built grizzly for handling large pieces of ore. This type of grizzly is incorporated into a series of grooved rollers moved mechanically or alternatively by the sliding ore. Underhill, p. 197.

ring underfill. A practice of tapping a (grinding) wheel while freely suspended from the arbor head, or free standing to the periphery, to determine whether the wheel is cracked. ACGS, 1965.


ring valve. See valve.

ring wash. A general term applied to pregnant leach liquors, the discharge wash used after the adsorption cycle, which moves pregnant liquor still in the column onto the next absorption column in the series. Term also applied to water rings after elution cycle, and before acid rinse, Fay, 1972.

ring waters; spray water. Water used to remove fine particles from larger sizes. B.S. 3552, 1962.


rio. A bismuthiferous variety of tenanthite; contains 13 percent bismuth. Weed, 1918.

rio into process. Heap leaching of curiferous sulphides after their liberation to sulfates on prolonged atmospheric weathering. Pryor, 1972.

rip. a. To bring down rock in a roadway to increase headroom. See also dint. Fraenkel.
b. Mid. To cut or blast down the roof or top; also, to take up the floor or bottom. Fay, c. See brush. Mason. d. Turbulent water produced by conflicting tides or currents; generally, a vertical oscillation. See also swell. Fraenkel.

ririparian. Of, pertaining to, situated, or dwelling on the bank of a river or other body of water. A riparian owner is one who owns the banks of a riparian right is the right to control and use water by virtue of the ownership of the bank or banks. See also riparian rights.

ririparian rights. The rights of a person owning land containing or bordering on a watercourse or other body of water in or to its banks, bed, or waters. At common law a person owning land bordering a non-navigable stream owns the bed of the stream and may make reasonable use of its waters. Webster 2d. Rights of a landowner to water or border his property, including right to prevent diversion or mine of upstream water. Nichols.

ririp. A detachable cutting bit, screwed or driven onto shank of drill steel used in preparing ground for blasting. Pryor, 1972. See also detachable bit.

ririp current. A strong surge of current of short duration flowing seaward from the shore. It usually appears as a visible band of water near the shore, and it is the return movement of water piled up on the shore by incoming waves and wind. Schieffeler, 1972.

ririp past. Moor peat in the advanced state of decomposition. In its ripened form it is dollopetrite. Stutzer and Nos, 1940, p. 91.

riripolit. A mineral of the chlorite group. Monoclinic. It is essentially a hydrated silicate of magnesium and aluminum with ferrous iron. See also chloroth and prochlorite.

ririppability. A measure of the ease or difficulty with which a rock or earth material can be broken by tractive-drawn rippers or rigid steel tines into pieces that can be economically moved by other equipment, usually scrapers. Bureau of Mines Staff.

riripper. a. Coal miner's wonder of gate road to increase headroom. Also known as brusher; stoneman; reaper. Pryor, 1972.
b. An implement for breaking down the roof at the ripping lip, or where the roof has sagged on a road or through difficulty with which a rock or earth material can be broken by tractor-drawn rippers or rigid steel tines into pieces that can be economically moved by other equipment, usually scrapers. Bureau of Mines Staff.
ripper


a. An accessory that is either mounted or towed on the rear of a tractor and generally used in place of blasting as a means of loosening compacted soils and soft rocks for subsequent loading by a shovel. The teeth, long-angled teeth that are forced into the ground surface, ripping the earth loose to loosening compacted soils and soft rocks used in place of blasting as a means of

ripple bed. A machine for cutting stone into slabs by slapping it on a bed under a gang of saws. Standard, 1964. b. The act of breaking, with a track-driven ripper or long-angled steel tooth, compacted soils or rock into pieces small enough to be economically excavated or moved by other equipment as a scraper or dozer. Bureau of Mines Staff. c. The breaking down of the roof in mine roadways to increase the headroom for haulage, traffic, and ventilation. See also brushing, d; second ripplings. Nelson. Eng. See canch; b. S.M.R.E. Paper No. 61.

ripple blasting. Where coal seams are worked by the longwall method it is necessary to maintain roadways leading to the face. These roadways should be of sufficient height to permit the easy passage of men and equipment, and also to allow that some of the stone above the coal must be removed. This operation is known as rippling, or, unless the roof strata are very soft, blasting will be required. The main considerations in rippling blasting are to keep the sides of the roadway square, and to obtain good fragmentation of the stone so that it can be removed easily. Therefore special care must be taken in placing the shot holes. However, the use of efficient breaking-off bars and props will greatly assist in squaring-up the sides of the roadway and the ripping lip. MacAdam II, p. 114.

ripple face support. A timber, or timber and steel structure, to provide support at the ripping lip. There are various types; one consists of bent corugated steel bars behind which wooden planks are wedged; another consists of adjustable stretchers which are fitted across the roadway. See also horsehead; S.M.R.E. Bar. Nelson.

ripple lip. a. The edge of the rippings at the face of a roadway. When enlarging a roadway, the ripping lip is the end of the enlarged section and where work is proceeding. See also forepiling girders. Nelson. b. The point where the track meets the lip, marked by a short, heavy projection from the roadway. See also scioning lip. MacAdam II, p. 114.

ripple mark. a. The wavy surface of some beds of sandstone and mudstone, produced by gentle movements in shallow water when these rocks were in a soft condition. Fay. b. Periodic undulations of primary origin at interface between fluid and granular material; usually on a small scale; many varieties. See also sand waves, c. Pettijohn.

ripple mark index. The ratio of wavelength to amplitude of a ripple mark. A.G.I. Pettijohn.

ripple mark. a. The wavy surface of some beds of sandstone and mudstone, produced by gentle movements in shallow water when these rocks were in a soft condition. Fay. b. Periodic undulations of primary origin at interface between fluid and granular material; usually on a small scale; many varieties. See also sand waves, c. Pettijohn.

ripple marks of oscillation. Ripple marks formed by oscillating movement of water such as may be found along a sea coast outside the surf zone. They are symmetrical, with sharp or slightly rounded ridges separated by more gently rounded troughs. Last.

ripple marks. a. Small waves on the surface of a body of water which are produced by oscillatory movements of water, for example, those caused by wind, by the rise and fall of tide, or by the passage of waves. C.T.D. b. See ripples, a. Nelson.

ripple scion. A long, thin, slender, straight, transverse ripple mark. Pettijohn.


ripple voltage. The alternating component of a substantially unidirectional voltage. Coal Age, 1.

rippled. See dragged. Dodd.

ripples. The ratio of wavelength to amplitude of a ripple mark. A.G.I.

ripple drift. Current bedding or marked beds on the bed of a stream from ripples on the water surface. Standard, 1964. See also ripple mark. Fay.

ripple.s. The ratio of wavelength to amplitude of a ripple mark. A.G.I.

ripple cross-lamination. Cross-lamination of small thickness, usually less than 2 centimeter, formed by migrating ripple mark. Pettijohn.

rippled. See dragged. Dodd.

roll doors. Scot. The entrance from a shaft into upper workings. Fay.

roll face. A face advancing towards the rise of the seam. Briggs, p. 23.

roll heading. A heading driven to the rise in a long-way workings. See also heading, e. Fay.

roll level. Scot. The upper of two parallel level roads. Fay.

roll of arches. The vertical distance between the level of the spring lines and the highest point of the under surface of an arch. H.W.

roll of tide. In oceanography, the vertical distance of high-water level, at a given place, above a fixed datum (usually low water of ordinary spring tides at the place). C.T.D.

roller. a. A shaft excavated from below upward. Fay. See also raise; b. No. 61. p. 312. Symbol for aluminum metal. Dodd.

roller brick; end runner. A runner brick with a hole near one end of its upper face and (generally) a short tubular projection from this hole to lead molten steel into the bottom of an ingot mold. See also runner brick.

roller split. Eng. The proportion of the ventilating current sent into the rise workings of a mine. Fay.

roll up. Som. A sudden rise in the dip of a coal seam. Arkell.


rolling. a. An excavation carried from above upward for use as a riser. Standard, 1964. b. Eng. The horizontal division of the stratum, from which the blocks of stone are hewed; Portland quarries. Arkell. c. The
river mining. Mining or excavating beds of existing rivers after deflecting their course, or by dredging without changing the flow of water.  
river pebble. Applied in Florida to a certain class of phosphatic pebbles, or concretions, found in river beds, formerly distinguished from land pebble phosphate. Fay.  
river piracy. The diverting of the waters of one stream into another by natural means. Stokes and Varnes, 1955.  
river quartz. A name given to rounded, waterworn masses of quartz found in stream gravels. See also unfauceted quartz. AM, 1.  
river right. Same as creek right. Fay.  
river run gravel. Natural gravel as found in deposits which have been subjected to the action of running water. See also alluvial deposits. Nelson. b. See column pipe. Fay.  
rising tide. Synonym for flood tide. Schiefer.  
rising shaft. Excavating a shaft upwards from mine workings. See also rise; staple shaft. Nelson. b. See column pipe. Fay.  
rising-head test. A soil permeability test in which the rate of flow at a constant head is observed. Institution of Mining and Metallurgy. Symposium on Openpit Mining, Quarrying, and Alluvial Mining. London, 16-19 November, 1964.  
rising main; delivery column. a. The length of a rising main; delivery column being preferred. Zern, p. 145.  
river terrace. A river terrace always consists of a plain and an accompanying escarpment. The terrace plain is approximately horizontal and usually slopes both with the grade of the stream and away from the riverbed which it faces. On the side toward the stream the ground is bounded by an escarpment, the two together making the terrace; the opposite side of the plain is usually bounded by more elevated land, either an older and higher terrace or the true valley wall. A.G.I.  
riveter. A man who forms the head of a rivet, generally with a pneumatic rivet hammer. Ham.  
rivet snap. A punch having a recess in its head shaped to the form of the rivet. See also pneumatic riveter. Ham.  
rivet steel. A soft kind of mild steel, used for rivets. Fay.  
rivet test. A test on the steel used for rivets, in which a bar is bent through 180°; if any cracks are formed, the steel is rejected. Ham.  
rivet tester. A trained workman who can detect sound or loose rivets by testing them with a hammer. Ham.  
riveting. See landscape marble. Fay.  
riveting. The process of driving in rivets. Fay.  
riveting machine. A machine used to heat a road surface by blowing a flame or hot air upon
road heater

it before remaking the surface. See also plastic heater.

road work. Eng. Repairing and maintaining roads. Fay.

roadway. A level, Maon.

road-making plant. Various type of specialized plant used solely for road construction, including such machines as plows, mixers, rollers, paving machines, gritters, and mixers. Ham.

roadman. a. A man employed on the laying and maintenance of railroad tracks underground. See also block layer. Nelson. b. A person whose duty is to keep the roads in repair. D.O.T. 1.

road material. See road metal. Fay.

road metal. Rock suitable for surfacing either dirt or macadamized roads, and for foundations of asphalt and concrete roads. Sanford.

road making method. A method of preparing aggregates for bituminous surfaces in which the aggregates and bitumen are combined on the road, using the penetration or mixed-place method. Pit and Quarry, 33rd, sec. E, p. 70.

road mix. Surface. A surface made by mixing aggregates and asphaltic binder mechanically in place on the road, spreading uniformly coated aggregate and compacting it into place by rollers. Inspection and Testing Laboratory of the California State Highway Department.

road oil. A. Oil or petroleum residue intended for cold application to road surfaces. Inst.

roadway cable. An electric cable designed to transmit power from a central generating plant or small hydroelectric plant to points of use. Fay.

road tar. A product prepared by treating coal tar from one-half to 12 tons. Ham.

roadway cable. A. Oil or petroleum residue intended for cold application to road surfaces. Insti-

tute of Petroleum, 1961. b. An asphaltic residual oil or a blend of such oil with distillates which do not volatilize readily. It is used for dust laying or in the construction of various types of highways. Shell Oil Co. c. Nonasphaltic road oil is a nonhardening petroleum distillate or residual oil used as a dust-laying oil. It has sufficiently low viscosity to be applied without preheating. API Glossary.

road roller. A live-roller-driven roller of any weight from one-half to 12 tons. Ham.

roadside pack. A pack built alongside a roadway. See also roadside pack. Nelson.

roadbed. A. A natural or artificial shore where good holding ground for anchors and some protection from heavy seas. Hy.

roadster. Low profile model of a scraper or a truck. Nichols.

roadstones. Stone used for road metal. Fay.

road tar. A product prepared by treating coal tar in such a manner that it conforms to a specification which defines its appli-
cability for some branch of road work. Ben-

nett 24, 1962.

roadway. a. An underground drivage. It may be a heading, gate, stall, crosscut, level, or tunnel and driven in coal, ore, rock or in the waste area. It may form part of long-wall or bord-and-pillar workings or an exploration heading. A roadway is not stoped or inclined. See also roadway support. Nelson. b. Aust. An underground passage, whether used for haulage purposes or for travel to and from the working. Fay.

roadway cable. An electric cable designed for use in mine roadways. It may be either rubber insulated, rubber and armor, or armored or paper insulated. Nelson.

roadway consolidation. To bind the floor dust together with water and calcium chloro-
ride flakes, or other chemical, to form a

firm plastic carpet. See also dust consolid-
a tion. Nelson.

roadway support. A timber, steel, concrete, or other eperation in a roadway to: (1) ensure safety for working (falls of ground), and (2) maintain the maximum possible roadway size by resisting the tendency of the masses of rock, soil, silters, rollers, paving, finishers, gritters, and mixers. Ham.

roaster slag. Slag resulting from the calcina-
tion, usually with oxidation, of a roasted ore. Fay.

roasting. a. Heating an ore to effect some chemical change that will facilitate smel-
ing. C.T.D. b. The operation of heating sulfide ores in air to convert to oxide. Fay.

roaster. a. A contrivance for roasting or a furnace for domestic use. See also roasting, amalgamating, or smelting ore. Fay.

roaster furnace. A furnace where the metal is heated to a high temperature and then partly fused, whereby the charge is carried over the furnace by use of a gas. Fay.

roasting and reduction process. The treatment of lead ores by roasting to form lead oxide, and subsequent reducing fusion in a shaft furnace. Fay.


roasting furnace. A furnace in which ore is roasted. Fay. b. A furnace in which finely ground ores and concentrates are roasted to eliminate sulfur; heat is pro-
vided by the burning sulfur. The essential feature is that the ore be introduced to the charge. This is done by having a shallow bed which is continually rumbled. Many types have been devised; multiple hearth is deemed sufficient to support the roof. Fay.

roasting kiln. A kiln for roasting ore. Fay.


roaster oven. An oven used for loading and unloading ore. C.T.D.

roast. A form of roasting furnace, built in compartments or stalls open in front, with flues running up and down both sides for the purpose of creating a draft. Fay.

Robbins-Messiter system

roa. a. To extract pillars previously left for support; or, in general, to take out ore or coal from a mine with a view to immediate product, and not to rebuild. Fay. b. A system of mining referred to as second mining. Hudson. b. To remove ore pillars without re-
gard to maintaining the mine workings; usually preparatory to closing a mine. Ballard. c. To get coal from where it should not normally be got. Macon. d. To remove some of the pillars for use elsewhere. Nichols.

robbed out. Cumb. Work away; said of a mine of part of a mine from which the pillars have been removed. See also hol-

los. Fay.

roasted. a. In anthracite and bituminous coal mining, a pillar or gob which breaks down and rips out with a pick, pillars of coal left to support the roof in rooms when the usual mining was being done. Also called a pillar robber. D.O.T. 1. b. An extra cathode or cathode extension that reduces the current density on what would otherwise be at a high current-density area on the work. ASM Gloss.


robbing. a. Removing timber from a mined-out stope in order to use it again elsewhere. Stoes. v. 1. p. 262. b. Extraction of the pillars of ore left to support workings dur-
ing normal mining. Fryer, J. C. Scot. Re-
ducing the size of pillars; taking as much as possible off pillars, leaving only what is deemed sufficient to support the roof. Fay.

robbing an entry. See drawing an entry. Zem.

robbing. pilar. a. The cutting away of coal left to support the roof after breasts have been worked out, often resulting in cave-


robb coal. Staff. Miners' term for a coal seam which varies considerably in thickness or in quality in a short distance. Tomkiesf, 1554.

Robertson kiln. Several types of tunnel kiln were designed by H. M. Robertson but the most commonly used is the kiln for salt-glazing; the salt is introduced via fireboxes in the side walls and the finished products are extracted in the cooling zone. Dodd.

Robey oven. A down-draft type of pottery bottle oven. See also bottle oven. Fay.

Robbiette process. A heat treatment process carried out in a substantially closed fur-

nace, in which a fluid fuel is burnt to par-
tial combustion with a gas containing 70 percent or more of oxygen to produce a non-oxidizing atmosphere. The treatment is conducted in a furnace through which the heating gas and metal are passed in opposite directions. The fuel and air are introduced at the entry of the furnace, and passed to the cooler, entry, end of the furnace and burnt to sub-

stantially complete combustion. The treatment is conducted for about seven hours in a furnace of the Robbins-Messiter system. A. F. Blaine.

Robbins-Messiter system. A. A system of mining for use in which material arrives on a con-
veyor belt and is fed to one or two wing conveyors. This part of the system moves so as to form a long ridge; reclaimed by raking the material over the ridge, then moving slowly forward and shifting mate-

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Robinson and Rodger system. A method of obtaining sound steel by fluid compression of the ingot in the mold. The molds are divided in the center, a removable packing piece being placed between the halves of the mold. The packing piece is removed when the metal has set, and the mold is placed horizontally in the press, pressure being applied to the ingot at both ends.

Robinsonite. A lead sulfantimonite, PbS·Sb2S3·FeS, black, triclinic, and as artificial crystals, used in Nevada. Speaker, 19, M.M., 1952.


Robinson and Rodger system. A method of obtaining sound steel by fluid compression of the ingot in the mold. The molds are divided in the center, a removable packing piece being placed between the halves of the mold. The packing piece is removed when the metal has set, and the mold is placed horizontally in the press, pressure being applied to the ingot at both ends.

rochelime. Eng. Lime in the lump after it is removed from the oven. Arkell.

roche alum. Synonymous with Roman alum. Fay.

rochitic. SmO3E. SmO3E3 of an impure form of spinel. Fay.

roche limestone. A limestone that is not easily soluble in water. Fay.

roche cliff. A mafic alkalic granite consisting of aegirine, quartz, albite and microcline. Speaker, 2, p. 487.

rochelle salt. A salt (potassium sodium nitrate) that is used in photography. Fay.

rochelle alkaline. The association of mineral deposits with certain rock types. If mineral producing localities are considered individually, valuable generalizations can often be made, but sweeping generalizations are unreliable. Nichols, 2. i. in the Lake Superior region, crude copper ore as it comes from the pits. The concentrate obtained is called mineral, and contains about 65 percent metallic copper. Fay.


rockasphalt. A form of thin beds and veins in coal. Arkell.


rock asphalt pavement. A wearing course of asphalt, with or without the addition of other bituminous materials. Fay.

rock associations. The association of mineral deposits with certain rock types. If mineral producing localities are considered individually, valuable generalizations can often be made, but sweeping generalizations are unreliable. Nichols, 2. i. in the Lake Superior region, crude copper ore as it comes from the pits. The concentrate obtained is called mineral, and contains about 65 percent metallic copper. Fay.


rockallite. A mafic alkalic granite consisting of aegirine, quartz, albite and microcline. Speaker, 2, p. 487.


rock-asphalt pavement. A wearing course of asphalt, with or without the addition of other bituminous materials. Fay.

rock associations. The association of mineral deposits with certain rock types. If mineral producing localities are considered individually, valuable generalizations can often be made, but sweeping generalizations are unreliable. Nichols, 2. i. in the Lake Superior region, crude copper ore as it comes from the pits. The concentrate obtained is called mineral, and contains about 65 percent metallic copper. Fay.

rock burst. The process of rock bolting consists of: (1) anchoring the bolt in the hole; (2) applying tension to the bolt to split the rock under compression parallel to the bolt; and (3) placing the bolts in such a pattern that they will properly support the rock structure. Rock may be supported by bolts in five ways: (1) suspension; (2) beam building; (3) reinforcement of arched opening requiring support; (4) reinforcement of an opening otherwise self-supporting; and (5) reinforcement of walls against shear and compressive action. Lewis, pp. 61-65. See also roof bolting.

rock bottom. A. There are also: the fundamental principle. Fay.

rockburst. A. A beam not accompanied by ganging stuff. Fay.


rock coal. A. See rough coal. Tomkies, 1946.

rock alum. A. See Roman alum. Fay.


rock asphalt pavement. A wearing course of asphalt, with or without the addition of other bituminous materials. Fay.

rock associations. The association of mineral deposits with certain rock types. If mineral producing localities are considered individually, valuable generalizations can often be made, but sweeping generalizations are unreliable. Nichols, 2. i. in the Lake Superior region, crude copper ore as it comes from the pits. The concentrate obtained is called mineral, and contains about 65 percent metallic copper. Fay.

rock crevice. A. See crack. Fay.

rock depth. A. See depth. Fay.

rock density. A. See density. Fay.

rock displacement. A. See displacement. Fay.

rock deposit. A. See deposit. Fay.

rock depositing. A. See depositing. Fay.

rock burst. The process of rock bolting consists of: (1) anchoring the bolt in the hole; (2) applying tension to the bolt to split the rock under compression parallel to the bolt; and (3) placing the bolts in such a pattern that they will properly support the rock structure. Rock may be supported by bolts in five ways: (1) suspension; (2) beam building; (3) reinforcement of arched opening requiring support; (4) reinforcement of an opening otherwise self-supporting; and (5) reinforcement of walls against shear and compressive action. Lewis, pp. 61-65. See also roof bolting.

rock bottom. A. There are also: the fundamental principle. Fay.

rockburst. A. A beam not accompanied by ganging stuff. Fay.


rock-bottom. See rocky coast. Schiefer.

rock breacher. A. A jaw breacher or gyration breaker. Nelson. b. See rock splitter; sledge. D.O.T. 1. c. Usually applied to a class of machines, of which Blake's rock breacher is a type, and in which the rock is fractured between two jaws, both movable, or one fixed and one movable. It is common to use a rock breaser instead of hand spalling to prepare ore for further crushing. Fay.

rockbreak. A. See rockbreaking. Fay.

rockbride. A. See rockbridge. Fay.

rockbridge. A. See rockbreaking. Fay.


rock-bottom. See rocky coast. Schiefer.
not likely to occur until a depth of 1,500 to 5,000 feet below the surface is reached.

Lewis, p. 37. c. The occurrence of the rupture, in a manner such that a large portion of the local accumulated strain energy is released in a short period of time. Types of failures are from splitting off of small slabs of rock from a mine wall or face to the collapse of large pillars, roofs, or other massive portions of the mine structure. The conditions which influence rockbursts in mines are:

(1) The area of the excavation; (2) the steep roof span; (3) stress pattern and concentration; (4) type of rock involved; and (5) directions of planes of weakness in the rock; and (6) the dip of the mineral deposit. The heaviest rock bursts are attributable to pillar failure. Lewis, pp. 622-623.

rock bursts. A soft yellowish rock cement. Roman cement. See also Roman rock cleavage. As originally to S,000 feet below the surface. Rockbursts influence rockbursts in mines:

(1) The area of the excavation; (2) the steep roof span; (3) stress pattern and concentration; (4) type of rock involved; and (5) directions of planes of weakness in the rock; and (6) the dip of the mineral deposit. The heaviest rock bursts are attributable to pillar failure. Lewis, pp. 622-623.

rock cleavage. As originally defined, rock cleavage is any fracture or fracture structure by virtue of which a rock has the capacity to break along certain well-defined surfaces more easily than along others. Geologists usually employ the term for secondary structures produced by metamorphism or deformation rather than for original structures, such as bedding or flow structures. Stokes and Barnes, 1955.


rock cone. A machine for drilling rock or slate. The drill point is made of tungsten, which is subject to wear in hard rock and must be replaced periodically.

rock contractor. In anthracite coal mines, a contractor who contracts for mine work, as distinguished from a miner; a certain price per ton for performance of advance. D.O.T. 1.

rock core. The cylindrical column of rock cut out by a rotary core drill. See also core drill.


rock cover. Thickness of consolidated rock above the roof of an opening (equivalent to the sum of the thickness of weathering or of other soil). A.G.I.

rock crusher. a. A machine for reducing rock or ore. b. A machine for reducing rock or ore, containing rock or ore, and containing any other material which is to be reduced or ground.

rock drill. a. A machine for drilling rock for coal mining, one who works in a mine, or who is employed in the laborious work of moving dusting machinery from room to room in low roof mines. The unit is mounted on skid bars which can be extended with rubber wheels. Hopper, blower, motor and winch are included with the unit and the hopper can be connected remotely to a blower by means of a quick-acting clamp. Combats coal dust explosions in active work areas of coal mines. Assures that a dusting machine that distributes rock dust over the interior surfaces of a coal mine by means of air from a blower or pipeline or by means of a mechanical conveyance, to prevent coal dust explosions. Also called rock dust distributor. A.S.A. C42.85, 1956. See rock dust man.

rock dust. a. The dusting of underground areas with powdered limestone to dilute the coal dust in the mine atmosphere thereby reducing explosion hazards. B.C.I. a. A very widespread control measure used in coal mines to combat explosive dusts. By machine, inert (combustible) dust is sprayed, dry or wet, on the roof, floor, and sides of the mine, thereby reducing the explosibility of settled coal dust. The U.S. Bureau of Mines requires rock dusting to within 40 feet of the face. The successful dusting of settled dust samples after rock dusting must constitute 65 percent or more by weight, with an increase of 1 percent for each 0.1 percent methane present. A dust as nearly inert, physiologically, as possible, should be employed in rock dusting; limestone (calcium carbonate) is most widely used. Hartman, p. 67.

rock dusting machine. A machine consisting essentially of a flexible hose fed by a powerful blower. It is used in forcing rock dust, usually powdered limestone, onto the face, wall, or roof of a mine, thereby making the coal dust nonexplosive. Bureau of Mines Staff.

rock dust man. In coal mining, a laborer who sprays rock dust, by hand or with a machine, throughout mine workings as a precautionary measure. Also called rock dust tender; rock dust sprayer. D.O.T. 1.

rock dust testing kit. This kit is designed to determine the explosibility of coal dust prior to rock dusting, the fineness of the rock dust
rock-dust testing kit

as it comes from the pulverizer, and the percentage of combustible matter present in rock and coal dust mixtures after rock dusting. Betts, p. 374.

rock-dust zone. A section of a mine entry the ribs, roof, and floor of which have been coated with rock dust. Rice, George S. rocker. a. A small digging bucket mounted on two rocker arms in which auriferous alluvial sands are agitated by oscillation, in water, to collect gold. A shortened term for rocker shovel; rocker arm shovel. Bureau of Mines Staff. b. Used for testing placer deposits, and for working pockets and small placer deposits. The gold-bearing gravel is placed on the screen; gold and fine sand are washed through the screen, and the stones remaining are cleaned out. A chute directs the material to the upper end of the bottom, which may be covered with small tufts of grass or hay. Waste material passes over a tailpiece at the end of the rocker. Rockers range in length from 6 to 12 feet, and in bottom width from 14 to 20 inches, with holes in the screens from ¾ to 1 inch in diameter. The slope of the rock should be adjusted to the angle of the beam of gravel in place in 10 hours if the ground is easily rocked. Lewis, pp. 380-381. c. A portable shuffling machine, by prospectors and fossickers in treating alluvial mineral deposits. Also called rocking cradle. Pryor, 3. d. A glass bottle that has a faulty, convex bottom. Dodd.

rocker arm. a. A lever resting on a curved base so that the position of its fulcrum moves as it comes from the pulverizer, and the percentage of combustible matter present in rock and coal dust mixtures after rock dusting. Betts, p. 374.


rock factor. See resistance to blasting. Frantekl.

rock failure. Up to a certain value of stress which is known as the elastic limit, the deformation is purely elastic and the mass will return to its original shape if the stress is removed. Above this stress value the material is permanently deformed; it acquires permanent set. Finally, if the stress is still further increased, the material ruptures or fails, and the rock is completely crushed, only complement is formed, but if the rock is fractured by the impact of a point or wedge there may be more residue than complement. Roberts, I. pp. 111-112.

rock flow. a. The movement of solid rock down the end of the rocker. Rocks range in length from 6 to 12 feet, and in bottom width from 14 to 20 inches, with holes in the screens from ¾ to 1 inch in diameter. The slope of the rock should be adjusted to the angle of the beam of gravel in place in 10 hours if the ground is easily rocked. Lewis, pp. 380-381. c. A portable shuffling machine, by prospectors and fossickers in treating alluvial mineral deposits. Also called rocking cradle. Pryor, 3. d. A glass bottle that has a faulty, convex bottom. Dodd.

rock gravel. a. A tongue-like body of angular boulders, resembling a small glacier, gen- eral features of which are similar to those of a cliff, steep slope, cave, or arch. Ray.

rock fracture. When rock is broken by crush- ing or impact, the resulting fragments can be divided into two components: (1) the complement, comprising a wide-size dis- tribution in accordance with a probab- ility law, and (2) the residue of large incompletely broken pieces. The relative proportions of complement and residue de- pend upon the mode of fracture. If the rock is completely crushed, only comple- ment is formed, but if the rock is fractured by the impact of a point or wedge there may be more residue than complement. Roberts, I. pp. 111-112.

rock frott. Fused lava so inflated with gas bubbles or steam bubbles as to be foamy. When hardened it becomes vesicular or scoriaceous lava. Standard, 1964.

rock fan. a. A cross section of any one of the ravines in its middle course shows a V- shaped profile, somewhat rounded at the lower angle; cutting into the base of the mountain front nearly all of the ravines broaden and their floors become distinctly convex, that imitating the form well-known in alluvial fans, though rarely match in an eroded surface of solid rock. These convex floors will be called rock fans. A.G.I. b. Forms closely re- sembling alluvial fans but developing by the process of cutting or impact on a rock cliff. A.G.I.

rock fill dam. An earth dam built of any broken rock or similar material which may be available. Ham.

rock filling. a. Waste rock, used to fill up worked-out slopes to support the roof. Weed, 1922. b. See overhand stoping, b. Pay.

rock flour. Very finely powdered rock mate- rial formed by the grinding up of rocks beneath a glacier, deposited as part of the till, and not washed or blown away and deposited elsewhere as stratified drift or loess. Also called glacial meal; rock meal. Fay. See also silt. ASCE P1826.

rock flow. a. The movement of solid rock when it is in a plastic state. Last. b. The term given to a slope failure when there is a general breakdown of the rock mass. When such a rock mass is subjected to shear stresses, it breaks down the cement or to cause crushing of the angu- larities and points of the rock blocks, the blocks work out in irregular shapes and the mass will flow down the slope, or will


rock hole. A short staple shaft driven from a lower to a higher coal seam and used for the gravity transfer of coal to the haulage road in the lower seam. See also roof hole. Woodruff, 3. p. 539.

rocket formation. A part of the lithosphere that is more or less directly (or structurally and hence, genetically) from other parts. To a considerable ex- tent, a formation is an arbitrary unit. A.G.I.

rocket forming. Refers to minerals occurring in ordinary rocks as opposed to minerals occurring only in veins, ore deposits, etc. A.G.I. Supp.

rocket-forming mineral. A mineral that is com- mon and abundant in the earth's crust; one making up large masses of rock. Au- thorities do not agree on any specific num- ber but from 20 to 30 minerals are considered as being the most important. Stokes and Varnes, 1955.

rocket foundation. A foundation which is car- ried down to the solid rock. The rock is cut and dressed level, loose and decayed portions are removed and holes filled with concrete. The crushing stresses on the rock can be ascertained by tests and the bearing pressure should not exceed one- eighth of the value. Nelson.

rock fracture. When rock is broken by crush- ing or impact, the resulting fragments can be divided into two components: (1) the complement, comprising a wide-size dis- tribution in accordance with a probab- ility law, and (2) the residue of large incompletely broken pieces. The relative proportions of complement and residue de- pend upon the mode of fracture. If the rock is completely crushed, only comple- ment is formed, but if the rock is fractured by the impact of a point or wedge there may be more residue than complement. Roberts, I. pp. 111-112.

rock frost. Fused lava so inflated with gas bubbles or steam bubbles as to be foamy. When hardened it becomes vesicular or scoriaceous lava. Standard, 1964.

rock gravel. a. A tongue-like body of angular boulders, resembling a small glacier, gen- eral features of which are similar to those of a cliff, steep slope, cave, or arch. Ray.


rock gypsum. Massive, coarse-grained crystalline to fine-grained gypsum. Webster 3d.


rock hardness. The resistance of rocks to the intrusion of a foreign body. Stocts, v. 1, p. 103.

rockhead. a. The boundary between super- facial deposits (or high alludes) and the under- lying solid rock. B.S. 3818, 1964, sec. 5. b. Another name for bedrock. Nelson. c. Section of a bedrock or bedrock equivalent unit strata next to the surface. Fay. d. Chesa. The uppermost stratum of the rock salt beds. Wilkerson.


rock hole. A short staple shaft driven from a lower to a higher coal seam and used for the gravity transfer of coal to the haulage road in the lower seam. See also roof hole. Woodruff, 3. p. 539.

rock house. In the Lake Superior region, the building (usually the one over the shaft or the elevator) in which selecting rock from the mine is dumped from the ore skip (or bucket) and is screened, crushed, and stockpiled in a bin, ready for shipment to the mill. Weed, 1922.

rocking. a. The process of separating ores by washing an inclined tray. See also rocker. Fay.

rocking bob. See bob. Fay.

rocking cradle. Short sluice, hand-oscillated; a machine used with scraper loaders equipped for repetitive motion in hand boring. See also Dodd.


rockmen. The slate-getters in slate mines, in the Lake Superior region, a. During the formation of a washout, the vegetable material may slip towards the erosion channel and the figures so formed are filled with sandy sediment giving rise to wall-like masses of rock or rock riders within the seam. Nelson. b. A mass of rock, overlying or enclosed in a (coal) seam. Usually somewhat continuous or repetitious in occurrence and parallel with the seam. Bureau of Mines Staff.

rock rolla. Inverted ridges of rock, usually overlying or enclosing a coal seam, especially in the Lake Superior region. D.O.T. 1.

rock soap. A pitch-black or dull black variety of garnet. Fay.

rock silk. A silky variety of asbestos. Fay.

rock salt. Common salt, NaCl, occurring naturally. Mohs' hardness 2.5; specific gravity 2.1 to 2.5. Some 35 percent of the annual output is made into soda-ash, soap, glass and chemicals. Other important uses are paper pulp, rayon, bauxite, hydrochloric acid, chlorination, ceramics, fertilizers, and tanning industries. See also halite. Pryor, 3.

rock seated. A blade projecting down from the roof. Schieferdecker. A.G.I.

rock pressure. a. In petroleum geology, the pressure under which fluids, such as water, oil, gas, and underground water technology, the more appropriate term reservoir pressure. Stokes and Varnes, 1955. b. The compressive stress within the body of underground geologic material. Stokes and Varnes, 1955. The pressure exerted by surrounding solids upon the supports of underground openings, including the roof and walls of the overlying material, residual unrelieved stresses, and pressures associated with swelling clays. Stokes and Varnes, 1955. c. Synonym for ground pressure. Long.

rock pressure burst. A sudden and violent failure of rock masses under stresses exceeding the strength of the rock. The classification and nomenclature of these occurrences are not clear and are based largely on effects and not on the basic causative factor. See also pressure bump; rock bump; rock burst. Nelson. rock pulverizer. A rock breaker; stone crusher. Standard, 1964.

rock quarzite. The clastic rock consisting of quartz grains, as Brazilian pebbles. Called also quartz rock. Standard, 1964.


rock riders. a. Durin the formation of a washout, the vegetable material may slip towards the erosion channel and the figures so formed are filled with sandy sediton giving rise to wall-like masses of rock or rock riders within the seam. Nelson. b. A mass of rock, overlying or enclosed in a (coal) seam. Usually somewhat continuous or repetitious in occurrence and parallel with the seam. Bureau of Mines Staff.

rock rill. See also sllovel loader. Nelson.

rock rolla. Small mass of rock overlying or enclosing a (coal) seam. Usually somewhat continuous or repetitious in occurrence and parallel with the seam. Bureau of Mines Staff.


rock ruby. A fine red variety of garnet. Webster 2d.

rock salt. Common salt, NaCl, occurring naturally. Mohs' hardness 2.5; specific gravity 2.1 to 2.5. Some 35 percent of the annual output is made into soda-ash, soap, glass and chemicals. Other important uses are paper pulp, rayon, bauxite, hydrochloric acid, chlorination, ceramics, fertilizers, and tanning industries. See also halite. Pryor, 3.


rock sharp. Said of rock that is not crushed or broken by the miner during handling. See rock loader. D.O.T. 1. See also box helper. D.O.T. 1.

rocky. See slate. E. commune.

rocky. See also sllovel loader. Nelson.

rock salt. A silvery variety of asbestos. Fay.

rockslide. The downward and usually rapid movement of newly detached segments of the bedrock sliding on bedding, joint, or fault surfaces or any other plane of separation. Also, the rock mass that has attained its present condition by such a movement. Stokes and Varnes, 1955.

rock salt. A mass of rock, overlying or enclosed in a (coal) seam. Usually somewhat continuous or repetitious in occurrence and parallel with the seam. Bureau of Mines Staff.

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rock salt. A mass of rock, overlying or enclosed in a (coal) seam. Usually somewhat continuous or repetitious in occurrence and parallel with the seam. Bureau of Mines Staff.
rock splitter. In the stonework industry, one who splits large blocks of building granite, marble, and sandstone into slabs or smaller blocks, by drilling holes into the stone and then driving wedges into them until the stone breaks along the line of drilled holes. Also called rock breaker; rock driller.


rock surface. Means an exposed surface of a rock before the excavation of the mine openings. See also free field stress.

rock stress. The problem of determining the stresses which exist in the earth's crust has long been of interest to engineers and geologists. Many mining problems are directly concerned with stresses which may cause collapses or openings to collapse. Two phases of occurrence of rock stresses are important: (1) the stresses existing in the rock before the excavation of the mine openings, that is, the free field stress, and (2) the indirect stresses caused by the mine openings. See also free field stress. Lewis, p. 611.

rock temperature. The rate of increase of temperature with depth is highly variable over the earth, but averages 1° F per 100 feet. Long. b. The temperature of the rock in a mine can be measured by means of a maximum recording thermometer within a metal tube of proper diameter for placing in a drill hole. The tube is sealed into the borehole for 3 or 4 hours until the thermometer has reached the temperature of the rock. The tube is then removed and the thermometer reading noted. Another method is to fill an insulated tube with water only. After the tube is removed from the drill hole, the temperature of the water is quickly read with an accurate thermometer of small size.

rock-water. B.S. 3618, 1964, sec. 6. b.


rock temperature. a. The formational temperature at depth. The rate of increase of temperature with depth is highly variable over the earth, but averages 1° F per 100 feet. Long. b. The temperature of the rock in a mine can be measured by means of a maximum recording thermometer within a metal tube of proper diameter for placing in a drill hole. The tube is sealed into the borehole for 3 or 4 hours until the thermometer has reached the temperature of the rock. The tube is then removed and the thermometer reading noted. Another method is to fill an insulated tube with water only. After the tube is removed from the drill hole, the temperature of the water is quickly read with an accurate thermometer of small size.

rock tram engineer. In anthracite coal mining, one who operates an aerial tram for handling material, slate, and refuse from surface of mine to dump. D.O.T. 1.

rock tunnel. A tunnel, drift, or covecut driven through rock usually consisting of one coupled with another; also through barren rock in metal mines. Fay.

rock turquose. A matrix of turquoise with small grains of turquoise embedded in it. Fay.

rock type. The megascopically recognizable individual rock type, such as gneiss, sandstone, siltstone, shale, slate, or schist. Rock type is subdivided into characteristic rock units of rock, such as andesite, clastic, durain, fusain; being names explicitly applied to visible portions of the bituminous rock and applicable only to hand specimens. A.G.I.


rock weight. a. Material making up a talus or scree. Also see mass, or bedsrock produced by weathering. Mather.

rock weight. S. Afr. One ton of rock in place equals approximately 2200 lbs. Horizontally, therefore, the weight of an ore reserve covering a stipping of width of 3 feet is 12,000 tons at 100 percent payability. In case the reef dips downward, the resulting quantity must be divided by the cosine of the angle of dip. Beerman.

Rockwell. A unit of hardness as determined by a Rockwell hardness tester. See also Rockwell hardness. Compare Rockwell hardness. Long.

Rockwell hardness. A measurement of metal hardness which interprets resistance to penetration by indentation. Bureau of Mines Staff.


Rockwell test. See Rockwell machine. Long.


Rockwood. a. A brown, compact variety of asbestos, resembling fossil wood. Standard, 1964, Synonym for mountain wood. Fay. b. A locality in Tennessee where sedimentary iron ore is found. There, therefore, a name for a type of ore. A.G.I.

rock wool. A fibrous insulating material produced by blowing steam or hot air through a molden mass of rock, such as argillaceous limestone. According to the U. S. Bureau of Standards, rock wool is the most efficient fireproof, chemically stable insulator known today. Compare mineral wool, slag wool, and glass wool. C.C.D., 3d, 1942, p. 442.

rocky coast; rock-bound coast. A coast consisting of rocks. Schieferdecker.

rocky Mountain ruby. Garnet, Shipley.

rod. a. A bar, the end of which is for the purpose of measuring the average velocity of flow of a stream or river. Ham.

rod coupling. a. Name for a double-pin thread coupling used to connect two drill rods together. Long. b. A clamp or other device for uniting the rods that carry the tools used in boring artesian wells, oil wells, etc. Fay.

rod cover; rod sleeve. A cylindrical fireclay shape having an axial hole and terminating in a spigot at one end and a socket at the other. The refractory sleeves are used to protect the metal stopper-rod in a steel-casting ladle. (In the United Kingdom, six sizes of rod cover are standardized in B.S. 2496; in the United States, three qualities are specified in ASTM-C435.


rod drop. The distance of slump or sag in a long string of rods when released from the drill chuck. Long.


rodman. a. One who uses or carries a surveyor's leveling rod; elevator plug. See also elevator, i; elevator plug. Long.

rod float. A wooden rod with a weight at its lower end and designed to float vertically with most of its length submerged, for the purpose of measuring the average velocity of flow of a stream or river. Ham.

rod friction. a. The drag created in the flow of the drilling liquid which acts to oppose the horizontal component of the force on the rod. LeTourneau, p. 340.

rod gun. Synonym for rod puller. Long.

rod guide. a. An appliance attached to the drilling rod in oil wells that serves to prevent the rod from oscillating or knocking against the sides of the borehole. Fay. b. A swelled coupling, or other mechanical device for centering the drill rod string in a borehole. Long.


rod iron. A coarse-grained, gabrolike rock associated with dunite, containing diassilicate and gossanosite. Altered varieties containing chrome and olivine are recognized, Holmes, 1928.

rod iron. A coarse-grained, gabrolike rock associated with dunite, containing diassilicate and gossanosite. Altered varieties containing chrome and olivine are recognized. Holmes, 1928.

rodman. a. One who uses or carries a surveyor's leveling rod. Also called rodder. Long.
rodman


rod mill. A mill for rolling rod. ASM Gloss. b. A mill for grinding, somewhat similar to a ball mill, but employing long steel rods instead of balls to effect the grinding. ASM Gloss.

rod millman. One who grinds clinker, phosphate rock, ore or coal in a revolving cylinder partially filled with round steel rods; also, he tests a product for fineness by observing how much material is left on sieve of determined mesh, and regulates amount of material entering the mill accordingly. D.O.T. 1.

rodlay. Eng. A rude platform near the shaft's mouth for a night fire. Fay.

rodometer. An instrument devised by Prof. Cady of Wesleyan University to find the hand and pitch, etc., axes of quartz by measuring the frequency of the piezoelectric axes of quartz by Cady of Wesleyan University to find the relative biological effectiveness of radiation dose in biological matter. It is designed to connect one size rod to another of smaller size. From Franklin, A.G.I. 3618, 1963, sec. 3. Used in separating minerals by their specific gravity, and in microchemical determination of alkaloids. C.C.D. 64, 1961.

rod puller. Various mechanisms, essentially a rod-string tool. Used to remove a lost drill rod or casing from a borehole in underground workings where a small drill with- or without a hoist is used. Long.

rod pulling. The removal of the drilling rods from a borehole. Long.

rod puller. A pin-to-box sub used to connect one size rod in a string to a larger or smaller size. Long.

rod reducing bushing. A pin-to-box sub used to connect one size rod to a larger or smaller size. See also sub. Long.

rods. a. Eng. Vertical or inclined timbers for holding in the roof or floor of a mine. b. Power transmission lines. Also, the number of lengths of drill rod (two or more standard 10-foot lengths coupled together and handled and stacked as unit lengths) needed to reach the bottom of the borehole. Long.

rod reaming shell. A reaming shell designed to be coupled directly to a drill rod. See also rod bit. Long.

rod reducing bushing. A pin-to-box sub used to connect one size rod in a string to a larger or smaller size. Long.

rod reaming shell. A reaming shell designed to be coupled directly to a drill rod. See also rod bit. Long.

rod vibration. The eccentric and oscillatory movements of the drill string while being rotated in a borehole. Compare rod slap. Long.

rod wax. A light yellow, pasty mass consisting of an emulsion of high-balling oils with solid hydrocarbons; it collects in considerable quantities around the rods and casing in some of the Pennsylvania wells. Fay.

rod whip. See rod slap; rod vibration. Long.

rod wig. An annular rubber disk with sticking mud from rods as they are pulled from the borehole. Long.

rodlight. Whips, basic hydride silicic and sulfate of lead and calcium, 2PH3SiO3(Ca,Mn,Sn)4+. Compact, fibrous, Orthorhombic (?). Analagous to bauxite. From Franklin, N.J.; Langhan, Sweden. English.

roemerite; roemerite. A rust brown to yellow hydrated sulfate of ferrous and ferric iron, Fe2O3(sO4)x14H2O; hardness 3 to 3.5; specific gravity 2.52; Dana 7d, 8, 89, 520-521.

roentgen. The quantity of X-ray or gamma-ray radiation, such that the associated corpuscular emission of primary 0.0197923 grams of an air producer, in air, ions carrying one electrostatic unit of charge of electricity of either sign. ASM Gloss.

roentgen equivalent mass. A unit of absorbed radiation dose in biological matter. It is equal to the absorbed dose in rods multiplied by the relative biological effectiveness of the radiation. Abbreviation, rem. 159L.

roentgen equivalent physical. An obsolete unit of radiation dosage, superseded by the rad. Abbreviation, rep. 159L.

roentgenogram; radiograph. A photograph made with X-rays. Webster 3d.

roentgenography. See roentgenogram. Webster 3d.

roening. See roentgenogram. Webster 3d.

roeding. See roentgenogram. Webster 3d.

robbing. See roentgenogram. Webster 3d.

rolling. A machine which makes use of an airstream at a pressure of 4 atmospheres for atomizing molten pig iron into minute particles. The molten metal is forced into an airstream formed by an annular slit in a steel cyclone is atomized, the particles falling into a water bath and subsequently dried. Fay.

roheisenzunder process. An aqueous solution of mercuric-barium iodide; clear, yellow liquid; very refractive; and specific gravity, 3.5. Used in separating minerals by their specific gravity, and in microchemical determination of alkaloids. C.C.D. 64, 1961.


rollback group. A type of meteorites belonging to the pallasites. See also pallasite. Hess.


rollo process. Trade name; a process for the production of a refractory coating, on metal or on ceramic, by atomizing directly from the fused end of a rod of the coating material, for example, Al2O3 or ZrO2; the molten particles are blown against the cool surface that is to be coated. Dodd.

rolanda cement. Tradename; a high-alumina cement. See also high-alumina cement. Dodd.

roll. a. A local thickening of roof or floor strata, causing thinning of a coal seam. B.S. 360, 1962, sec. 2. b. Variously used to describe minor deformations or dislocations of a coal seam, for example, faults with small displacement to small monoclinic folds, to wolds or ridges projecting from either the roof or floor into the coal, and to fillings of stream channels or low area cutting downward into the coal. A.G.I. c. A lenticular mass of shale, usually covered by a thin layer of coal, extending downward from the overlying strata into a coalbed and sometimes almost completely replacing the coal. A.G.I. d. The appearance of other types of mineral deposits in places where the bed or vein thickens or thins. Stokes & Werner, 1955, ch. 6, Dodd.

roll types. A variety of rake. See rake 3 and 4. Fay.
roll

wheel of a roller. Nichols. k. A cylinder, with a shaft for mounting it so that it may rotate, used to support or guide a portion of a belt or chain. If the shaft is designed to be mounted so that it will not rotate, a pole includes the bearings that permit the rotation of the cylinder on the shaft. NEMA MB-1-1956. l. A cylindrical body set in bearings (usually fixed) and used singly or in pairs or sets for crushing or squeezing. See also roll. Webster 3d. Fay. m. One of two cylinders or grooved rollers between which material is drawn, followed by a series of rolls of a rolling mill. Fay. n. A heavy metal cylinder for flattening mottled plate glass into sheet glass. rollback. See crawling. Bryant. roll bending. Curving sheets, bars, and sections by means of rolls. See also bending rolls. ASM Gloss. roll compacting. The progressive compacting of metal powders by the use of a rolling mill. ASTM B 249-65. roll crusher. A type of secondary or reduction crushe. Dow. n. A unit of a heavy frame on which two rolls are mounted. These rolls are driven so that they rotate toward one another in the manner of the rollers in a clothes wringer. Each roll shaft has its own pulley and is driven independently, but both rolls should have the same peripheral speed. Rock fed in from above is nipped between the moving rolls, crushed, and discharged at the bottom. Newton. p. 61. See also double-roll crusher; single-roll crusher. rolled asphalt. A road surface consisting of asphalt, mineral aggregate, and sand. A very hot and rolled until it is quite solid. See also mastic asphalt. Ham. rolled compact. A compaction made by passing metal powders continuously through a rolling mill, so as to form relatively long thin pieces of compact material. ASTM B 249-65. rolled edge. The edge of a plate or saucer is said to be rolled if its diameter is greater than the general thickness of the rim of the ware. Dodd. rolled glass. a. Flat glass that has been rolled so that one surface is patterned or textured. Compare roughcast. b. Dodd. b. A term also applied to optical glass that has been rolled into plates at the time of manufacture. See also transfer glass. Compare transfer glass. Dodd. rolled gold. The same as gold filled except that the proportion of gold alloy to the weight of the entire article may be less than 1/20th. Fineness of the gold alloy may not be less than 10K. See also gold-filled. ASM Gloss. Fay. rolled metal. Refers to metal such as silver or stainless steel which has been clad with a layer of gold or other metal by cold rolling. The thickness of the coat. BuMines Bull. 630, 1965, p. 716. rolled加班. Pubbles which have been worn by transportation in water to a comparatively smooth and round shape. Skiplay. rolled plate. A thin plate of gold spread upon a heavy metal by cold rolling. The metals in the bar and then rolling the whole out into plate, forming a thinner plate of that of the ware bar as gold-rolled. Also called rolled gold. Fay. rolled-steel joint. An I-beam made from a single piece of steel passed through a hot rolling mill. Ham. rolled steel sections. Steel sections which have been produced by hot rolling at the steel-works, for example, rolled steel joists, channels, angle sections, etc. See also steel arches. NELSON, 1956. rolled cutter. a. A broad pulley or wheel fixed to the floor, roof or sides of roadways to prevent a haullage rope running against the ground which would cause excessive friction and wear of rails and sleepers. The cutter consists of a high carbon quality tubular steel barrel with a pressed steel or malleable iron frame with end castings which contain a reservoir of oil. Nelson. b. A heavy vehicle used for compacting soil, earth fill, and top layers of spoil dumbs to increase the density and bearing capacity of the material. See also compaction. Nelson. c. A round part free to revolve about its center and roll on its outer surface. The face may be straight, tapered, crowned, concave, or flanged. ASA MH4.1-1958. d. A component part of a roller chain in which it may serve only to reduce frictional losses occurring in the chain mechanisms. Rollers may also serve as the rolling support for the chain and the load being conveyed. ASA MH4.1-1958. e. An indefinite term, sometimes considered to be one of a series of long-created, large waves which sweep upon the coast, as after a storm; also, a long, high swell. Schiele-decker. f. A blown cylinder for making windows and the nearly hand-process. ASTM C162-66. g. A small, soft rubber roller used for applying transfers and decalcomanias to enamelware. Enam. Dict. roller-butt machine. A machine for making, from stiff-plastic clay, bats for a final pressing process in the method of roofing-tile manufacture. Dodd. roller bearings. Hard steel cylinders in bearings which have very low frictional resistance. Flower. roller-bit. a. A rotary boring bit consisting of two to four-cone-shaped, toothed rollers which are the cutting portion of drills or drill rods. They are used in hard rock in oil well boring and other deep holes down to 15,000 ft. Although their penetration speed is somewhat slow, roller bits last longer which is a very important factor in deep drilling. See also drag bit. Nelson. b. A type of rock-cutting bit used for drilling We-inch-size or larger holes. See also drag bit. Ham. c. A type of rock-cutting bit used for drilling We-inch-size or larger holes. See also drag bit. Nelson. d. Also called roller bit. Long. roller-bit drilling. See crushing drilling. roller chain. a. Generally, any spool-driven chain machine used of links connected by hinge pins and sleeves. Nichols. b. Specifically, a chain whose hinge pins are protected by an outer sleeve or roller that is free to turn. Nichols. roller cone bit. a. Synonym for roller bit. Long. b. A cone-shaped type of roller bit whose cutter cones arranged to cut an annular ring leaving an uncut section in the center as core. Long. roller conveyor. A series of rolls supported in a frame over which objects are advanced manually, by gravity or by power. ASA MH4.1-1958. roller-cutter bit. a. A rotary bit fitted with two or more hardened steel or tungsten-carbide-tipped rollers of cylindrical or conical form. Variously known as two-cone bit, three-cone bit, four-cutter bit, etc. B.S. 3168., 1965, see 3. b. Synonym for roller bit. Long. roller drain. See roller mark; roller scraper. Surface blemish on porcelain or china ware caused by contact with the rollers. Dodd. roller mill. See Chinese mill. Pryor, 3. roller repairman. See wheelman. D.O.T. 1. roller rock bit. a. Rotary bit fitted with two or more hardended steel or tungsten-carbide-tipped rollers of cylindrical or conical form. Variously known as two-cone bit, three-cone bit, four-cutter bit, etc. B.S. 3168., 1965, see 3. b. Synonym for roller bit. Long. roller-scraper. See roller mark. Dodd. roller screen. See revolving screen. roller stamping. A process by which, for example, the percentage of weight and the size of powders: w = a/d. exp( b/d ), where w is the weight percent of all material having diameter less than d, a and b are constants. Other equations were deduced relating to specific surface and to the number of particles per surface. E. N. B. 17-24. Such kilns are rare. Hill. roller alat conveyor. A flat conveyor employing rollers for slats. ASA MH4.1-1958. roller spiral. An arrangement of curved sections of roller conveyor arranged helically and over which objects are lowered by gravity. ASA MH4.1-1958. roller's plasticity test. A method for the assessment of plasticity on the basis of the stress/defomation relationship when clay cylinders are loaded. Dodd. roller stamping die. An engraved roller used for impressing designs and markings on surfaces. ASM Gloss. roller straightening. A process for straightening rod, tubing, or extruded shapes which uses rollers to pass the material through an elutriator to correct minor deviations in the sections as the material passes through. The procedure is essentially a series of bending operations. Light Metal Age, v. 16, No. 9, October 1958, pp. 17-24.
rolley, N. of Eng. A kind of truck running upon wheels for carrying tubs or boxes, and drawn by horses along underground roadways. Fay.

roller man. See incline repairman. D.O.T. I.

rollway, N. of Eng. The underground road on which rollers are conveyed. A gangway. Fay.

rollerway man. Eng. A man who attends the rolleyway and keeps it in order. He also supervises the movement of cars at shaft windings. Fay.

rollerway pillar. Eng. Pillars usually of larger size than the ordinary ones, formed to support a haulage road. SMRB, Paper No. 61.

roll feeder. a. A smooth, fluted, or cleated roller or drum which rotates to deliver packages, objects or bulk materials. ASM Gloss.

roll forging. Forging with rotating dies that are not full round, the desired shape, either straight or tapered, being produced by a groove in the dies. ASM Gloss.

roll forming. Metal forming by the use of power-driven rolls whose contact determines the shape of the product. Sometimes used to denote power spinning. See also spinning. ASM Gloss.

roll grinding machine. A special type of cylindrical machine for grinding cylindrical rolls to be used in rolling metals, paper, or rubber. A.C.S.G., 1963.

roll hammerer. One who punches designs on polished steel rolls used in fabricating decorative sheet glass. D.O.T. Sujé.

rolling. Reducing the cross-sectional area of metal stock or otherwise shaping metal pieces of rolling rolls. ASM Gloss. See also roll train. Fay.

rolling and quartering. A sampling method in which the sample is formed into a disc or a regulate flat heap by placing it upon a rubber or other smooth sheet and, by lifting the corners of this sheet in proper rotation, reducing the sample to one fourth of its original height. Fay.

rolling and quartering. A sampling method in which the sample is formed into a disc or a regulate flat heap by placing it upon a rubber or other smooth sheet and, by lifting the corners of this sheet in proper rotation, reducing the sample to one fourth of its original height. Fay.

rolling chain conveyor. One or more endless roller chains on which packages or objects are carried. ASA MH4-1-1958. Fay.

rolling cradle. A rod slide equipped with rollers that contact the rod and are adjustable for the position of the rod being pulled or lowered into an angle borehole. Long.

rolling cutter bit. Synonym for roller bit.

rolling friction. a. The resistance offered by a hub wheel as it rolls over the steel rails, or the resistance offered by a shaft turning in the ball or roller bearing. Morris and Cooper, p. 189. b. The resistance developed when a spherical body is rolled over a plane surface. Rollen and ball bearings are used to reduce rolling friction. Crispin.

rolling, or land surface much varied by many hills and valleys. Fay.

rolling incline-bending. Small scale cross-bedding related to ripple-mark migration; asymmetrical with more pronounced lee-side accumulation than in unilateral rolling strata. See also unilateral rolling strata. Pettijohn.

rolling mills. a. An establishment in which metal is made into sheets, bars, rails, or rods by working it between pairs of rolls. Standard, 1964. b. A pair or set of rolls between which metal is reduced in thickness or formed into beams, rails, etc.; a roll train. Standard, 1964. c. Machines used to produce certain desired shapes as the metal passes between rotating rolls mounted in a framework comprising a basic unit called a stand. Cylindrical rolls produce flat shapes; grooved rolls produce round, square, and structural shapes. Among rolling mills may be listed the billet mill, blooming mill, breakdown mill, plate mill, sheet mill, slabbing mill, strip mill, and tenner mill. Pettijohn.

rolling mills. Used to decrease the cross-sectional area of metal stock and produce certain desired shapes as the metal passes between rotating rolls mounted in a framework comprising a basic unit called a stand. Cylindrical rolls produce flat shapes; grooved rolls produce round, square, and structural shapes. Among rolling mills may be listed the billet mill, blooming mill, breakdown mill, plate mill, sheet mill, slabbing mill, strip mill, and tenner mill. Pettijohn.

rolling of glass. A term sometimes used instead of crawling. Dodd.


rolling resistance. a. The tractive resistance caused by friction between the rails and wheels, and forms the major resistance on level tracks. See also tractive force. Nelson. b. The sum of the external forces opposing motion over level terrain. Carson, p. 72.

rolling strata. A little-used term for ripple cross-lamination. Also called wavy bedding. Pettijohn.

rolling-up curtains weir. A type of frame weir, the frame which is upright, being rolled up from the bottom. Ham.

roll jaw crusber. A crusber of the same general type as the Blake or Dodge, but the moving jaw being a pair of flat plates a fixed distance apart. Liddell 2d, p. 357.


roll mill. In ore dressing, one who tends rolls that are used to crush ore, which has already been broken into small pieces in a crusber, to a fine size preparatory to the extraction of the valuable minerals. D.O.T. 1.

roll-mass. A series of similar marks appearing in line in direction of flow made by a rolling object. Rolling is commonly combined with the action of the mass. Nelson.

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Roman ocher


Roman pearl. A sphere of opalescent glass with interior coated with essence of orient and gold. Shipley.

Roman tile. A roofing tile that is channelwise and placed ridgewise over the junction of adjacent channels. Dodd.

Roman vitriol. Same as blue vitriol. Fay.

root holler. In bituminous coal mining, one who reinforces roofs of mine haulageways, and knocks or pries down any loose strata. Nelson.


root movement vitriol. A finely fissile, compact, homogeneous argillite or clay slate. Fay.

root pressure. The pressure which the overlying rocks exert on the support of the mine workings, also ground pressure. Stoss, v, 1. p. 137.

root rock. The roof forming the ceiling of a cave passage, chamber, etc. A.G.I.

root salt. The rock salt beds. Fay. b. The wedging and straining, and knocks or pries down any loose strata. Nelson.


root stow. Scot. The stone immediately above a coal seam. See also roof, a. Fay.


root stringer vitriol. A layer of firedamp under the roof of a mine workings. See also ground pressure. B.S. 3618, 1963, sec. 1.

root stones. Scot. The stone immediately above a coal seam. See also roof, a. Fay.

root support. A laborer who inspects and estimates the rock strata of the roof of a mine. Nelson.

root test. Top testing. In the simplest testing of roof, the roof is considered as a single object. The loose roof will give off a dull or hollow sound as compared with solid top. Nelson.

root-testing tool. Usually a wooden pole with a metallic ball at the upper end. Groce.

root trimmer. See roof cot. In metal mining and in the quarry industry, a laborer who inspects roofs and walls of working places in underground mines and quarries; a man who knocks or pries down any loose strata, lumps or blocks of stone or rock with a bar to prevent dangers of their falling and

Also called raise driller; stopenman; timberman. D.O.T. Supp.

roof bolting. A system of roof support in mine workings. Bolts from 3 to 8 feet long are drilled upward in the roof and bolts of 1 inch diameter or more are inserted into the holes about 2 feet above the top by a split cone or similar device. The bolt end protrudes below roof level and is used to support roof bars, girders, or simple steel plates pulled tight up to the roof by a nut on the bolt head. The bolts are put up to a definite pattern, which is to clamp together the several roof beds to form a composite beam with a strength considerably greater than the sum of the individual beams acting separately. See also slot- and wedge bolt; rock bolting. Nelson.

roof bolts. A. L. Fisher and the slabs of roof are driven into walls or roof of underground excavations to strengthen the pinning of rock strata. They are inserted in a drilled hole and expanded by means of a wedge which opens a sleeve surrounding it (the sleeve bolt), or which slides in a half-sleeve (the sliding wedge bolt). Use of roof bolts eliminates the need for timbering. Betti, p. 376. Same as rock bolt.


roof control; strata control. The scientific study of rock behavior when undermined by mining operations and the most effective measures to control roof movements. The subject is comprehensive and includes the systematic measurement of the movement of strata and the forces and stresses involved. An attempt is made to correlate the data with rock types and nature of excavation. The control of the roof control means higher productivity and safer mining operations. See also rock mechanics. Nelson.

roof cut. A machine cut made in the roof immediately above a coal seam. A cut if sometimes made in a soft band of dirt over the coal which gives increased height in thin seams. This roof is made with a turreted coal cutter. Nelson.

roof cutting; gas cutting. It is a common occurrence to hear miners talk of gas cutting the top and causing it to weaken; however, this condition is seldom encountered. There are some seams which gas does cut. The roof, generally where top coal is left in gasy seams. The most common cause of roof cutting is its exposure to air. Gunite or painting of the top helps a considerable amount. B.S. 3618, 1963, sec. 1.

roof drill. Various hydraulically operated expandable or sliding sleeve type bolts. Two men PIA fasten up to 200 bolts per shift. Units are available in both standard and special control means varying requirements in different mines. Betti, p. 374.


roof-trimming tool. Roof trimming tool that is tenacious, and when allowed to fall breaks down in large blocks or frames of stone. Freil.

roof trimming. A small, steeply inclined stone drivage from top of an underground passage. Fay.

roof grout. Same as blue vitriol. Fay.

roofing granule. A. A.G.I. roofing granule; roofing grit. A roofing granule that is small, steeply inclined stone drivage from a lower to an upper coal seam or for exploration in disturbed ground. Nelson.

roofing slate. A roofing granule that is small, steeply inclined stone drivage from a lower to an upper coal seam or for exploration in disturbed ground. Nelson.

roof pendulum. A roofing granule that is small, steeply inclined stone drivage from a lower to an upper coal seam or for exploration in disturbed ground. Nelson.

roof pendant. Older rocks projecting down together the several roof beds to form a composite beam. Nelson.

roof trimmer

injuring workmen. Also called bar loosener; barman, roof loosener; roofman.

roof-up. See roof hole. Nelson.

roof work. A term applied to a vein worked roof-up. See roofing hole. Nelson.

room. A place abutting an entry or airway where coal has been mined and extending from the entry or airway to a face. T.C. 801, 1960, p. 1. b. Space driven off an entry in which coal is produced. Rooms may vary in width from 14 to 45 feet and in depth from 30 to 300 feet, depending on depth of overburden, underground conditions, and seam thickness. B.C.I. c. A working places (rooms) to determine responding to stope in a steep vein. A chamber. Compare stope. Fay, d. A heading, or short room, Fay. e. A weight of 7 tons of coal, or 5½ chaldrons by measure. Fay.

room-and-pillar. A system of mining in which the distinguishing feature is the winning of 50 percent or more of the coal or ore in the first working. The coal or ore is mined in rooms separated by narrow ribs or pillars. The coal or ore in the pillar is won by subsequent working, which may be likened to top slicing, in which the room is caved in successive blocks. The flat working in rooms is an advancing, and the winning of the rib (pillar) a retreat-working method. The rooms are driven parallel with one another, and the room faces may be extended parallel, at right angles, or at an angle to the dip. This method is applicable to flat deposits, such as coal, iron ore, lead, zinc, etc., that occur in bedded deposits. Many resemble the County of Durham system; double-entry room-and-pillar mining; double-room system; double-stall mining; single-stall; pillar-and-stall; post-and-stall; room-and-stoop; single-entry room-and-pillar mining; single-stall working; square work; stall-and-breast; and triple-entry room-and-pillar mining. Fay.

room-and-pillar mining. In coal and metal mining, supporting the roof by pillars left at regular intervals. Lewis, p. 424.

room-and-stall. Scot. A system of working coal with long narrow pillars; less usually a system of working with extra large pillars in narrow rooms. Similar to pillar-and-stall. Fay.


room boss. In bituminous coal mining, a foreman who inspects the working face in the room entry. Chambers and narrow rooms. Similar to pillar-and-stall. Fay.

room entry. a. Name applied to pairs of headings that are especially provided for allowing of ripping dirt when road ripping or dinting is necessary. These headings are driven from which pillars are formed to the ribs, and then burned on the retreat. Mason, v. 1, p. 109. b. Any entry or set of entries from which rooms are turned. A panel entry. U.S. Bituminous Federal Mine Safety Code—Bituminous Coal and Lignite Mines, Pt. I Underground Mines, October 8, 1961.

room neck. A short passageway, from the mine entry, to the room in which the miners work. Fay.


Rootes blower. Low-pressure rotary air compressor. Nichols, loc. cit. A device used to displace the air from the ordinary tuyeres, and caused the increasing amount of air in the blast to be expelled from the tuyeres. Nichols.

root crack. A crack in either the weld or the heat-affected zone at the root of a weld. A.G.I.

root deposit. A ledge or vein from which alluvial tin may have been derived. Fay.

root face. The unbeveled portion of the groove face of a joint. A.G.S. Glass.

root hole. A very heavy hook designed to catch and tear out big roots when it is dragged along the ground. Nichols.

rootlet bed. See seat earth, a. B. S. 3618, 1964, sect. 5.

root-mean-square value. The root-mean-square value of an alternating current or voltage. It is the square root of the mean value of a series of instantaneous values taken over a complete cycle. When an alternating current or voltage is specified, it is almost invariably the root-mean-square value that is used. Also used of quantities which alternate over longer periods, for example, month or year. Also see effective value. Abbreviation, R.M.S. CTD.

root of weld. The points, as shown in cross section, at which the bottom of the weld intersects the base-metal surface. It may be coincident with the root of joint. A.G.S. Glass.

root opening. The distance between the parts at the root of the joint. A.G.S. Glass.

root pass. The first bead of a multiple-pass weld. A.G.S. Glass.

root penetration. The depth to which weld metal extends into the root of a joint. A.G.S. Glass.

root sealer band. Same as root pass. A.G.S. Glass.

root zone. a. The place where the axial plane of a recumbent fold becomes steeper and dips beneath the surface of the earth. A.G.I. b. The place where a low angle thrust fault becomes steeper and disappears beneath the surface of the earth. A.G.I.

root zone. A very heavy hook designed to catch and tear out big roots when it is dragged along the ground. Nichols.

root zone. A series of buttons or buttons attached to an endless wire rope or cable for the purpose of conveying or retarding the movement of bulk materials or objects along a stationary trough. Nichols. A.M.I. 1936. b. A conveyor consisting of a rope with disks or buttons attached at intervals, the upper flight running in a trough. The coal or other material is dropped into the trough, and the conveyor is either actuated by the weight of the coal in the trough when the trough is inclined forming a retarding conveyor, or moves the coal along the trough where the gradient is insufficient or adverse. In the one case a brake is provided in the other, the sprockets are actuated by a motor.

rope. A winding or hoisting; a draw. Rope is designated by its lay, material of construction (steel, fiber, etc.), maximum diameter across strands, and number of strands. If the diameter has 6 strands and 19 wires per strand. Patented rope is made of galvanized wire. See also rope. 3. See fiber rope; wire rope. Nelson.

rope and button conveyor. A series of buttons or buttons attached to an endless wire rope or cable for the purpose of conveying or retarding the movement of bulk materials or objects along a stationary trough. Nichols. A.M.I. 1936. b. A conveyor consisting of a rope with disks or buttons attached at intervals, the upper flight running in a trough. The coal or other material is dropped into the trough, and the conveyor is either actuated by the weight of the coal in the trough when the trough is inclined forming a retarding conveyor, or moves the coal along the trough where the gradient is insufficient or adverse. In the one case a brake is provided in the other, the sprockets are actuated by a motor.

rope boring. In this system, rigid rods are replaced by a steel rope to which the boring tools are attached and allowed to fall by their own weight. The surface set-up is practically the same as for rod drilling, the difference being in the attachment to the rod of the walking beam. The rope passes from a drum over a pulley in the derrick and through a rope clamp, above which is a temper screw which is turned attached to a walking beam. The temper screw allows the drill to fall as the boring proceeds and is turned back and the rope retrimmed higher up. No device is necessary with rope boring to give the twist to the steel in the bunch, as is the case with the bunch blow. The lay of the stranded rope accomplishes this. As the tools are being raised the rope is in tension and its spiral lay tends to straighten out and stretch, but when the chisel strikes the bottom of the hole, the tension is off, the rope assumes its natural lay. A knot and a twist is inserted to the chisel. Mason, v. 1, p. 54.

rope capping. The attachment of the bunch to the heading or to any of the chains of the cages. See also capping. Nelson.

rope core. A component of stranded ropes is the core, which may be either of fiber or of wire. In winding ropes it is generally made of manila, steel, or hemp. The function of the core is to sup-
rope core

port the strands and prevent them from bearing hard against one another. An even more important function is as a store for lubricant for the interior of the rope and drum; when it is saturated with lubricant, Sinclair, V, p. 8.

rope fastening. The most suitable fastening rope drum. Any drum, powered or otherwise, provides. Steel ropes suspended in ver-

rope driving. The transmission of power by means of rope gearing, as distinguished from belt drive. Crispin.

rope driving. A replacement of belts by ropes for driving machinery. Fay.

rope driver. In bituminous coal mining, a foreman who looks after the haulage cable and the equipment of trains of cars by whose duty it is to see that cars are coupled and uncoupled properly, and to inspect ropes, chains, links, and all coupling equipment. A trip rider. Fay. d. See brakeman. D.O.T. 1.


rope road bolt. A steel wire rope, with wedge heads fixed to its ends, used instead of the normal steel rod in roof bolting. The rope has a diameter of about 1/4 inch and a length from 15 to 20 feet. The method is largely in the experimental stage. Nelson.

rope socket. A drop forged-steel device, with heads fixed to its ends, used instead of the normal steel rod in roof bolting. The rope has a diameter of about 1/4 inch and a length from 15 to 20 feet. The method is largely in the experimental stage. Nelson.

rope system drill. Synonym for cable drill. Fay.

rope trip. A trip of cars handled by a rope. Fay.

rope way. a. A line or double line of suspended ropes, usually wire, along which articles of moderate weight may be trans-

portation on slings, either by gravity or power; much used in mining districts for transportation to watercourses or to steam-railway lines. Standard, 1964. An aerial tramway. Fay. b. See aerial ropeway. Nelson.

rope furnace. A long reverberatory furnace over the hearth of which a series of plows or rakes is drawn by a continuous cable, moving the ore steadily from the feed to the discharge end. Fay.

rope lava. Same as pahoehoe. Fay.

rope-making. Aifdef the netting end of the deflection wedge, the outside diameter of which is the same as the diam-


rope-bit pilot. A plug to keep a rope bit concentric while milling off Hall-Rowe defecting wedge top ring or rope-bit dropper. Long.

rope copper. The same as rosette copper. Fay.

rope-cut. A form of gem cutting, which, in its most symmetrical shape, consists of a hemisphere covered with 24 regularly disposed, triangular facets and a flat base. Variations include Dutch rose, half Dutch rose, Armenian rose, double Dutch rose, cross-rose, and the briollette which may be considered a modified double rose. Hess.

rope diagram. A circular or semicircular dia-

rope fastening. An appliance used in cable drilling for recovering ropes that may have been accidentally dropped in the borehole. Fay.


rope diameter. The diameter of a steel wire rope is the maximum obtainable measure-

ment across the outer edges of the strands. The size of fiber ropes is usually specified by their circumference. Modern steel wire winding ropes are large and heavy and may be 21/4 inches in diameter locked coil for a moderately deep shaft. Nelson.

rope driving. a. Percussive method in which a string of tools is raised in the drill hole by a rope which is given a loose turn or two around a powered horizontal wind-

lass, and is eased to let the tools fall free. Drills vertically, if necessary, to consider-

able depths. Usually employed for rela-

tively shallow alluvial bores with portable rig. Pryor. 3. Sometimes called jump drill-

ing, in which drill is raised and dropped. Fay. b. Synonym for churn drilling. Fay.

rope drop. A replacement of belts by ropes for driving machinery. Fay.

rope drum. Any drum, powered or otherwise, on which rope is wound; for example, the drum of a winding engine. Fay.

rope plucking. The sudden jerking or twitch-

ing of a haulage rope due to the rope laps slipping to a smaller diameter on the drum. A severe plucking of a rope may be felt faintly more than 800 yards distance from the engine. See also overhaul. Nelson.

rope rider. a. A man whose duty it is to see that cars are coupled properly, and to inspect ropes, chains, links, and all coupling equipment. A trip rider. Fay. d. See breakman. D.O.T. 1.


rope spear. A fishing tool having a shaft either by gravity or water pipe. Fay. b. A diamond so small that it can be cut little if at all. Webster 3d.

rope spear. A trip of cars handled by a rope. Fay.

rope tripod. A tripod of cable by which coal is hauled from the mine. He

ropehouse. In salt manufacturing, an evapor-

ating house. Fay.

rope lay. A lay that is length of rope in which one strand makes one complete revo-

lution about the core. ASA M11.1-1960, p. 31.

rope makes. In the asbestos products industry, one who makes asbestos wicking and square braided rope using carding machine, roper, and roper machine. Fay.

rope plucking. The sudden jerking or twitching of a haulage rope due to the rope laps slipping to a smaller diameter on the drum. A severe plucking of a rope may be felt faintly more than 800 yards distance from the engine. See also overhaul. Nelson.

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rose porcelain. Chinese hard porcelain brilliantly decorated with a red enamel.

rose quartz. Crystalline quartz with a rose color, due probably to titanium in minute quantity. The color is destroyed by exposure to strong sunlight. Used as a gem or as an ornamental stone. See also Bohemian ruby.

rose ring. Synonym of deflecto-wedge ring.

rose steel. A steel that shows a peculiar fracture and texture in the interior, different from that near the surface. Standard, 1964.

rose topaz. The yellow-brown variety of topaz having a fine red color. C.M.D.

rosenbuschite. A complex zirconium silicate mineral; it is a fission product of the uranium and is used in the manufacture of hard ceramic materials. Standard, 1964.

rosenbuschite. To the form of two rosettes joined at their centres. A.G.I.

rosenbuschite. A method used in quantitative petrography involving the estimation of the volumes of the component minerals in a rock by the measurement of aggregate intercrop on a polished surface or on a microscope slide. C.T.D.

roselite. A yellow variety of roseline.

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rotary bucket drill. A 12- to 96-inch-diameter posthole augerlike device, the bottom end of which is equipped with cutting teeth similar to those on a flat-spiral auger. The device is used to rotate-drill large-diameter shallow holes to obtain samples of soil lying above the ground-water level. Long.

rotary bucket drill. A rotary-type drill on which a rotary bucket is Fastened to the Kelly bar. The bucket is equipped with a high-speed cutting blade or a bucket.

rotary drill. A system of boring, using usually hollow rods, with or without the production of rock cores. Rock penetration is achieved by the rotation of the cutting tool. The rods are used extensively in exploration, particularly when cores are required. It is the usual method in the search for underground water. See also Diamond drilling; rotary drill. Nelson.

rotary driller. A breaking machine for coal or ore. It consists of a trommel screen with a heavy cast steel shell fitted internally with lits which progressively raise up and convey the coal and stone forward and break it. As the material is broken the undersize passes through the screen, so that excessive degradation does not occur. See also Bradford breaker.

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rotary bucket drill

one or more mining cars simultaneously to discharge coal. They may rotate either 180° or 360°.

rotary dump cars. A small standard car in which the car body, of about 2 cubic yards capacity, is mounted on a turntable in the car frame. The car body may be swung by hand to dump either side or either end. Pit and Quarry, 33rd, Sec. A, p. 112.

rotary dumper. A steel structure which revolves a mine car and discharges the contents, usually onto a bunker or onto a screen. See also tippler. Nelson.

rotary excavator. Earth-moving machine with vertical wheel which carries digging buckets, peripheral. These loosen soil and deliver to short conveyor loader, the assembled load being mounted on caterpillar track. Capacity up to 5,000 tons hourly. Also called wheel excavator. Pryor, 3.

rotary fault. A fault in which some straight lines on opposite sides of the fault and outside of the dislocated zone, parallel before the displacement are no longer parallel, that is, where one side has suffered rotation relative to the other. A.G.I.

rotary feed table; disk feeder. A feeder comprising a horizontal rotating circular plate mounted under the mouth of a hopper and arranged with an adjustable plough to control the rate of flow of material over the edge of the plate. B.S. 3552, 1962.

rotary furnace. Horizontally mounted cylinder rotating between trunnions through which gas or oil flame is introduced. Pryor, 3.

rotary-hearth kiln. A circular tunnel with a to-and-fro movement of a piston within a case, as distinguished from those in which the liquid-propelling parts are on parallel shafts driven in unison. ASM Gloss.

rotary-percussive drills. The drilling effect of these machines is obtained by a combination of percussion and cutting action, which implies high-pressure feed and a powerful rotating movement. Bits are either the regular chisel type or in a modified version raked negatively to the direction of rotation. The drilling method in which the impingement point is not conical with that employed in the United States, particularly in drilling for oil which is called rotary percussion drilling, but uses a roll-type bit. Fraenkel, V. 1. Art. 830, p. 19.

rotary riser. Synonym for rotary drill. Long.

rotary type. A positive-displacer cant pump in which the liquid-propelling parts arecams, gears, impeller wheels, etc., rotating within a case, as distinguished from those pumps that move liquids by means of the tooth-and-socket friction of a piston within a cylinder. Compare centrifugal pump. Long.

rotary rig. Synonym for rotary drill. Long.

rotary rig engineman. In petroleum production, one who supplies power for drive works (power distribution center for raising and lowering or rotating drill pipe or casing in a well), pumps, and other mechanical equipment of a rotary rig for drilling gas and oil wells. Also called gas or diesel engine engineer. D.O.T. 1.

rotary screen. a. A screen for sizing aggregate. b. A cylindrical smelter that depends on slow rotation about a horizontal axis for agitation of the molten material. Nelson.

rotary shovelfooth. A snowplough with a rotating blade which throws the snow forward and similar machines, it is a pierced rectangular plate bent into a cylinder. Ham. b. Sex trommel. A. Nelson.

rotary sorting table; circular grading table. A circular plate conveyor to effect a preliminary grading of coal and removal of stone by hand. A screened-out fraction of the run-of-mine coal is delivered to the table by chute from a conveyer. As the screen of coal revolves on the table, the various grades of coal and the dirt are raked into positions where they are dispersed by pleuches into chutes. The operators are positioned on the inner and outer edges of the table and the coal is
not handled but only raked. See also picking conveyor. Nelson.

rotary speed. The speed at which the drill steers. Usually measured in revolutions per minute. Long.


rotary shaker. A swaying machine consisting of a power-driven ring that revolves at high speed causing rollers to engage cam surfaces and force the shaker hammerlike blows upon the work at high frequency. Both straight and tapered sections can be produced. See also swinging ASM Gloss.

rotary swivel. Synonym of water swivel or mud swivel. Long.


rotary table. a. The geared rotating table that propels the Kelly and the drill stem when drilling a borehole with an oilfield-type rotary rig. Also called rotary; table; turntable. Long. b. The mechanism used to rotate the rig when drilling a borehole with an oilfield-type rotary rig. Also called rotary; table; turntable. Long.

rotary table feeder. A rotating horizontal circular table to which material flows from a round bin or hopper opening and from which it is discharged by a bow. AS A M H 14-1958.

rotary tippler. a. A machine that loosens and mixes soil and vegetation by means of a high speed rotor equipped with tines. Nichols.

rotary tippler. See tippler. Nelson.

rotary tool; rotary tools. Drilling equipment used on rotary tools: drilling, when drilling, and when drilling, the commonly accepted usage of the term is that applied to equipment used on drills having a rotary table, such as the rig normally used in oilfield work. Long.

rotary vase feeder. A rotor of cylindrical outline having circular drum plates or vanes rotating on a horizontal axis, for controlling the flow of bulk materials. AS A M H 14-1958.

rotary vibrating tippler. A tippler designed to overcome the tendency for coal or dirt to settle at the bottom of mine cars. When the tippler is in the inverted position, the car rests upon a vibrating frame which gives it a high-speed vertical jolting motion which frees any material tending to stick inside the car. Nelson.

rotating-armature generator. A generator having stationary field magnets, and the a.c. current is collected from slip rings connected to the windings of the armature or rotor. This machine is used normally in small sizes only, and either permanent magnets used for the field or an external d.c. supply obtained from main or batteries. Mason, V. 2, p. 423.

rotating casing screw conveyor. A screw conveyor in which the tubular casing rotates at a different speed or in an opposite direction to the conveyor screw. See also screw conveyor. AS A M H 14-1958.

rotor. a. Alternator. An alternating-current generator that is very convenient for modern power generation on a large scale. The main current which is not made at high voltage, is conveyed through fixed connections, the alipping carrying only the alternating current. The main windings can be insulated and braced against normal or excessive mechanical forces due to the load. Mason, v. 2, p. 423.

rotating-platform kiln. See rotary hearth kiln. Dodd.

rotating sampler. A soil sampler that rotates to cut and obtain a sample, as opposed to a drive sampler that is pressed into the material to be sampled. Long.

rotational cylindrical folding. Subsequent folding that has distorted the axial planes of cylindroidal folds without destroying their cylindroidal character. AGI Supp.

rotational failure. See slope failure, s. Leuti, p. 627.

rotational fault; hinge fault; pivotal fault; scissors fault. A fault where there has been pronounced rotation of the fault blocks. Nelson.


rotational shear. One of four types of slope failure. Failure by rotational shear produces a movement of an almost undisrupted segment along a circular or "spoon-shaped" surface and occurs in compactive, uniform material. This material would not be affected by geological planes of weakness. Failure of this type can occur from causes which either in- crease the shear stresses or which decrease the shear strength of the material. Wood- ruff, v. 3, p. 539.

rotational slide. A slide of homogeneous earth or clay in which the slip surface of failure closely follows the arc of a circle. Nelson.

rotational speed. The speed at which a drill string and attached bit is turned. Long.

rotational wave. See shear wave. h. Hy.

rotation diagram. A petrographic diagram in which the fabric axes are rotated to the desired position. Rotation is generally done in order to similarly orient the fabric of different diagrams for comparison purposes. Bureau of Mines Staff.

rotation firing. Crushing a small piece of rock with a first explosion, and timing other holes to release their burdens toward the space made by that and other preceding explosions. Also called row shooting. Nichols.

rotation recorder. An instrument for measuring any slight rotation of a bridge support under load. See also spread recorder. Ham.

rotation speed. Same as rotational speed. Long.


rotches; rotes; roota. S. Staff. A soft and moderately friable sandstone. Also called rooth; roth; Fay.

rotches. A reciprocating-type screen used in the tail screening operation in rock salt mining. Fay.

rotches. A reciprocating-type screen used in the tail screening operation in rock salt mining. Fay.


rotlegand filter. Drum-type vacuum filter in which membrane is a belt, which leaves the drum at discharge point and is returned via pulleys. This arrangement facilitates automatic cake take from both sides, also discharge. Pryor, 3.

roto finish. A tumbling method using special chips and chemicals. Fay.

rotocast. Fay. A cast or casting; a circular electric decorating kiln for pottery ware. Dodd.

rotostrat. Tra's name; a reciprocating air- jet system of drying bricks and tiles. Dodd.

rotostrat. Any unit that does its work in a machine by spinning, and does not drive other parts mechanically. Nichols.

rotostem process. A steamer process using the principle of rotation as in the Kaldor. It has two lances, one above the bath surface using low-pressure oxygen to burn CO from the bath, while the other blows oxygen on to the bath at high pressure, to obtain oxidation as in the L. D. It was developed at Oberhausen in Germany. Nelson.

rotus. A machine having having becoming honeycombed in the course of melting and which is in an advanced state of disintegration. Schie- nensteine. A soft, light, earthy substance consisting of silica in fine grains, resulting from the decomposition of siliceous lime- stone. Fay. Used for polishing. Gordon.

rouge. Finely divided, hydrated iron oxide, used in metal buffing and polishing. Lee. Also used in the final polishing operation on plate glass. The average grain size lies between 1 and 10 microns. Lee.

rouge antique marble. See rose antique mar- ble. Fay.

rouge flambé. A red glaze first made by the Chinese; the color is due to colloidal copper produced in the glass by firing under reducing conditions. Dodd.

rougemontile. A phanerocrystalline rock containing arority and titequartzite, with small amounts of olivine and iron ores. Holmes, 1926.

rouge. An imperfection; traces of rouge remaining in an incompletely polished glass surface. ASTM C162-46.

rouge. A coating of pebbles set in cement on a wall for glass that has been polished so that the surface is textured. Compare rolled glass. Dodd. c. Plastering made of lime mixed with shells or pebbles and used for covering buildings, usually by be- ing thrown from a trowel forcibly against the wall. Webster 3d. d. To roughen the surface of (pottery) before firing. Stand- ard 1964.

rough coal. Term used among Scottish miners for black, free coal of good quality. Also called rock coal; rock coal. Tomkies, 1954.


roughened finish tile. A tile whose plane surface is treated by mechanical means, such as wire cutting or wire brush- ing, to give increased bond for mortar, or to provide a rougher cell. Flotation cells in which the bulk of the gangue is removed from the ore. Fay.

rougher cell
rough way. Corn. A quantity term to designate mesh storing. a. Same as ragstone.

roughness. a. Relatively finely spaced surfaces, made by the roughing out of the work, and resulting from light fracturing, or careless rock formations. Long.

roughing. Upgrading of run-of-mill feed either to produce a low-grade preliminary concentrate or to reject valueless tailings at an early stage. Performed by gravity on roughing tables, or in flotation in roughing circuit. Pryor, S.

roughing hole. A hole to receive slag from a blast furnace, or molten iron when it is undergoing chemical reaction inside it. Pigg.

roughing in. a. The process of pulling the drill string from a borehole, performing an operation on the string (such as changing a type of bit, replacing string, etc.). Long.

roughing out. The process of pulling the drill string from a borehole, then running the drill string into the borehole. Long.


roughing rolls. The rolls of a train which first receive the pile, ingot, bloom, or billet, and partly form it into the final shape. Also called breaking-down or roughing-down rolls. Fay.

roughing stand. The first stand of rolls through which the reheated billet passes, or the last stand in front of the finishing rolls. ASM Gloss.

roughing tool. The ordinary tool used by machinists for removing the outer skin and generally for heavy cuts on cast iron, wrought iron, and generally for heavy cuts on cast iron, wrought iron, and steel. Standard, 1964.

rough lumber. Lumber undressed as it comes from the saw. Crispin.

rough manufacturing. Machining without regard to finish, usually to be followed by a subsequent operation. ASM Gloss.


round. a. See reamer, b. See below.

round edge slip. See slip stone.

rounded. a. Fay.

rounded stone. A carbon the sharp corners and edges of which have been worn off through use so that the stone is rounded. Long.

rounded face bit. A bullnose bit; also, any bit having the cutting face of which is rounded, such as a single- or double-round nose bit. Long.


round hole. A hole to receive slag from a blast furnace, or molten iron when it is undergoing chemical reaction inside it. Pigg.


round pocket shovel. See shovel, bor. Cusson, p. 179.

round scoop. Scoop. A space at the shaft bottom where coal is stored. Fay.

roundstone. a. Small. roughround stones collectively, used for paving; cobblestone. Fay. b. A rounded rock fragment of any size larger than a sand grain; a group name for pebbles, cobbles, or boulders, any and all of these. Stakes and Verne, 1955. c. A diamond crystal with an arched facet. Hai.

round strand rope. A rope composed of a number of strands, generally six in number. Not a rope, either as a rope or laid to or laid to the rope around a core, hemp, sisal, or manilla, or, in a wire-cored rope, around a central core, and often covered with wire. Sinclair, V, 3. p. 5.

round table. A type of lacing table used for supporting cut holes, i.e., grinding and polishing, now largely superseded by the continuous system. ASTM C162-66.

round trip. Drilling operations maintained on a 24-hour basis. Long.

round valued. The process of pulling the drill string from a borehole, then running the drill string into the borehole. Long.

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royalty. a. As used in an oil and gas lease, a percentage of the production reserved by the owner for permitting another to use the property. Rickett, I. b. A lease by bit, emptying the core based, etc., and the lease the privilege of mining and
operating the land in consideration of the payment of a certain stipulated royalty on the mineral produced, creates the relation that is created whatever is paid for the occupation and use of the premises, and not the mineral rights or mine equipment, the royalty is called a rent. A mineral, FeSO₄·4H₂O, isomorphous with hematite which reflect a ruby red. rubber. a. Guide; binder; conductor. Mason. b. Scat. A rubber pump rod to slide on, or for hitches to rub on going round sharp curves. Fay. c. A bucking iron or bucking hammer. See also bucking. d. A gold-quartz amalgamator in which the slime is rubbed against amalgamated copper surfaces. Fay. e. Derb. Fine scythestone; micaceous sandstone. Arkell. f. A building brick made from a sandy clay and lightly fired so that it can be readily rubbed to shape for use in gaged work. The crushing strength of such a brick is about 1,000 pounds per square inch. Dodd.

rubber belt. A belt for conveying coal or other pay load. It consists essentially of a rubber cover, impregnation and fabric. The fabric may be cotton fabric multiply, solid woven fabric, cord, nylon, or other synthetic fiber, with steel wire reinforcement. See also conveyor. Nelson.

rubber blanket. A sheet of rubber as used as auxiliary lining. AM Gloss.

rubber bond. A bonding material whose principal constituent is natural or synthetic rubber. AM Gloss.

rubber-bushed couplings. Consists of two flanged hubs, one equipped with rubber-bushed holes, the other equipped with the rubber bushings. To prevent excessive wear, the rubber bushings are bushed with nonferrous bushings which provide satisfactory contact and wearing surfaces. Pit and Quarry, 53rd, Sec. D, p. 66.

rubber clay. A fine grain, white to light colored clay used as a filler in rubber. Rubber clays must be very low in free silica, and certain compounds of manganese, iron, and copper. Bureau of Mines Staff.

rubber conveyor belt. A conveyor belt consisting of a central stress-bearing carcass for transmitting power enclosed in rubber covers to protect the carcass from abrasion and atmospheric changes. The carcass usually consists of plies of cotton duck fabric, but other constructions that are cotton cords, steel cables, and woven fabrics of synthetic fibers, such as rayon, nylon, orlon, dacron, glass, and asbestos. The rubber covers are furnished in various thicknesses and qualities of rubber compounds. ASA MH4.1-1958.

rubber-covered steel conveyor. A steel conveyor band with a covering of rubber which is vulcanized to the steel with a special adhesive. The thickness of rubber on the underside is 2 millimeters and on the carrying side it may vary from 3 to 10 millimeters. The conveyor is relatively cheap and normally used for heavy work on tramway roads. Nelson.

rubber forming. Fishing where rubber is used as a functional die part. Processes in which rubber is employed only to contain the hydraulic fluid should not be classified as rubber forming. AM Gloss.

rubber-lined pipes. Pipes prepared for handling corrosive liquids in such processes as acid leaching. Also, pumps and handling ore pulp. Pryor, 3. Rubber linings make it possible to use the rubber material to aid in the cleaning of the acid absorption or the return belt.

rubberized steel belt. A rubberized steel belt designed to use the rubber expands and releases the sticky fragments. Nelson.

rubber return idlers. Rebuilding ideas utilizing a roll or rolls covered with or composed of a rubber material to aid in the cleaning or shock absorption of the return belt. NEMA MB1-1961.

rubberstone. A sharp-grit iron or Indiana sandstone used for sharpening shoe knives; also known as shoe stone. Fay.

rubber-tired haulage. The underground use of tractors and dump truck haulage, battery or diesel type, and battery driven shuttle cars. Nelson.

rubber wheel. A grinding wheel made with a rubber bond. AM Gloss.

rubberizing. A process of rubberizing steel for use in gaged work. The crushing strength of such a brick is about 1,000 pounds per square inch. Dodd.

rubbers. a. Fr. A crystalline variety of quartz harder and more resistant to wear than the variety called quartz. 1. See brick, c. ACSG, 1963.


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rubble

f. Eng. A hard chalk used in making paths. Webster 2d, g. in roadbuilding, rough stones of irregular shapes and sizes, and large masses either naturally or artificially, as by geological action, in quarrying, or in stone cutting or blasting. Hess. b. Aust. One as it is broken from the deposit. Hess.

rubble ashlars. Ashlar with rubble backing.

rubble concrete. Concrete in which large blocks of stone, roughly squared, are placed and arranged roughly in courses so that they break joint both horizontally and vertically. The stones are placed with not less than 6 inches of space between them so that the concrete may be properly rammed. Care is taken that all voids are filled with concrete. Hess.

rubble drain. A trench filled with stones selected so as to fill the trench, yet to allow the flow of water through it. Ham.

rubble drift. A coarse agglomeration of angular debris and large blocks set in an earthy matrix of glacial origin. Dunn.


rubblesman. In the quarry industry, a foreman who directs and supervises the work of drilling and splitting stone. D.O.T. 1.

rubble masonry. a. Uncut stone, used for rough work, foundations, backing, etc. Origin: b. Rough, unshaped stone laid in irregular courses. Fay.

rubble-mound structure. A mound of random-shaped and random-placed stones projected over the top until after the gold and fine gravel have been seat through the grizzly. Hess.

rubble ashlars. Ashlar with rubble backing.

rubble blend. Synonym for pyrargyrite; proustite; ruby, as well as in any gem species yielding mica. Hess.

rubby sulfur. Transparent red lacquer somewhat resembling deep red color, and also for zincite with the same characteristics. Fay.

ruby brown. A common term meaning red, for a red variety of iron ore. Fay.

ruby brown. Another name for Cassel brown. Bureau of Mines Staff.

ruby ashlars. Ashlar with rubble backing.

rubby sapphire. A term sometimes used for almandine sapphire or amethystine sapphire. Fay.

ruby, sapphire. A term sometimes used for almandine sapphire or amethystine sapphire. Fay.

ruby. Gem variety of corundum, Al2O3; transparent, red. Mohs' hardness 9; specific gravity 4. Pray, 3.


ruby asnelae. An abrasive similar to white corundum as well as in any gem species yielding mica. Hess.

ruby black. A black sand grain. Consolidated rocks of this type are suitable for use as a reductant, for the production of non-magnetic iron ores. Fay.

ruby cactus. A term applied to girasol ruby with a chatoyant effect. Although a true cat's eye is theoretically unbreakable in ruby, as well as in any gem species yielding asterias, a well-defined single band of light occurs rarely. See also girasol. Shipley.

ruby copper. An early name for cuprite, from its color. Fay.

ruby cuprite. See cuprite.

ruby glass. Glass having a characteristic red color resulting from the presence of colloidal gold, copper, or cobalt. To produce a true ruby, a batch containing a small quantity of gold is first melted and cooled; at this stage, the glass is colorless, but when greatly heated, it develops a red color as colloidal gold is formed. For copper ruby, produced in the same manner but with copper substituted for the gold, the batch must contain zinc and must be melted in a non-oxidizing atmosphere. The most common ruby glass today is synthetic ruby glass, recommended for batch contains 2 percent Se, 1 percent CdS, 0.1 percent As2O3 and 0.5 percent C; the formula is believed to be reducing. Dudd.

ruby juice. Transparent red lacquer sometimes used for coating pavement of stones. See also lacquer back. Shipley.


ruby matrix. Any rock embedded with red corundum; especially that which consists of smaragdite and red corundum found in Clay County, N.C., and sometimes cut cabochon. Shipley.


ruby sand. Sand, colored red by garnets. Fay.

ruby silver. Dark ruby silver is pyrrhotite and light ruby silver is proustite. Dana 17.

ruby spinel. That variety of maganese spinel, MgAl2O4, which has the color but none of the other attributes, of true ruby. Also called spinel ruby, a deceptive misnomer. C.M.D.


ruby, standard. Also called ruby arsenic; ruby of arsenic; ruby of sulfur. Fay.


ruby zinc. A popular name for transparent sphalerite of a deep red color, and also for zincite with the same characteristics. Fay.


rubyaceous. a. The texture of the rubble rocks in which the grain is larger than that of a sand grain. Consolidated rocks of this type are suitable for use as a reductant, for the production of non-magnetic iron ores. Fay.


ruby, C.M.D. A red or brownish-red variety of sapphire, crystilized sphalerite. Standard, 1964. See also ruby zinc. Fay.

ruby cactus. A term applied to girasol ruby with a chatoyant effect. Although a true cat's eye is theoretically unbreakable in ruby, as well as in any gem species yielding asterias, a well-defined single band of light occurs rarely. See also girasol. Shipley.


rudyte. Eng. A common term meaning red, for a red variety of iron ore. Fay.

rudite. A division of Eulamlibranchia comprising extinct chiefly Cretaceouis bi-valve mollusks with one valve elongate, conical and thick-silled and the other small and fitting like a lid on the first. Webster 5th.

rudite. A Middleton for use as a red dye. Arkell.

rudite. A division of Eulamellibranchia comprising extinct chiefly Cretaceous bivalve mollusks with one valve elongate, conical and thick-silled and the other small and fitting like a lid on the first. Webster 5th.

rudite. Synonym for rudite. A.G.I.

rueping process. An empty-cell process of preparing red iron ore. Fay.

rufugroove cast. A groove cast with a feather pattern, that is, a groove with lateral wrinkles that join the main cast in
rugged groove cast

the downcurrent direction at an acute angle. Pettijohn.

Ruggles-Colby dryer. Rotary dryer or kiln, in which material is worked through a horizontal cylinder counter to drying by heat blown through by fan. Pryor, 3.

ruggles. A depression made by oxidation of iron pyrites with the formation of felnite and brown powder, in the Gould at Barnwell near Cambridge. Arkell.

Ruhstrahl-Herasus (R-H) method. See vacuum degassing.

ruin. Eng. A term occasionally employed in familiar description for certain minerals whose sections or cut faces exhibit the appearance of ruined buildings, as ruin agate, ruin marble. A variety of marble. See also ruin agate, Varient of agate. See also ruin. Eng. A term occasionally employed in ruin. Ferruginous nodules processed through a horizontal cylinder counter to drying by heat blown through by fan. Pryor, 3. A machine for removing mud and holding it together is made by pouring melted metal into molds; foundry. Standard, 1964.

ruin on agate. Brecciated Mexican onyx (aragonite). Schaller.

ruin ore. Having the form or appearance of ruins, as certain minerals. Fay.

ruin marble. A variety of marble. See also ruin. Dana 6d, p. 189.


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ruin marble. A variety of marble. See also ruin. Dana 6d, p. 189.
progresses. Webster 2d. k. One who operates or manages anything, as a machine, especially, the driver of a locomotive. Standard, 1964. l. A story of a place or scenes, described or illustrated, as a map, table, chart, etc. Standard, 1964. m. A horizontal channel through which molten metal flows from one receptacle to another. ASM Gloss. t. The portion of the gate assembly that connects the downgate, sprue, or riser with the casting. ASM Gloss. t. Parts of patterns and finished castings corresponding to the described portion of the gate assembly. ASM Gloss.

runner bar. Iron casting attached to a circular grinding runner or head for abrasive material that breaks off readily and falls away. See also guide runner; cross poling. Ham.

runner brick. A fireclay shaped, square in section, used for open-hearth runner brick. A.R.I.

runner brick. A freemasonry square in section and about 1 foot long, with a hole about 1 inch in diameter along its length and terminating in a spigot at one end and a socket at the other end. A number of such refractory pieces, when placed together, form a passage through which, during the bottom pouring of steel, the molten metal can pass from the center brick to the base of the ingot mold. See also center brick. Dodd.

runner brick press. A press for forming shapes having holes through them, particularly for open-hearth runner brick. A.R.I.

runner cast. An imperfection in plate glass resulting from the gate assembly. ASM Gloss. runner case. See bottom, b. Fay.

runner-on. See bottomer, b. Fay.

runner-on log. A timber whose pilings driven to protect an excavation from collapse. See also guide runner; cross poling. Ham.

runner stick. A slightly tapering, round stick, used as a pattern for the opening through which molten metal is to be poured into a mold. Standard, 1964.

running. The act or process of operating a drill, drilling with a bit, or lowering casing, drivepipe, or drill string into a borehole. Long. b. Earth and rock that will not stand, especially when wetted, and falls, sloughs, or sloughs into a borehole or a workplace in a mine. Long. c. A trade term used to cover the overall process of converting quicklime to a milk or slurry. Fay.

running block. See traveling block. Long.

running bond. A term applied to overlapping stretches, and also to English and American bond. Bureau of Mines Staff.

running bridge. Aust. A platform, on wheels, that serves as a center for a shaft in process of sinking, and on which buckets or skips are landed. See runner, d. Fay.

running coal. A term applied to a very friable coal which disintegrates and flows into the workings. Nelson.

running dry. The act of drilling without circulating a drilling fluid. Long.

running fit. Any clearance fit in the range used for parts which rotate relative to each other. Actual values of clearance resulting from stated shaft and hole tolerances are given for nine classes of running and sliding fits for 21 nominal shaft sizes in ASA B4.1-1955. ASM Gloss.

running ground. a. Inescapable or easily caved wall of excavations. Pryor, 3. b. Ground which is incoherent, for example, soils, sand, peat, moss, or waterlogged material. It may be soft or plastic, such as wet clays. All such deposits deform readily under pressure and relief is obtained by aperturing into openings, such as mine workings. The miner uses the term running ground to indicate the difficulty of support and sometimes of danger. See also forepoling; quicksand; mudrush. Nelson. c. Superincumbent material that breaks off readily and falls away. See also center brick. Dodd.

running hill. A lime kiln that is fed from above, and delivers continually below. Standard, 1964.

running lift. Light mine pump used in sinking which can be raised or lowered in shaft as required. Pryor, 3.


running off. In founding, the opening of the taphole of a blast furnace and allowing the molten metal to flow out to the moulds. Standard, 1964.


running-on. Name sometimes applied to a batch type extrusion machine of the type more commonly called a stub. See also stupid. Dodd.


running roll of flexible rope. 6 strands, 12 wires each, and 7 hemp cores. H.G.C., p. 130.

running sand. a. An unconsolidated sand. See also run, e. Long. b. Quicksand. Fay.

running sheave. A sheave used as a single-pulley running block. Long.

running stone. A diamond that cuts well with the grain. Hess.

running the drum. Eng. The lowering or sinking of a cylinder or drum through quick ground, to secure the upper part of the drum, with a running rope. Fay.

running-off. a. That portion of the rainfall that is not absorbed by the deep strata; is utilized by vegetation or lost by evaporation or may find its way into streams as surface flow. Nelson. b. The collapse of a coal face into itself while it is being cut. Used in Britain. Fay.

running-off pit; spill pit. Catchment to which spillage can gravitate should it be necessary to dump contents of such mill machines classifiers, slurry pumps. Provided with reclaiming pump so that contents can be returned to appropriate part of flow line. Pryor, 3.

run-of-mine. a. The raw coal (or ore) as it is delivered by the mine cars, skips, or conveyor or by dumping. Synonym: ore, raw. b. Raw ore. Fay.

run-of-mine a. The raw coal (or ore) as it is delivered by the mine cars, skips, or conveyor or by dumping. Synonym: ore, raw. b. Raw ore. Fay.

run splint. a. The strap which is placed around a borehole when it is in the process of straightening. See also center brick. Dodd.

run-to-waste. Drill cuttings that are not collected or saved as a sludge sample and are allowed to collect in the sump; also, the
The sudden weighting of the roof begins. A sudden movement of a large number of miners causes the roof to collapse, thus destroying some of the pieces. The joint is made by packing an intimate mixture with a stiff paste of ground coats of high Na₂O:140, ratio.

rutherfordine

Rutherfordine. A hard, brittle, silvery-white, polyvalent, rare metallic element in group VII of the periodic system. It is one of the platinum metals and resembles osmium but is more resistant to corrosion (as by oxidizing acids). It occurs in platinum ores, especially in iridomine. Used chiefly in hardening platinum and palladium alloys. Symbol: Ru; relative atomic mass: 101.07; specific gravity: 12.41 (at 20°C); hexagonal (alpha); four allotropic crystal forms: (1) alpha rutherfordine; (2) beta rutherfordine; (3) gamma rutherfordine; and (4) delta rutherfordine; transformation temperatures, 1,035°C, 1,200°C, and 1,500°C; melting point, 2,250°C or 2,650°C; boiling point, 3,900°C or 4,150°C; insoluble in water, in aqua regia, in acids, and in alcohol; a soluble in fuming nitric acid and in aqua regia. Handbook of Chemistry and Physics, 45th ed., 1964, pp. B-2, B-122, B-215; Bureau of Mines, 1964.

rutherfordine

A very rare, strongly radioactive, possibly thorochrome, yellow mineral, (UO₂)(CO₃), in earthy masses and
in cubic pseudomorph after uraninite composed of aggregates of minute fibers; from east Africa; found associated with microcrystalline radial lath minerals. Movements of rutherfordite are mixtures containing uranium silicates and oxides. Not to be confused with rutherfordite.

rutilated quartz. Quartz penetrated by needles of rutile. Fay.

rutilite. A weakly radioactive, tetragonal mineral consisting of titanium dioxide, TiO₂, commonly in prismatic crystals; reddish-brown to red; sometimes yellowish, bluish, yellow, or colorless; a variety of rutile. It is the most common metallic mineral. Another tetragonal, TiO₂, with different facial angles is called anatase or octahedrite. Ordinarily, TiO₂ is known as brookite. Crossby, p. 132; Larsen, p. 77.

rutile. Ceramic. Trade designation for 92 percent TiO₂, brown powder; specific gravity, 4.57 melting point, 1,790° C; particle size (average), 44 microns maximum; insoluble in water and in alkalis; slightly soluble in dilute mineral acids; and soluble in hot concentrated sulfuric acid. Used in glasses, in floor tiles, and in artware and dinnerware bodies. C.C.D 64, 1961.

rutite. An equigranular, medium-grained, dark pink igneous rock composed essentially of feldspar, microperthite, minute, and sodalite, with minor amounts of nepheline, biotite, graphite, magnetite, and amphibole. There is 42 percent microcline, 46 percent sodalite, ± nepheline, 12 percent hornblende, and traces of titanite and apatite. Johannes, c. 1, 1938, p. 46.

rusting. See rusting on a job. Hofman.

rusty. Broken strata found in close proximity to a fault. See also fault smash. Nelsen, p. 37.

R-value. The partial dispersion ratio of a glass expressed as (n-x)²/(n-x)²x where n is the refractive index at wavelengths equivalent to the spectral lines C, D, and F. Compare Abbe number. Dodd.

R.W.F. lamp. Essentially a flame safety lamp with an inlet tube through which a sample of mine air may be introduced through an aspirator. A probe enables a sample of air to be drawn from a height of up to 75 feet with the lamp held at eye level. A small magnifying glass is fitted to facilitate the estimation of the gas cap. It is also used to detect a firedamp layer near the roof. Nelson.

ruddy. See rider. Arkell.

rufous. A volcanic rock consisting of about 75 percent feldspar, the remainder being principally aluminia. Its main use, after a heat treatment, is in lightweight brick. Loeb.

Rutherford’s theory. A mine subsidence theory that is a variant or extension of the vertical theory. In this theory, allowance is made for movements beyond the mined area, but the dip of the beds is considered to be of little or no influence. Rutherford maintained that if rock is undercut, it will stay undisturbed if cohesion exceeds gravity and will fall if gravity exceeds cohesion. Friggs, p. 37.

8

s


sandblasting. An abbreviated prefix meaning symmetrical in the names of organic compounds. For example, dichloroethylene. Webster 3d. b. Abbreviated prefix meaning secondary, especially in the names of organic radicals. For example, s-butyl. Webster 3d.

sandblaster. A hump-shaped piece of metal used as a support for a load above. Fay.

sandblast. A steel block over one of the towers of a suspension bridge or aerial ropeway providing a bearing surface for the suspension rope passing over it. Hem, f. An item of kit furniture. It is a piece of refractory material in the form of a bar of triangular cross section. It is also called a brake or a friction block.


sandblasting. The destruction of property (as tools of production or materials) or deliberate slowing down of work or interference with production in any way during the strike. Webster 3d. b. Willful effort by indirect means to hinder, prevent, undo, or discredit (as a plan or activity); deliberate subversion. Webster 3d.


saddleback. Having a granular texture resembling that of soil sugar; said of some sandstones and marbles. Webster 3d.

saddleback. A marble having a granular crystalline structure like that of soil sugar. Fay.


saddlewood. The anodes used in cathodic protection against corrosion. Hem.

saddlewood. Reducing the extent of corrosion of a metal in an electrolyte by coupling it to another metal that is electronically more active in the environment. ASM Glei.

saddlewood. Old Chinese name for the ore calamine. Webster 3d. b. Will and sang de bœuf. See also rouge flambe; sang de bœuf. Dodd.

saddlewood. A ridge connecting two higher elevations; a low point in the crestline of a ridge. A minor upfold along the axis of a syncline; a minor downfold along the axis of an anticline. Webster 3d. b. A hump-shaped piece of rock with a smooth back, in-securely attached to adjacent strata. Also called saddleback. Hudson, c. steel block over one of the towers of a suspension bridge or aerial ropeway providing a bearing surface for the suspension rope passing over it. Hem, f. An item of kit furniture. It is a piece of refractory material in the form of a bar of triangular cross section. It is also called a brake or a friction block. See also saddle, c. Fay. b. Two timbers placed so as to form an inverted V and used as a support for a load above. Fay.

saddleback. A. Eng.; Scot. A roll or undulation in the mof or pavement of a wenn. Also given as s. Zimmerman, p. 170.

saddleback. The upper part of a two-piece furniture. It is a piece of refractory material in the form of a bar of triangular cross section. It is also called a brake or a friction block. See also saddle, e. Fay. b. Will and sang de bœuf. See also rouge flambe; sang de bœuf. Dodd.

saddleback. A. Ridge connecting two higher elevations; a low point in the crestline of a ridge. A minor upfold along the axis of a syncline; a minor downfold along the axis of an anticline. Webster 3d. b. A hump-shaped piece of rock with a smooth back, insecurity attached to adjacent strata. Also called saddleback. Hudson, c. steel block over one of the towers of a suspension bridge or aerial ropeway providing a bearing surface for the suspension rope passing over it. Hem, f. An item of kit furniture. It is a piece of refractory material in the form of a bar of triangular cross section. It is also called a brake or a friction block. See also saddle, e. Fay. b. Two timbers placed so as to form an inverted V and used as a support for a load above. Fay.

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saddlehead. See saddle, b. Fay. b. Will and sang de bœuf. See also rouge flambe; sang de bœuf. Dodd.
saddle boss. The thickened or domed end of a downswelled butt.
saddle joint. Huckle joint. Arkell.
saddle rail. A rail used to make up and repair harnesses, etc., for the draft animals at a mine. Fay.
saddle shoes. A. A bedded vein that has the form of an anticline; an inverted saddle has the form of a syncline. See also saddle, b. Fay, b. An opening at the crest of a sharp fold in sedimentary rocks, occupied by ore. Bateman.
saddle supports. Poles placed in saggars for holding articles to be fired in the glost oven. C.T.B. Clay props placed between piles which were packed on edge in a kiln. ASCG, 1963.
saddle-shaped. Having the form of an anticline fold. West.
saddle vein. Saddle-shaped ore deposit formed between sedimentary beds in the crests of mostly dome-shaped, antiformal structures. Schieffeldecker.
saddle. Forming a seamless ring by forging a pierced plate over a mandrel (or saddle) as was created by the miner or employee. Nelson.
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saddle. Forming a seamless ring by forging a pierced plate over a mandrel (or saddle) as was created by the miner or employee. Nelson.
safety cap

or cap made of rigid material, designed for the protection of the heads of workmen. If worn in a mine equipped with electricity, the material should contain no conductive fuses. Also called safety cap. Grove. C. See tin hat. Long.


safety joint. A course-threaded joint in the head of a double-tube core barrel. If the threads lodge in the borehole, the safety joint, inner tube, and core can be removed by backing off at the safety joint, thereby facilitating the subsequent fishing job. Long.

safety lamp. In coal mining, a lamp of an approved type and which is relatively safe to use in atmospheres which may contain flammable gas. Lately, the term tends to be restricted to oil-burning safety lamps, which are issued to deputies and used for fireproof tests. See also cap lamp. An oil safety lamp; gas; electric cap lamp. Nelson.


safety-lamp mine. In Great Britain, a coal mine in no part of which below ground is the face of any stoping or mining other than commissioned legally lawful. Nelson.

safety latch. A latch provided on a hook or elevator to prevent it from becoming detached prematurely. Compare safety hook. Long.

safety lock. An offset swivel coupling that supports the tail ends of the rods when whippingstock. Long.


safety officer. A certificated colliery official who works directly under the colliery manager and also in close consultation with other mine officials. He investigates and reports on every serious accident. He keeps the manager informed on all safety problems and makes recommendations. Nelson.

safetyograph. A circuit tester which consists of a hand-driven generator and a direct-reading ohmmeter mounted together in a strong case. This instrument is perfectly safe, since the testing current developed by the low-voltage generator cannot exceed 12 milliamperes even at excessive handle speeds. Medusa, Ill., pp. 64-65.

safety platform. a. A platform built in a derelict depository and which must be the deck to handle elevators, casing, drill rods, etc. See also safety pack. b. A platform in a hinged-door opening over a shaft while being sunk, especially where blasted materials are to be thrown down. After the hoist is hoisted, the hinged door is closed to prevent any material from falling back onto workmen in the shaft. Bureau of Mines Staff.

safety plugging. A system in high-pressure devices such as boilers, which melts at a predetermined temperature. Pryor. 3.

safety plunger. A rubber plug placed over the face of working places to afford protection for the workmen at the face. It must be set as a line timber and with equal care. At least two safety posts should be set at the face of each working place, not more than 3 feet back from the face. Kentucky, pp. 136-137.

safety poster. A pictorial form of appeal to workmen to exercise care and observe recognized or stipulated safety precautions. The poster is usually displayed at the pithead, canteen, or office. Nelson.

safety powder. A test used for short-flame explosives before the introduction of permissible explosives. Fay.

safety prop. Eng. See temporary prop; safety post.


safety rod. A standby control rod to shut down a nuclear reactor rapidly in emergencies. LBL.

safety roto. A cage-winding device fixed at the upper grade of an inclined face and having its cage attached to the head of the cage-winding or cutter to assist in overcoming frictional resistance of the cutter or loader while in operation against the grade. Bureau of Mines Staff.

safety shoe. A well-built shoe of leather or rubber provided with a steel-toe or other strong, stiff toe. Grove.

sag. a. A depression in a mine floor or roof. After the bucket is, hoisted, the hinged door is closed to prevent any material from falling back onto workmen in the shaft. Bureau of Mines Staff.

sagging. a. A depression in a coal-seam face. Fay. c. To cause to curve downward in the middle usually as a result of improper loading or supporting. Webster 3d, d. The difference between the sagging path of a conveyor belt actually taken due to the imposed load of material and its own weight, and the theoretical path projected to the top of the supporting idler rolls. This sag is limited by proper correlation of idler spacing and belt tensioning. ASA M4H 1938. See closure. Spalding, p. 159. f. See rod sag. Long. g. A broad, gentle, shallow basin, for example, the Michigan and Illinois Basins. A.G.I. h. Downwarping of beds near a fault that is opposite to that of frictional drag. A.G.I. i. A decrease in the section thickness of a casting caused by insufficient strength of the mold sand of the cope or of the core.

sag and swell. The undulating topography characteristic of sheets of till. The till usually is thick enough to contain all traces of former topography, and the postglacial drainage is then controlled by the top configuration of the till. Stiles and Yarns, 1955.

sag bolt tension. The minimum tension in the overstressing of the cable which becomes necessary to prevent excessive sag of the belt between belt idlers. ASA M4H 1955.

sag bolt. Bolts installed at the early warning to measure roof sag. A sag bolt is a 12-foot unit put in without a bearing plate. It is securely anchored in the 12-foot horizon with the aid of a heavy nut, and extends about 2 inches from the hole. Three 1/4-inch strips of colored pressure-sensitive tape are wrapped around the extending section of the bolt, beginning with green at the roof line, then yellow and red. The color bands provide a simple, economical means of detecting roof sag at a glance. Coal Age, v. 71, No. 8, August 1966, pp. 86-87.

sag correction. A tape correction applied to the apparent length of a level base line to counteract the sag in measuring tape. Ham.

sapphire. A quartz crystal which contains acicular crystals of rutile. A.G.I.

sapphire quartz. Quartz containing acicular crystals of rutile or sometimes similar crystals of black tourmaline, goethite, stilbite, asbestos, actinolite, hornblende, and epidote. Standard, 1964.

saggar. A fireclay box, usually oval (23 x 17 inches) in which pottery ware can be set in a kiln. The object is to protect the ware from contamination by the kiln gases and the name is generally thought to be a corruption of the word safeguard. Since the bottle oven has become obsolete as a kiln for the firing of pottery and porcelain wares, the name has become increasingly used in the industry, the use of saggers has been largely displaced by the setting of tiles of kiln furniture. See also kiln furniture. Dodd.

saggar-makers' bottom-knocker. The man whose job it was to beat out, by means of a heavy wooden tool, a wad of grogged fireclay to form a bottom for a saggar; a saggar is now virtually extinct. See also saggar. Dodd.

sagitt. Sheet glass shaped into three-dimen-
sagged

sagged tower. A pair of floating lightweight sheaves which give support, at a suitable point, to the ropes leading away from the winding drums. The sheaves are located at a point about one-third of the length of rope between the drum and winding pulleys, measured from the drum. A small drum near the top is sometimes used to alleviate the tension and dampen out the rhythmic swing of the rope. Nelson.

sagittal plane. A plane through a metamorphic rock composed essentially of pyroxene and calcite. Holmes, 1920. A curious rock from near Lake Sagvand, Norway, that is composed mainly of hornblende and magnesium. A little colorless mica and pyrite are also present. The name was given by Peterson. Fay.

salammunite. A very rare, weakly radioactive, monoclinic, colorless mineral. (Mg,Fe) 2 (La,Pr) 2 (PO 4,CO 3) 4 four in barite-dolomite rock with bastnaesite, barite, dolomite, quartz, and hematite. Crosby, p. 108-109.

salina. A sulfur-yellow basic chloraroseinate of lead, 12PbOAg 2(OH) 3 AgCl. Aggregates of this scale. Monoclinic. From Langban, Sweden. English.


Saint Anne marble. A deep blue-black, white-vinriled marble from Biseme, Belgium.

Saint Bienne marble. A yellow stone veined with brown or red; from the province of Var, France. Fay.

Saint Peter's sandstone. An eocene Ordovician formation in the Midwest.; United States. The Saint Peter's sandstone is a formation both, around the periphery of the dome. Webster 3d. c. In ceramics, a box in which castings are made. Webster 3d.

Saint Stephen's stone. A white or grayish chalcedony with tiny red spots so close together that the whole stone, at a distance is a uniform rose-red. Hess.


saicas. A solid mass of iron, frequently weighing many tons, that is deposited and partially replaces the firebrick hearth in the bottom of a blast furnace after long periods of operation. Hender.

saline coal. Total coal-mine output less tonnage rejected or consumed during conveying and mixing. D.O.T.

saline output. The total tonnage of clean coal produced at a mine as distinct from that measured from the pithed output. It is the tonnage of coal as weighed after being cleaned and classified in the preparation plant. Nelson.

salander. A slip in which castings are made. Webster 3d.

salan. A very rare, weakly radioactive, monoclinic, colorless mineral. (Mg,Fe) 2 (La,Pr) 2 (PO 4,CO 3) 4 four in barite-dolomite rock with bastnaesite, barite, dolomite, quartz, and hematite. Crosby, p. 108-109.


salt. A salt spring or well; a saltworks. Fay.

salters. See sagger. Fay.

salt structure. A general term for loadcasts and related structures. Pettijohn.

salt tower. A pair of floating lightweight sheaves which give support, at a suitable point, to the ropes leading away from the winding drums. The sheaves are located at a point about one-third of the length of rope between the drum and winding pulleys, measured from the drum. A small drum near the top is sometimes used to alleviate the tension and dampen out the rhythmic swing of the rope. Nelson.

salmansite. A manganese-containing metamorphic rock composed essentially of pyroxene and calcite. Holmes, 1920. A curious rock from near Lake Sagvand, Norway, that is composed mainly of hornblende and magnesium. A little colorless mica and pyrite are also present. The name was given by Peterson. Fay.

salmonite. A very rare, weakly radioactive, monoclinic, colorless mineral. (Mg,Fe) 2 (La,Pr) 2 (PO 4,CO 3) 4 four in barite-dolomite rock with bastnaesite, barite, dolomite, quartz, and hematite. Crosby, p. 108-109.

saline. A sulfur-yellow basic chloraroseinate of lead, 12PbOAg 2(OH) 3 AgCl. Aggregates of this scale. Monoclinic. From Langban, Sweden. English.


salen. A box in which castings are made. Webster 3d.

salina. A. A pond, pool, or marsh containing salt water diked in from the sea. Stand.

saline sewage. A. A method of shaping ware by winding with machine (sagger preparation). D.O.T.

saline soil. That is inadequately supported during the firing and may cause the fault. Fay. The permanent distortion, or subsidence, of vitreous enamelware that is inadequately supported during the firing and may cause the fault. Fay.

saline water. D.O.T.

saline weathering. A. The flow of enamel through vessels and related structures. Webster 3d.

salina. A. A box in which castings are made. Webster 3d.

saline point. A. A point of land projecting sharply from the shore. Hy.


saline deposits. This group covers a variety of chemically formed rocks characteristic of certain well-defined environments, for example, lagoons, inland lakes, relic (landlocked) seas, etc. It includes chlorides, sulfates, borates, nitrates, etc., occuring as products of precipitation, usually in regular beds or layers, but lacking stratification in the accepted sense. Apart from such developments per se, certain of common salts. Fay. c. In some plays the amount of mineral substances (common salts and others) left by evaporating water is so great as to encrust the entire area, sometimes to a depth of several inches. Such an area is then called a saline. A.G.I. d. In Louisiana, a body of water lying behind a barrier. A.G.I.


salina. A. A box in which castings are made. Webster 3d.

saline or salt water. Fay. b. Applied to minerals having the taste of common salt.

saline character. Any of certain so-called common salts. Fay. c. In some plays the amount of mineral substances (common salts and others) left by evaporating water is so great as to encrust the entire area, sometimes to a depth of several inches. Such an area is then called a saline. A.G.I. d. In Louisiana, a body of water lying behind a barrier. A.G.I.

saline dome. A. An upwelling of the earth's surface on the continental shelf, in which saline water is of such density that it will not mix with fresh or brackish water, but both, around the perimeter of the dome. Fay.
sali
t

dome

The center is barren of vegetation, constituting a nucleus of salt. See also salt dome; dome, c. A.G.I.
saline lakes. See salt lakes. C.T.D.
saline soil. See mud volcanoes, A.G.I.
saline residue. One of a class of deposits formed by evaporation of surface bodies of water and consequent precipitation of the salts dissolved in them. Common salt and gypsum are examples. Stokes and Stas. 1935.
salero. a. A dealer in salt; an owner of a salt mine or works. Fay. b. Sp. Applied to ores requiring much salt in amalgamation.
saline. a. A general term for salt mines of rock salt, salt springs, salt springs, salt rock. Rickett's, 1 b. As used by Congress, includes not only salt springs but all salt lands of every characteristic. Fay.
saline soil. A soil containing excessive quantities of the neutral or non-saline soluble salts. Stokes and Stas. 1935.
Salina formation. A series of nonmarine strata which succeed the Niagara stage in the Silurian system of North America. Red shale and lime mud deposits containing rock salt and gypsum are included in the formation. The strata are found in New York (Syracuse), Michigan, and Pennsylvania. Also called Salina formation.
saliferous. Yielding salt, as a salt bed. Standard. 1964.
salt. The total amount of solid material in grams contained in one kilogram of seawater when all the carbonate has been converted into oxide, the bromine and iodine replaced by chlorine, and all organic matter completely oxidized. Expressed as grams per kilogram of seawater or parts per million, respectively. Standard. 1964.
salt bridge. An instrument for determining salinity of water (a salimeter) by measuring the electrical conductivity of the water sample with a wheatstone bridge. H.G.C.
salimeter. An instrument which measures conductivity of a water sample. This conductivity is measured at the point that a sample of known salinity can be converted to an expression of salinity for the unknown. Wyllie. p. 164.
salite; salite. A variety of monoclinc pyroxene, grayish green, deep green to black in color; obtained from Sala, Sweden. Dana. 6th ed. p. 352; Webster 3d. 1961.
saliter. Used by Wadsworth to include all salts and saline materials. Fay.
salitre. A swampy place where certain salts, salt water, or brine are extracted in the dry season. Standard, 1964.
salivation. A mild form of mercury poisoning similar to the symptoms between the analization points. By efficient ventilation, the wearing of gloves, and perhaps respirators, the symptoms are often not great. See also mining diseases. Nelson.
salmon. Corn. a. A chamber in a mine. Fay. b. A stage in smelting. Fay. c. A boarded cistern for water to run in along the bottom of an adit. Fay. d. The floor or stage on which the ladders rest in a shaft. Fay. Also spelled solar, sollar, and soller, soller being preferred. Thomson. 1912; inching bottle. Dodd. e. Marine salt, sea salt; a name used as early as the 17th century by the chemist van Helmont. Kaufmann.
salt. An underfiring brick (in allusion to its color). Dodd.
saline bricks. A class of underfiring brick embracing those not hard enough for outside walls, and including soft, saline backing-up, pale, light, chimney, filling-in, inside walls and roundtop brick. Stewart, 1964. Sometimes referred to as rauft or place brick.
salimeter; salimeter; salimeter. A type of hydrometer with scale reading 0° S in water and 100° S in fully saturated brine, the scale indicating the percent of saturation. Kaufmann.
Saloplin. Middle and Upper Silurian (restricted) rock salt. Kaufmann.
salpeter. Rock salt. Kaufmann.
salts. Eruptions of hot scalded mud from small on-off vents, or in volcanic districts, and often accompanied by steam and at high temperature. Fay.
sal-soda. Washing soda. Used in glass manufacture Crystals.
salt. a. To accidentally or purposely introduce extra, amorphous, off-coloring, or mor- mileral into a sample, such as a sludge sample, to be assayed. Long. b. To add an accretion of material to a sample. Long. c. To enrich, a mine, artificially, usually with fraudulent intent by secretly placing valuable mineral in some of the working places. Webster 3d. d. The generic term salt, applied to any one of a class of similar compounds formed when the acid hydrogen of an acid is partly or wholly replaced by a metal or a metallic radical. Kaufmann. e. The specific chemical, sodium chloride, NaCl. Kaufmann. f. A slang term for money. Kaufmann. g. An alchemical name for the earth, or the principle of solidity or fusty. Kaufmann. h. A saltcellar, salt dredge, sa'iahaker, or salt dish. Kaufmann.
salt acid; hydrochloric acid; muriatic acid. H.Ci. Kaufmann.
salt antiflame. An antiflame in which the core is composed of salt rock. It is elongate whereas a salt dome is essentially circular in plan. A.G.I.
mutations. a. The variable or leaping movement of saltation, b. The variable or leaping movement of saltation. c. A process by which a particle, picked up by the stream current, is flung upward after which being too heavy to remain in suspension, drops to the stream bottom again at the downstream. A.G.I.
saltation marks. Marks and the casts thereof, made by an object proceeding along a saltatory path. Related to saltation is saltation transport.

salt bath. Mixture of salts (for example, sodium nitrate and chloride) used to heat, harden or temper metals. Peters. 3. salt block. a. Eng. A salt factory where the evaporating process is used; saltern. Standard, 1964. b. An installation of vacuum pans or gradiniers for producing salt by evaporation. Kaufmann.
salt blocks. Evaporated salt or fine rock salt mechanically compressed into dense blocks, usually 20 pounds in weight, for stock feeding. A specially compressed block for strengthening refrigerating briquets is marketed under the name Kooler Kubes. Kaufmann.
salt bottom. A flat piece of relatively low-lying alluvium. Webster 3d.
salt brick. Compressed salt of approximately brick shape and size, for animal nutrition. Kaufmann.
salt cake. Usually an inverted glass U-shaped tube filled with a sodium-chloride solution, the two legs of which dip into the concentrated brines of electricity, forming an electrochemical cell. Kaufmann.
salt. Plants of the genus Atriplex growing in arid saline soils, particularly in Australia. A plant of this genus is found in California under the name Australian salt bush, or Greasewood. Kaufmann.
salt cak. Impure sodium sulfate (90 to 99 percent NaSO₄) obtained as a byproduct: (1) from production of hydrochloric acid; (2) by crystallization from natural brines, such as the Bear Lake (Gale) brine; (3) from the coagulation bath for viscose rayon; and (4) by the Hargreaves process. Impurities vary according to the source. Used in ceramic glazes CCD ed. 1961.
salt catcher. A long cylindrical tube attached to the bottom section of a vacuum pan, into which the full-size crystals settle. Kaufmann.
salt cote. A salt pit, or salt house. Kaufmann.
salt deficiency. A condition sometimes suffered by miners in hot and deep mines and workers in steelworks, due to excess
Salt deficiency can cause various health problems, leading to decreased water retention and altered fluid balance in the body. Correcting sodium chloride deficiency is essential for maintaining proper electrolyte balance and hydration. A healthy diet, with sufficient dietary sodium chloride, is crucial for maintaining normal fluid balance and proper function of the nervous and muscular systems.

Salt is essential for the proper functioning of the body. It helps regulate fluid levels, maintain proper body functions, and support overall health. A diet lacking in sodium chloride can lead to health problems, so it's important to ensure adequate intake. A healthy balance of dietary sodium is crucial for maintaining normal fluid levels, supporting proper body functions, and promoting overall health.

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Webster & S. Handbook of Chemistry and Physics, 1964, p. B-133. 2. Two allotropic forms: (1) alpha samarium; hexagonal; specific gravity, 7.536; and stable up to 917° C. (2) beta samarium; specific gravity, 7.40; and stable up to 917° C to the melting point; ignites in air at 847° C; boils out at 1,900° C; insoluble in water; and soluble in acids. Bond, b. of Chemistry and Physics, 45th ed., 1964, pp. B-133, B-215.

Samarium oxide. Sm₂O₃ has a melting point of 2,350° C. This material has a high thermal neutron cross section, making it usable as a nuclear control rod material. It is also used as a phosphor activator.

Samarikite. A moderately to strongly radioactive, orthorhombic mineral, (Y₂O₃)(Ce, Er, Ce, Th)₂(C₂O₄)·xH₂O. It is a black, sometimes with a brownish tint; surface is often brown or yellowish-brown due to alteration; found in granite pegmatite, commonly associated with columbite; other associates are monazite, magnetite, sinter, beryl, bastite, manamite, eucalyptus, albite, topaz, and garnet; also found as a detrital mineral placer deposits. Crosby, pp. 39-40.

Samarium ware. See terra sigillata. Dodd.

Sample. a. Representative fraction of a body of material, removed by approved methods, guarded against fraudulent adulteration, and tested or analyzed in order to determine the nature, composition, percentage of specified constituents, etc., and possibly their reactivity. Bulk samples are large (several tons), so taken as to represent the ore for sampling and treatment. Channel samples, cores, chips, grab, panning, stope samples, etc., are small crops, made primarily to establish the var: s: of the ore reserve. Pryor, 3. b. A section of core or a specific quantity of material which is taken from the whole from which it was removed. Long. c. To select or take at random a sample. Fay. d. To try or test. Fay.

Sample breaker. In ore dressing, a laborer who pulverizes samples of ore to required fineness so that they may be analyzed to determine their composition. Also called breaker. D.O.T. 1.


Sample cutter. Scot. A steel tube with teeth at the end for cutting crops of mineral in boring. Fay.

Sample divider. A mechanical device that cuts out a (1) certain fractional part of ore to be used as an assay sample; or, for example, split shovel, riffle sample, Brunton's mechanical sampler, and Vein's sampler. Fay. b. One whose duty it is to select the samples for an assay, or to prepare the material to be assayed, by grinding and sampling. Fay. c. A laborer who collects samples of materials and products, such as coal, coke, tar, cokes, coke oven, and sewer water, from various parts of coke plant and prepares them for laboratory analysis by crushing, screening, mixing, weighing, and identifying them. May be designated according to location, as sampleman, oveza, etc. Fay. d. In metallurgy, one who prepares samples of scrap metal for laboratory analysis by crushing, weighing, and dividing. D.O.T. Supp. e. In ore dressing, smelting, and refining, (1) one who tends mechanical devices which cut out sample of entire shipment of ore by diverting a small portion of the ore from the full stream flowing into bins after being crusted, or (2) one who prepares samples of ore for assaying by the following method: Removes samples of ore, using automatic sampling machine; pours wet sample through a self-propagating sample size and filters it to remove liquids; scrapes residue into pan and dries it in oven; prepares dried sample and reduces it in splitter; screens specific amount of dried sample through series of screens of varying mesh size mounted in mechanical shaker and computes proportions of ore left on each screen; and records results of screen tests and places small amount of sample in labeled envelope for assaying. See also mill sampler. D.O.T. Supp. D.O.T. 11.

Sample grinding. In ore dressing, a laborer who powers samples of ore to required fineness for laboratory analysis by crushing, screening, mixing, and dividing. D.O.T. Alp. d. In metalworking, a laborer who selects small amounts of coal or ore from different sections of a mine, groups of cars, etc., and puts them in a sample box, and prepares samples. He bags and marks samples with record of location, and forwards bags to laboratory for analysis. Also called mind sampler; sample taker. D.O.T. 1. g. A specific device for recovering samples of ore. See also sampler. Long. h. An instrument designed to take samples of the flame or other explosion gases at predetermined intervals during an explosion. Rice, George S.

Sample hopper. Sampling hopper. In sampling, the process whereby a sample is collected. Fay. c. Separation of a fraction of the sample. Fay. d. In ore dressing, the process of removing a sample from a moving stream. Fay.

Sample preparation. The process when a sample is obtained from a sample by particle size reduction, mixing, and sampling. Fay. The methods may be divided into manual, mechanical; and automatic. Fay.

Sample preheater. Hydrous phosphate and chloride of copper, calcium, and sodium, NaCa₃(CO₃)₂Cl,5H₂O, as blue crusts of minute orthorhombic crystals. Spencer 16, M.M., 1943.

Sample log. Strip of graph paper showing units of depth on which the geologist notes cores, samples, describes the rock formations; penetrated by drilling.

Sampling. a. See pan, a. Long. b. In coal and coke sampling, the process whereby an analysis sample is obtained from a sample by particle size reduction, mixing and sampling. Fay. c. A laborer who collects samples of materials and products, such as coal, coke, tar, cokes, coke oven, and sewer water, from various parts of coke plant and prepares them for laboratory analysis by crushing, screening, mixing, weighing, and identifying them. May be designated according to location, as sampleman, oveza, etc. Fay. d. In mining, one who selects small amounts of coal or ore from different sections of a mine, groups of cars, etc., and puts them in a sample box, and prepares samples. He bags and marks samples with record of location, and forwards bags to laboratory for analysis. Also called mind sampler; sample taker. D.O.T. 1. g. A specific device for recovering samples of ore. See also sampler. Long. h. An instrument designed to take samples of the flame or other explosion gases at predetermined intervals during an explosion. Rice, George S.

Sample splitter. A mechanical device for proportionally reducing the physical size of a sample. See also Jones splitter. Long.


Sampling. a. A mechanical device for selecting a continuous (fractional) part of ore to be used as an assay sample; as, for example, split shovel, riffle sample, Brunton's mechanical sampler, and Vein's sampler. Fay. b. One whose duty it is to select the samples for an assay, or to prepare the material to be assayed, by grinding and sampling. Fay. c. A laborer who collects samples of materials and products, such as coal, coke, tar, naphtha, benzol, and sewer water, from various parts of coke plant and prepares them for laboratory analysis by crushing, screening, mixing, weighing, and identifying them. May be designated according to location, as sam- pleman, oveza, etc. Fay. d. In metallurgy, one who prepares samples of scrap metal for laboratory analysis by crushing, weighing, and dividing. D.O.T. Supp. e. In ore dressing, smelting, and refining, (1) one who tends mechanical devices which cut out sample of entire shipment of ore by diverting a small portion of the ore from the full stream flowing into bins after being crusted, or (2) one who prepares samples of ore for assaying by the following method: Removes samples of ore, using automatic sampling machine; pours wet sample through a self-propagating sample size and filters it to remove liquids; scrapes residue into pan and dries it in oven; prepares dried sample and reduces it in splitter; screens specific amount of dried sample through series of screens of varying mesh size mounted in mechanical shaker and computes proportions of ore left on each screen; and records results of screen tests and places small amount of sample in labeled envelope for assaying. See also mill sampler. D.O.T. Supp. D.O.T. 11.

Sampling action. In a feedback control system, the operation or action by which a feedback control device effectuates a change in the value of the variable being measured,
sampling action

is established intermittently, the correction being made intermittently also. NCB.

sampling barrel. A device for displacing soil in proportion to the volume of the sample. The cross section of the tube is made smaller as possible since a quantity of soil equivalent to the volume of the tool must be displaced when the sampler is forced into the ground. A well-designed tool has an area ratio of about 20 percent. Nelson.

sampling errors. a. Biased. arise from consistent error as indicated in sampling, reducing, and evaluation. They are consistently wrong in the same way. Pryor, J. B. Random, as liable to show too much or too little of the quality being scrutinized. They tend to cancel out. Pryor, J.

sampling pipe. A small pipe built into and serving as a fulcrum for the walking chain conveyor which conveys it to and from the sampler.

sampling tools. A group of tools designed for the specific purpose of collecting samples of soil, water, gas, or other material. These tools range from simple hand-held devices to large, complex, automated systems. Nelson.

sampling. a. Weisnckem's name for a glazy phase of andesite that contains bromelite, augite, magnetite, and a few large plagioclase s and garnets. The rock is related to the andesites, as are the limburgites to the basalts. Hess.

sampling. A white, barium metasilicate, BaSiO₃; tetraclinic. Grade tabular crystals. From Mariposa County, Calif. English.

sampling device. a. Separate grains or particles of detrital rock material, easily distinguishable by the unaided eye, but not large enough to be called pebbles; also, a loose mass of such grains that has been displaced by wind or water. Nelson.

sampling error. a. A deviation from the true value of a measured quantity due to the nature of the sampling process. Nelson.

sand. a. A material consisting of fragments of rock or processing of completely friable rock or stone in the Bridgport sand. Arkell.

sand blast. a. Abrasive cleaning by the impingement of small particles having an average weight of 120 to the carat. This term is very loosely applied. J. C. 8200, 1964, p. 149. b. Rock chips and other waste produced by blasting action. Nichols.


sand. Any term sometimes applied to pocketlike deposits of glacial sand and gravel extending down into a coal seam which has been extended in all directions. They are a result of glacial erosion and deposition subsequent to the accumulation of the coal. Stute and Nae, 1949, p. 402. b. A bag filled with sand or small debris and used for the building of pack walls, checks, or for filling cavities behind timber, steel, or concrete roadway linings. The bags are made of cheap hessian material and usually measure 53 by 1 inches when empty. Also called debris bag. Nelson.

sandstone. In many mines a rapid and efficient means of erecting stoppings and walls for the control of ventilation near the face. The walls of doors and air crossings in the workings are often entirely of interlocked sandbags. This method minimizes the use of brattice and spars to extend haulage headings. Prayor, 3rd.

sand. A bath of salt formed by currents in rivers and at their mouths, or of sand formed along beaches by tidal action. Webster 3d.

sand. a. A bath of sand in which laboratory vessels to be heated are partly immersed and used for the building of pack walls, checks, or for filling cavities behind timber, steel, or concrete roadway linings. Webster 3d.


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sand. a. A bath of sand in which laboratory vessels to be heated are partly immersed and used for the building of pack walls, checks, or for filling cavities behind timber, steel, or concrete roadway linings. Webster 3d.
sandpile

driving and withdrawing a wooden pole, and is sometimes used as a means of pre-
paring right angles in the soft soil. Webster's Id.

sand. A tabular cavity from a few inches to
many feet in depth formed by erosion in
calcareous rocks and often filled with
gravel and sand. Webster's Id. Also
A. A general term for the sand delta
formed at the mouth of a glacial stream
as it meets a large body of water (standing
water of a glacial lake or into the sea).
A.G.I.

sand pump. a. A piston-type blower. Also
called American pump. Long. b. A pump,
usually a centrifugal-type, capable of
handling sand and gravel-laden liquids
without clogging or wearing unduly. Also
called sludge pump. Long. c. A cylinder with
a valve at the bottom, lowered into a
drill hole from time to time to take out
the accumulated slimes resulting from
the action of the drill on the rock. Also
called shell pump; sludger. Fay. d. A
pump for lifting tailings at ore-dressing
tables. Niebel.

sand-pump dredger. A long pipe reaching
down from a vessel to the undercarriage of the
plants. Fay. e. See sludger. Nelson. c.

sand plain. A general term for the sand delta
formed at the mouth of a glacial stream as
it meets a large body of water (standing
water of a glacial lake or into the sea).
A.G.I.

sand plume. A general term for the sand delta
formed at the mouth of a glacial stream as
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sand-pump dredger. A long pipe reaching
down from a vessel to the undercarriage of the
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sand sheet. The region of main accumulation
of sand. A.G.I.

sandstone. A structure consisting of
clay-colored cemented sand produced by
water dripping from the roof of a cave and
sandstone. See also calcite-cemented sand.

sandstone. A cemented or otherwise com-
posed detrital sediment composed pre-
donimately of quartz grain, the grades
of the latter being those of sand. Min-
eralogical varieties such as feldsparitic
and glauconitic sandstones are recognised,
and also argillaceous, silicious, calcareous,
ferrous, and other varieties according
to the nature of the binding or cementing
material. A.G.I.

sandstone balls. See pillow structure. Pettijohn.

sandstone dike. a. A tabular-shaped body
composed of sandstone ranging in thick-
ness from a few inches to several
inches, and in length up to several
miles, which cuts across structure and
bedding of the enclosing rocks. May be
formed by fissure filling or by injection of
sand into a fissure from below. A.G.I.
b. A vein of sandstone or mudstone pene-
trating coal seams from either the floor
or roof, both as irregular bulbous masses
and vertically or steeply dipping sheets.
It frequently extends from roof to floor.
See also clastic dike. A.G.I. c. A body of
sandstone contained in a crosscutting
fissure; related to sandstone sills, a prod-
uct of quicksand intrusion. Pettijohn.

sandstone grit. a. In geology, a coarse,
angular-grained sandstone. Fay. b. In
commerce, a sandstone well adapted for
abrasive purposes and easily and neces-
sarily having a coarse grain. Fay.

sandstone opal. A contraction of sandstone
boulder opal, opal-like thin layers of opal
in which thin layers of opal occur in
boulders between layers of sandstone and
soft clays. The variety occurred in the
form of pipes from the thickness of a
needle to 1 inch or more, running through
a free sandstone; it was thick enough to
cut into well-shaped cabochons. Shipley.

sandstone pipes. See cylindrical structures.
Petitjohn.

sandstorm. See dust storm. Heus.

sand streak. Linear, parallel, low ridges with
symmetrical cross-section that form at
interface of sand and air or water and are
parallel to direction of flow. Petitjohn.

sand-struck brick. See soft-mud brick. ACSG.

sand thickness. In ordinary usage the
distance between the top and bottom of
the oil and gas producing zone of a rock
stratum. This one speaks of having 50
feet of sand, meaning a paying horizon
50 feet thick. The term is often used al-
thought the stratum is not technically
sandstone. Williams.

sand trap. a. A device for separating sand
and other heavy or coarse particles from
a cuttings-laden drill-circulation fluid
overflowing the collar of a borehole. Com-
pare shaker. Long. b. A device, often a
simple enlargement, in a conduit for ap-
proaching the sand, silt, etc., carried by the
water and generally produced in the mud-
ishing them from the conduit. Jolly. c.
An inclined trough across which the mud
flows at intervals. During the pres-
tage of the pulp to slurry, any heavy
particles, such as sand, settle to the bot-
tom. Also called American pump. Long.

sand washers. An apparatus for separating
sand from earthy substances. Fay.

sand waves. a. Cross-bedding may be consid-
ered in connection with ripple marks,
because it probably represents many in-
stances one phase of a phenomenon called
sand waves, which are nothing more than
current-made ripple marks of mammoth
proportions. Sand waves appear to be
formed instead of ripple marks when the
current is overloaded with sediment. The
trends are often 15 to 35 feet apart and
rise from 2 to 3 feet above the troughs.
A.G.I. b. A large, ripple-like structure
formed by water currents of high velocity.
Sand waves may be symmetrical, asym-
metrical, or irregular in shape. In the cur-
rents of high velocity, the sand waves
move down current and at slightly lower
velocity, they move upstream. C.T.D.

sand wheel. A wheel about 16 feet in diam-
eter fitted with mild steel buckets around
the circumference and used for removing
sludge or slag out of a sump to stack it at
a higher level. Sand wheels are sometimes
used to raise the tailings to the top of a
dredge. The trend is away from wheels and
towards bucket elevators. Nelson.

sandwich kiln. A tunnel kiln designed for
rapid firing; the height of the setting is
small compared with the width and the
firing is from above and below the set-
ting. Dodd.

sandwich rolling. Rolling two or more strips
of metal together to form a metallurgi-
cally bonded composite sheet. ASM Gloss.


sandy gravel. Gravel containing 50 to 75

sandy sand. Sand dotted with darker spots.
Shipley.

sandy soil. A soil in which sand is the basic
constituent. The sand contributes to the
strength by means ofTogglelock, that is, the
internal friction between particles. Nel-
son.

sandstone. A general term for the sand delta
formed at the mouth of a glacial stream as
it meets a large body of water (standing
water of a glacial lake or into the sea).
A.G.I.

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formed at the mouth of a glacial stream as
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A.G.I.
saupepropic coal

saupepropic coal is a well-defined angular to subangular particle of light brown to nearly white. See also rubie cat's eye. Saupeprophitoides

sapphire glass. Sapphire is glass that closely resembles unknown gemstones in refractive index, specific gravity and optical hardness up to 10 and three fourths.}

sapphire quartz. A very rare blue-brown variety of petrified melonite occurring at Salzburg, Austria, used as a semiprecious gem stone. Also known as azure.

sapphire, a. Ceram. A common term applied to a variety of star sapphire. Sapphire, a. A term often applied to the sapphire cat's eye. An inclusion of small aegirine-augite, and biotite in a groundmass.

sapphire coal. A rare aluminosilicate of magnesium occurring as disseminated blue grains and occasional monoclinic crystals. C.M.D. Synonym for basanite. Blue chalcedony.

sapphire. The breaking away of blocks of rocks by the flaking and breaking of water at the head of a glacier; also, the undermining and overthrowing of solid rock by the agency of a river or other slowly moving water that is undermining the underlying softer layers. Stokes and Vann, 1955.


sapphire, b. Single crystal alumina; sapphire bouks can be made by the Verneuil process and can be used in the manufacture of optical glasses. Prout, 3.


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sarmentite. A hydrous arsenate and sulfate.

sargent tube. Synonym for acid bottle. Long.

sardonyx. A variety of chalcedonic quartz.

Sardinian orogeny.

sardinianite. A variety of anglesite, PbSO₄.

sycophagm. A kind of limestone, wed by Infiltell MOW. Synonym.

saprovininik.

sapratel. A pale yellow


sartorite. A monoclinic mineral, Pb₂(N₂O₅).

sarsen stone. Synonym for graywether. A.C.I.

sarsen. Eng. A large loose residual mass of stone.

sarrancolin marble. One of the most beautiful marbles. The prevailing colors are red, white, brown, and green, in veins and blotches; from the Valley of Aare, in the French Pyrenees.

sarsen. Eng. A large loose residual mass of stone left after the erosion of a once continuous bed or layer; specifically, one of the large sandstone blocks scattered over the English chalk downs. Also called druid store. Webster 3d.

sarsenite. A hydrous arsenate and sulfate.

saturated. a. Rock or soil is saturated with water where all its interstices are filled with water. A.G.I. b. In petrology, applied to minerals capable of crystals growing from rock magmas in the presence of an excess of silica. Such minerals are said to be saturated with regard to silica and include talkspar, pyroxenes, amphiboles, micas, tourmaline, fayalite, spessartite, almandine, and accessory minerals, such as spinel, zircon, topaz, apatite, magnetite, and ilmenite. Applied also to igneous rocks composed wholly of saturated minerals. A.G.I. c. In fatty acids and other organic compounds, a structure in which each carbon valence is combined either with a distinct atom or by polylinkages. Pryor, 3. d. A term applied to total void or pore space. ASCE P1826.

saturated aggregate, suface-dry. Aggregate which has been in contact with water vapor at that temperature. The amount of water vapor which will saturate a given volume of air increases with temperature. Therefore, if saturated air is cooled, the excess water vapor condenses in the form of mist. See also adsorption humidity. Visible saturated columned. Saturated columned. This is a solution in which crystals form in contact with a solvate saturated with respect to both potassium chloride and mercuric chloride on the standard electrode scale of 0.245 V.

saturated minerals. Those minerals capable of crystallizing from rock magmas even in the presence of silica such as quartz or cristobalite which do not contain necessary silica. A.G.I.

saturated rock. Those rocks that contain such silicate minerals that they are not under satu- rated minerals. A.G.I.

saturated solution. A solution of a solute at a particular temperature is one which contains as much of the solute as it can dissolve at that temperature, in the presence of solid particles of the solute. Cooper.

saturated steam. Steam at the boiling temperature or pressure at which it exists. Dry saturated steam contains no water particles in suspension. Wet saturated steam does. Strock, 10.

saturated unit weight. The wet unit weight of a soil mass when saturated. ASCE P1826.


saturated. a. The extent to which a solution contains solute, as expressed in percent concentration. B. The extent to which a gas is dissolved in a liquid or solid. A.G.I.

saturate. a. A rock or soil is saturated with respect to water if all its interstices are filled with water. A.G.I. b. In petrology, applied to minerals capable of crystals growing from rock magmas in the presence of an excess of silica. Such minerals are said to be saturated with regard to silica and include talkspar, pyroxenes, amphiboles, micas, tourmaline, fayalite, spessartite, almandine, and accessory minerals, such as spinel, zircon, topaz, apatite, magnetite, and ilmenite. Applied also to igneous rocks composed wholly of saturated minerals. A.G.I. c. In fatty acids and other organic compounds, a structure in which each carbon valence is combined either with a distinct atom or by polylinkages. Pryor, 3.

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Savox apparatus. A self-contained, oxygen-breathing escape apparatus that weighs about 40 pounds, and is carried on the wearer's chest by means of shoulder straps and a body belt. It will give complete respiratory protection in any atmosphere to which the operator is exposed. It consists of a breathing reservoir chamber that supplies the user with pure oxygen at a pressure that is above atmospheric pressure. The user breathes through a flexible tube connected to the chamber, and the oxygen is supplied by a compressor that is powered by the wearer's body. The reservoir chamber is located in the user's backpack, and can be refilled with oxygen from an external source.

Saxony. A slate, originally a dark grey or greenish-black slate, that is quarried in the Saxony region of Germany. It is a fine-grained, foliated rock that is composed of micas, chlorite, and amphiboles. It is usually black or dark green in color, and has a smooth, glossy surface. The slate is used for roofing, flooring, and wall cladding, and is also used as a construction material.

Saw. Eng. A tool (or removing irregularities from surfaces). A hand tool used for cutting, filing, or shaping wood, metal, or other materials. It is typically used to remove irregularities from surfaces, or to cut through material.

Saw bite. A bit having a cutting edge formed by sawing. a. The cutting of blocks of stone and the like with a cutting instrument. b. To cut with a cutting instrument.

Saw cutting. The process of cutting stone or other materials with a cutting instrument, such as a saw or a drill. This process is used to shape or cut stone, metal, or other materials to a desired size or shape.

Sawing. a. The act of sawing. b. A cutting tool used for cutting wood or metal.

Sawing. a. The act of sawing. b. A cutting tool used for cutting wood or metal.

Sawman. In metallurgy, one who cuts metal rods to specified lengths as they emerge from a continuous casting machine, using an automatic saw that moves parallel to the rods. D.O.T. Sup. 49.


Sawney. Mid. To lower full trams down a mine with a rope or chain passing round a prop, etc. Fay.

Sawing. a. The cutting of blocks of stone and the like with a cutting instrument. b. To cut with a cutting instrument.

Sawing. a. The act of sawing. b. A cutting tool used for cutting wood or metal.

Sawcut. a. In granite works, a workman who cuts or chops granite blocks or slabs. b. To cut or chop granite blocks or slabs. Fay.

Saw cutters. a. In granite works, a workman who cuts or chops granite blocks or slabs. b. To cut or chop granite blocks or slabs. Fay.


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webbing plows 

scalloping

...
scandium. a. Refers to a mineral when the plates are small, for example, tridymite. b. In mineralogy, consisting of scales or tabular crystals. 

scandium oxide; scandia. White; molecular formula \( \text{Sc}_2\text{O}_3 \).

scans. a. A mark left by abrasion, or such marks collectively; said specifically of geological processes, as, the scarrings of the glacier. b. A weld joint between two metal pieces that have notch or beveled. c. A piece of timber of thickness 1 to 1/2 inch. d. Small number as 1 to 2, 3, etc., used for shading in texts.

scanser. A group of minerals forming an amorphous gross, varying from that of aluminum oxide to that of aluminum oxide with calcium carbonate, or that of aluminum oxide and sodium carbonate. The group formula is \( (\text{Na}_2\text{O},\text{Al}_2\text{O}_3,\text{SiO}_2,\text{O}_2) \), from vertical wafes in sandstone, usually found in the region of the waputik or in Alaskan sandstone. Also known as trinite. c. A piece of timber of thickness 1 to 1/2 inch.

scanted scantling. a. The dimensions of a stone in scanning line. b. In founding, an imperfect casting, or a casting that is not reduced to a regular outline. c. To cut so as to form a scarf joint.

scaped. a. In the iron & steel industry, one who scatters slag. b. A weld joint between two metal pieces that are notched or beveled. c. A phenomenon which occurs when a sound wave travels outward from a source into the sea; the energy producing a primary directional wave and also secondary waves which travel in other directions.

scatter. a. An acoustical discontinuity comparable to a notch in a detector. b. A weld joint between two metal pieces that have notch or beveled.

scatter coefficient. See coefficient of scatter.

scatter factor. See factor of scatter.

scatter losses. That part of the transmission loss which is due to scattering within the medium or due to roughness of any reflecting surfaces.

scatter pole. Ordinary by using a gas torch. The operation permits surface defects to be cut from the piece. b. A weld joint in which one plate of the joint is inclined with respect to the main axes of the members. c. A piece of timber of thickness 1 to 1/2 inch.
...while the other performs the simultaneous operation of the Nielsen method to induce inhalation. The method is the least satisfactory of the two methods of artificial respiration. Med. Am. pp. 89-90

...schellerite. A whitish, gray; yellow, green, granular and massive; lead-gray color. Also called humite. See also scheelite. Schaumberg, Daimond. Rock-crystal from Schaumberg, Germany, Shipley. Schaumberg, Daimond. Rock-crystal from Schaumberg, Germany, Shipley.

...scheelite. A whitish, gray; yellow, green, lead-gray color. Also called humite. See also scheelite. Schaumberg, Germany. See also scheelite. Schiller spar. A manganiferous variety of periclasite, monazite, alvite, beryl, garnet. Schiller spar. A manganiferous variety of periclasite, monazite, alvite, beryl, garnet.

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ashIleemo. * tromp 4 daftness down in Schlumberger pholoclhoometer. This instru-
mant measures simultaneously the amount of varying density in a field of flow. Schlumberger dip meter. This dip meter measures both the amount and direction of dip by readings taken in the borehole, and can be operated by using either potential or resistivity measurements. The instrument has a long cylindrical body in two parts, the lower part moving tele-
scopically into the upper. Three long 
springy metal strips, arranged symmetri-
cally round the body, have their upper and lower ends attached to the upper and lower parts of the body respectively. These springs press outwards and make contact with the walls of the hole. Sin-
clair, III, p. 107.


Schoemaker logs. Records obtained from instrument developed by the Schu-
emer brothers for use in borehole log-
ging. Such records are the gamma-ray log, lastrolog, microlog, and neutron log. B.S. 3616, 1963, sec. different depth in fluid, especially as shown by special apparatus. HSG b. A method of apparatus 
for determining the position of two points moving tele-
scopically. This method measures simultaneously the amount of varying density in a field of flow. HSG:

Schoemaker dip meter. Tha dip meter measures both the amount and direction of dip by readings taken in the borehole, and can be operated by using either potential or resistivity measurements. The instrument has a long cylindrical body in two parts, the lower part moving tele-
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scopically. This method measures simultaneously the amount of varying density in a field of flow. HSG:
scintillate. a. Burning with brilliant sparks. For example, white-hot iron when ex- posed to a current of air. b. A very small light flash caused in certain natural or synthetic crystals by radioactive rays or particles. c. An instrument for measuring the scintillation counter in which the photoelectric effect of the scintillation counting tubes is utilized and measured to give a measure of intensity of radiation. 4 G.I. scintillation counter. A sensitive instrument for detecting radiation, such as uranium, radium, and thorium. It uses a transparent crystal which gives off a minute flash of light when struck by a gamma ray, and a photomultipler tube which produces an electrical impulse when the light from the crystal strikes it. The scintillation counter has advantages over the Geiger counter as it is more sensitive, more compact and can distinguish between types of radiation. The instrument responds to gamma rays emitted from the minerals mentioned and charts their intensity. It is used in aerial geophysical prospecting and the resulting maps are used as guides for more detailed ground investigation. It is also being developed, inter alia, for steering the new fast naval cutters. See also coal-seam-probing. Nelson.

scintillation probe. An electronic logging device consisting of a scintillation-type gamma-ray detecting unit built into a container small enough to be lowered into a borehole. Long.

scintillator. A generic name of a scintillation counting device. Long.

scintillograph. A device for measuring radiations. A.C.G.I.

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scintillograph. An instrument for measuring radiation. A.C.G.I.


...lightsconalite. A hydrous phosphate, 4COML. Epidote sand. 11e5erea process. A process for direct reduction of iron pyrites which depends on the dissociation of pyrites in the absence of air, and in the presence of carbon, with the formation of iron and carbon dioxide. It is claimed that iron yields of more than 95 percent have been obtained.

11111110110. Light...
scew
ashes or earth above. Also called Scotch kiln. Dodd.
scew kiss. An updraft kiln usually having no permanent parts. It is built of unfired brick and is fired with wood, coal, gas, or oil. ACGS, 1963.
scew kiss. The kiln for loading coal into tubs, or cars. Fay.
scewling. The outer layer, usually wet clay, of a scew kiss applied to make the kiln gastight. ACGS, 1963.
scew. A device used to a limited extent to load out solid blocks of coal. The scow proper is a flat steel plate which is moved underneath the undercut and blocks the coal by means of a hoist and tall rope. The coal is then wedged down on the scow, and the solid block is hauled by means of the hoist and a head rope to a delivery point where it is transferred to cars. Fay.
scew a brow. Forest of Dean. To drive a heading a little in front of the work. Fay.
scew bowl. Forest of Dean. Ancient ironstone quarries and mine workings. Arkell.
scew car. British. In a clay column formed at the end of the heading or level by guesswork. Fay.
scew coated. (slushers) Air is apparently worked out. No iron or steel scrap is used in the process using 50 percent steel scrap in the open-hearth furnace. Also called go-devil, a. Fay.
scew box plough; Haarmann plough; Kema plough; Gesto scraper box. A layout of rope-drawn scraper boxes with knives on the face side. They are drawn to and fro, and raised against the face by guides controlled by rams. A haulage of 250 horsepower must be installed in a semi-permanent engine room; has a rope diameter of 1.5 inches and a speed of 3 feet per second. No conveyor is required as the coal is scraped by both to the loading point. The maximum workable seam thickness is 20 inches on gradients of 0 to 30 degrees; maximum length of face, 220 to 275 yards; and average per shift, 65% to 8 feet. Nelson.
scew bucket. a. One of the excavating bowls or buckets which form a part of a scraper. Hem. b. In coal mines, the scraper bucket is the bottommost, thickest, and roundest, faced, rounded, sided box, with a hinged back. The hinge operates in a forward direction so that on the return journey on the coal face, the back opens allowing the box to remain empty. On the loading journey, the coal closes the hinge and the material is moved forward or scraped to the point of discharge. Also called scoop. See also scraper loader. Nelson.
scew chaser. One of a number of men whose business is to follow the scraper (go-devil) in the petroleum pipes, and give instant notice if a clog occurs. Standard, 1964. He follows the oil pipe surface and detects the location of the go-devil by sound, especially where pipes are vaporized. See also go-devil, a. Fay.
scew conveyor. a. A mechanical device for conveying coal, rock, ashes, clay, etc., in a shallow trough by means of a scraper or scraper chain conveyor, which is attached to a rope or chain. Fay. b. A conveyor consisting of chain-drawn scraper flights running in a trough through which the material is to be transported. Also called drag-link conveyor; rig conveyor; chain conveyor. B.S. 3152, 1962.
scew hoist. A power-driven hoist that operates a scraper to move material (generally ore or coal) to a loading point. A.C.A 604.58: 1956.
scew loader. a. A machine used for loading coal or rock by pulling an open-bottomed scoop back and forth between the face and the loading point by means of ropes, sheaves, and a multiple drum hoist. The filled scoop is pulled on the bottom to an apron or ramp where the load is discharged onto a car or conveyor. Jones. b. A combined scraper and transporting machine. Originally towed by a tractor, but now diesel-electric with direct current motor in each wheel. Pryor, 3. c. A double-drum winch with two steel ropes. The tail rope passes over the top of a tall shae at one end of the face or road, brought back and attached to the scraper bucket; the pull is coupled directly to the front end of the bucket. The bucket is hauled forward before charging and manganese ore is used instead of iron ore for oxidizing the carbon. The cutting edge of the steel made by this process is claimed to be as high as that obtained by the pig-and-scrap process and yields are said to be higher. Osborn.
scew diamond. See diamond scrap. Long.
scew scraper. a. A rod for cleaning out shotholes prior to charging with explosives. A ¾-inch copper rod with the ends fastened and turned at right angles to the line of the rod is usually used. See iron steel scraper is allowed in a mine. See also stoker. Nelson. b. A steel tractor device used to move earth in surface mining; local name for a cutting machine operator's helper. B.C.I. c. A machine used in mines for cleaning the dust out of the boshole. Fay. d. A mechanical contrivance used at collieries to scrape the culm or slack along a trough to the face side. They are drawn to and fro, or waste for short distances. No conveyor is required as the coal is scraped by both to the loading point. The maximum workable seam thickness is 20 inches on gradients of 0 to 30 degrees; maximum length of face, 220 to 275 yards; and average per shift, 65% to 8 feet. Nelson.

scratch. A calcareous, earthy, or strong substance which scrapes from seawater in boiling it for salt. Fay.

scratch-brush finish. See Butler finish.


scraping. a. The breaking up of metal casthouse, mica. Sk 2W.

sc rape hoist operator. In the iron and steel industry, one who operates a skip hoist and digs into the loose coal or stone until the escaping pulp. Fay.

scraper. a. One who removes scrap from bin, pit, or chute to skip pit, and charges tue material removed into a skip at regular intervals. Fay. b. A local name given to men who pick up the ore left on dumps. Fay.

scraper box. A new piece of strip-mine equipment that handles the jobs of breaking coal, loading, and hauling. Features of the scraper ripper include ripping teeth on the lip for breaking the coal and a flight conveyor for carrying the broken coal away from the lip. As the ripper teeth bite into and loosen the coal, the conveyor sweeps the loose coal upward and prevents buildup ahead of the lip. Coal Age, v. 71, No. 8, August 1966, p. 232.


scrap hoist operator. In the iron and steel industry, one who operates a skip hoist to carry scrap material to the furnaces. D.O.T. 1.

scrapings, enamel. Enamel recovered from a coal. Fay.


scraper loader

and digs into the loose coal or stone until full and then rides to the discharge point. When empty, the bucket is drawn back by the tail rope. The haulage motors are from 5 horsepower upwards and rope speed about 100 feet per minute. The load capacity of a scraper loader ranges from 30 to 80 tons per hour depending on conditions. The loader is used for transporting and loading coal on longwall faces; for removing and loading stone in tunnels, and for stowing dirt on longwall faces. Also called slusher. Nelson.

scrap-out man. In the coke products industry, a laborer who follows coke-drawing machine, removing the coke remaining in ovens, using a long iron rod (scrap). Also called coke-drawing machine helper. D.O.T. 1.

scrap packer. N. of Eng. A machine-operated dragline and scoop, for removing stone from the gateway and packing it in the goaf. Also called slusher. Trinit.

scrap plough; porte et guidain plough. One scraper ripper picks rope-drawn and unguided along the face. A 30-horsepower haulage advances with the face, which is made concept to eliminate the need for guides. Speed, 3 to 4 feet per second. Suita ble seam conditions; thickness, 12 to 24 inches at gradients of 0° to 35° (preferably 15° to 25°); and maximum length of face, 65 yards. Nelson.

scrapshaw. A new piece of strip-mine equipment that handles the jobs of breaking coal, loading, and hauling. Features of the scraper ripper include ripping teeth on the lip for breaking the coal and a flight conveyor for carrying the broken coal away from the lip. As the ripper teeth bite into and loosen the coal, the conveyor sweeps the loose coal upward and prevents buildup ahead of the lip. Coal Age, v. 71, No. 8, August 1966, p. 232.

scraper ripper. A new piece of strip-mine equipment that handles the jobs of breaking coal, loading, and hauling. Features of the scraper ripper include ripping teeth on the lip for breaking the coal and a flight conveyor for carrying the broken coal away from the lip. As the ripper teeth bite into and loosen the coal, the conveyor sweeps the loose coal upward and prevents buildup ahead of the lip. Coal Age, v. 71, No. 8, August 1966, p. 232.


screen. a. One who attends the grizzly, shaking, or vibratory, and either screen box. a. A container in which diamond screens are inserted and the medium passes through a sieve or screen collects and is retained. Long. b. Incorrectly used as a synonym for shaker; also, for shale shaker. Long.

screen chute. A discharge chute equipped with a screen section, either stationary or vibrating, to remove the finer portions or on the mold. Compare fettling, d. Dodd.

screening bottom coal. Lifting coal that has been left by an undercutting machine. Zern.

scraps. Excess body removed during the shaping of pottery ware, together with any broken, unfired pieces. Scraps are usually returned to the blunger for reuse. Dodd.


screened trailing cable. A flexible cable provided with a protective screen or a screen of tinmed copper wire, or other conducting material, applied (1) to enclose each power core separately (individual screen-
screened trailing cable

screening paste. An oil suspension of enamel

screening machine. An apparatus having a

undersize) as a result of screening. Pryor,

smallest mesh screen normally loaded for

used for screening or sifting coal, stamped

Ako called sizing. Pryor, 3.

man Deutsche Industrie Norm (D.I.N).

ing Materials (A.E.T.M.) and the Ger-

include

number of wires per linear inch measured

The British Standard (B.S.) system ap-

The main laboratory

size

product

screen test. A standard test for enamel fine-

screen sizing. Separating various sized grains

successivescreen

system are

size of diamond particles. The diamonds

are passed through screens with openings

size of diamond particles. The diamonds

are passed through screens with openings

screenroom. That part of a breaker where

screen loading chute. A type of chute with a

bar screen or grizzly bottom which

permits fines to fall onto the conveyor belt

first, providing a cushion for the larger

screen lighting. See ceramic ink.

screening machine. An apparatus having a

shaking, oscillatory, or rotary motion, used

for screening or lifting coal, stamped

ore, and the like. Fay.

crushing. A stage in bituminous-

coal-crushing in which units for crush-

screening screw. A standard test for enamel

screenings crushing. A stage in bituminous-

crush coal in a given dry fraction through

screens to small, commercial sizes, such as

1- to 5%-inch stoker coal or screenings.

D.O.T.


screw feed; screwfeeder. A device

screw fan. See axial-flow fan, a. B.S. 3618,

screw conveyor. a. A conveyor screw revolv-

screw conveyer. a. A conveyor screw revolv-

screw-down mechanism. That mechanism on

a mill for lowering and raising the rolls

accommodate the distance between them
to the re-erection of the article being


screwed flanged joint. These flanges have

plain faces; the joint is made by fitting a

washer of insertion rubber which is com-

pressed by tightening evenly with the

bolts disposed around it. Merson, V, 2, p. 627.

screw elevators. Vertical screw elevators are

used for handling pulpervulent materials.

A typical installation for delivering bulk

cement into a plant consists of a screw

bell. One in which a spiral

spiral worm. Nelson. b. A fishing tool shaped like a

crow's-foot; fishing tool; spiral worm. Nelson. b. A fishing tool shaped like a

screw casing. A threaded lap-welded well

casing. Fay.

crushing. A stage in bituminous-

crushing in which units for crush-

screen feed. a. The feed screw in the swivel head

gear-feed diamond drill. Long. b. One in which a spiral

blade presses material forward as it ro-

screw-type. A system of gears, ratchets, and

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screw fan. See axial-flow fan, a. B.S. 3618,

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screw casing. A threaded lap-welded well

casing. Fay.
screw feed. A long cylindrical nut, threaded.

screw feeder. An auger-type screw to transfer material from one bin to another. ACSG, 1963.

screw feed swivel head. A diamond-drill swivel head, equipped with a device consisting of a system of gears, ratchets, friction devices, or some combination of these members, that controls the same or which the drill stem and bit are fed into the rock. Also called feed head; gear-feed head; mechanical-feed swivel head; screwfeed head. Long.


screw feeding swivel head. A diamond-drill swivel head, equipped with a device designed to raise and lower the head as the drill stem is advanced in the ground by means of a winch or capstan. Ham.


screw shackle. A long cylindrical nut, threaded.

screw shank. A long cylindrical nut, threaded internally with a right-hand thread at one end and a left-hand thread at the other, used to connect and tighten together the ends of two rods forming a brace or tie. Ham.


screw thread. Helical ridge of uniform section, formed on inner or outer surface of cylinder (straight thread); conical spiral on inner or outer surface of cone (taper thread). Right-hand thread winds in clockwise screwing direction when viewed end-on. Rolled threads are cold-pressed, and cut-threads chased. Tolerance is total permissible variation of size. Pitch is distance between adjacent points measured parallel to axis. Lead is distance advanced in one complete turn. Threads per inch are reciprocal of pitch in inches. (Angle of thread) is that between flanks, measured in axial plane. Pryor, 3.

screw-threaded adapter. A rigid coupling or sub. When coupled to the drive rod of a screwfeed swivel head of a diamond drill (in place of a chuck), it acts as a device by means of which drill rods can be coupled directly to the screwfeed drive rod. Also called rod adapter. Long.

screw-type mixing conveyor. A type of screw conveyor consisting of one or more conveyor screws, ribbon flight or cut flight conveyor screws with or without auxiliary paddles. See also screw conveyor. A.S.A.MH.1-1958.

scribe. An instrument used by surveyors for marking posts, trees, etc. Fay.

scribing. Scoring the dry enamel coat with a sharp tool. Generally combined with a brushing operation. Bryant.


scrip. a. Credit slip or tickets issued by a mining company to its employees before payday in lieu of cash. The scrip drawn is charged against the pay of the employee, and is exchangeable for commodi- 
ties at the company store at its face value. Fay. b. A document created by legisla- 
tive enactment authorizing the holder there- of is entitled to acquire public nonmineral land, in the certain quantity therein named upon its surrender to the officers of the land office for the district of land subjected to sale and wherein the se- lected lands may lie, or as otherwise pro- 
vided by the law authorizing its creation. Sometimes called indemnity certificates or land warrants. Ritter, I.

scrofdle. To variegate, as pottery ware, in different colors by the use of various colored clays. Standard, 1964.

scrog. a. A helical projection on a drill rod or stem to remove the cuttings from the tool. B.S. 3618, 1964, sec. 6. b. A powered- 
driven rotary head consisting of iron rings or segments. When supplied with steel shot, this head is used to smooth the surface of granite in the process known as ironing. A.I.M.E., p. 328.


scrogge. S. Wales. Overlying strata loosened or broken by workings underneath. Prob- ably a variation of scrunge, to squeeze. Fay.

scroil. Core. a. Thin, sometimes calcareous or siliceous rock attached to the wall of a lode. Fay. b. Core. Loose ore at the point where a lode is disturbed by a cross 
mine. Fay.

scrubber. Device in which coarse and sticky ore, clay, etc., is washed free of adhering material and disintegrated. The main forms are the wash-screens, wash trommel, log washer and hydraulic jet or monitor. Scrubbers or scrubbing towers are also used to separate soluble gases from extracting liquids, or to remove dust from air by washing. Pryor, 3.

scratch. S. Wales. Overlying strata loosened or broken by workings underneath. Prob- ably a variation of scrunge, to squeeze. Fay.

scrubstone. Eng. A provincial term for a variety of calciferous sandstone. Fay.

scum. a. Impure or extraneous matter that rises or collects at the surface of liquids, as vegetation on stagnant water, or dust on a bath of molten metal. Sometimes incorrectly used for word froth in flotation. Fay. b. A surface deposit sometimes formed on clay building bricks. The deposit may be of soluble salts present in the clay and carried to the surface of the brick during drying; it is then known as dry scum. The deposit may also be formed during kiln firing, and may consists of soluble salts in the clay or by reaction between the sulfur gases in the kiln atmosphere and minerals in the clay bricks; it is then known as kiln scum. Compare efflorescence. Dodd. c. Undissolved batch constituent floating as a layer above the molten glass in a pot or tank furnace. Dodd. d. Areas of poor gloss on a vitreous body, caused by the presence of a layer of scumming, a. Water-soluble salts which ap- pear on the surface of ceramic ware after drying or firing. Bureau of Mines Staff, b. A defect characterized by areas of poor gloss on the surface of porcelain enamel. A.S.C. 1963. I. A surface defect appear- ing as dull patches on otherwise bright sur- faces of glasses, glass, or porcelain enamel. A.S.C. 1963. g. Eng. A thin skin of temper, formed over the whole of the top of the Portland series, at the base of the Purbach beds, Long. d. Surface deposits may be of soluble salts present in the clay bricks; it is then known as kiln scum. Compare efflorescence. Dodd. c. Undissolved batch constituent floating as a layer above the molten glass in a pot or tank furnace. Dodd. d. Areas of poor gloss on a vitreous body, caused by the presence of a layer of


desert wind winnow the tossed sands. Pryor, 3.

scyphite. A mica-hornblende phylolite, named from Loch Scye in Sutherlandshire, Scot-
lan. It contains mica, biotite, and olivine; it is predominantly igneous in origin, containing green horn-
blende and other mafic minerals. These include serpentine pseudomorphs after olivine set poikilitically in large ampli-
bolite crystals associated with large bronze mica. Leitch.

scythestone. A whetstone suitable for sharpen-
ing scythes. Fay.


sea. a. An ocean, or alternatively a large body of (usually) salt water less than an ocean. A.G.I. b. Waves caused by wind at the place and time of observation. A.G.I. c. State of the ocean or last face in regard to waves. A.G.I.

sea amber. Amber which has been scooped from the ocean or found on the beaches. Another amber found on the seashore. Tomkeieff, 1954.

sea arch. A cleft in a sea cliff excavated in without support, see also double-seal manhole cover. Fay.

sea cavern. See sea cave.

sea cave. A cleft in a sea cliff excavated in

sea
current. The currents that constitute part

sea
cavern. See sea cave.

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sea
cavern. See sea cave.
as the heat is conducted away by the surrounding cooler strata. Mason, v. 1, p. 286. d. Closing pores in anodic coating, then less absorbent. ASM Gloss. c. Plugging leaks in a casting by introducing thermosetting plastics into porous areas and subsequently setting them in place. ASM Gloss. sealing coat. Bitumen or road tar either pure or as an emulsion, applied to form a thin film over a road surface. Ham.

sealing glass. A glass that is suitable for use in sealing a glass envelope of an electronic valve, for example, to metal. The usual basis for the selection of such a glass is matching its thermal expansion and contraction with that of the metal over the range of temperature from that at which the seal is made to room temperature; however, a glass that is sufficiently soft (for example, a lead glass) can accommodate considerable stress at a glass-metal seal by slowly yielding. See also glass-to-metal seal. Dodd.

sealing surface. The portion of the finish which makes contact with the sealing glasses or line. See also finish, d. ASTM C-162-66.

sealing-wax flow. See convolute bedding. Pettijohn.

sea mud. Pieces of wood full of resin found in brown coal. When ignited they burn, melting and giving off soot and an aromatic odor like sealing wax. A.G.I.

seal off. The use of a cement or other sealant to prevent the escape of explosive gases or other explosives along and in a seam or other voids or cracks. Mason, v. 2, p. 388.

seat. a. The underclay or fireclay on which the coal beds lie. See also seat clay. b. Fireclay. Fay. c. Stratum underlying the valuable seam. Nelson. d. A submarine mountain rising below the sea bottom. Often unobserved on land but observed at sea as a seaquake. Earthquake of which the origin is used for socket. See also socket, d. Long. e. A synonym for seat, cage seat. Fay. d. A synonym for seat. Mason.

d. Synonym for seat. Mason.

e. A synonym for seat. Mason.

seat earth. A white, hydrous borosilicate of sodium, potassium, and magnesium. Minute spherulites composed of radiating fibers. From Sealers Lake, Calif. English. See also earth. B.C.I.

seat earth. A stratum or bed of coal or other combustible material which the coal forests flourished. Nelson.


d. A synonym for seat earth. Mason.

seaquake. Earthquake of which the origin lies below the sea bottom. Often unnoticed on land but observed at sea as shocks felt on board ship. Synonym for submarine earthquake. Schiefferdecker.

search coil. A. Sensitive device, using the mine-detector principle, for locating ferromagnetic material which is to be removed from the earth's magnetic field. It typically monitors a stream of ore passing along a conveyor belt, which it stops when iron is detected. Fay. b. Coll. That is used in electroradiometric methods for measuring the magnetic field that is associated with the electric current. Schiefferdecker.

seaquake. Earthquake of which the origin lies below the sea bottom. Often unnoticed on land but observed at sea as shocks felt on board ship. Synonym for submarine earthquake. Schiefferdecker.

search syndicate. Search syndicates, like prospecting clubs, deal mainly with mines in the earlier stages of discovery and development, but they have a stronger type of organization and a firmer financial backing. Such a syndicate should have capital sufficient to carry on a campaign over several years. Hooe, p. 251.

seamite. A transparent, pale yellow seam. a. A stratum or bed of coal or other combustible material which the coal forests flourished. Nelson.

seam blast. A blast made by placing powder or dynamite under or between the solid wall and the stone or coal intended to be removed. Mason.

seam contour. A line drawn on a plan joining points on the floor or roof of a seam which have the same height above a prescribed datum. B.S. 3618, 1964, see 1.

seamident. Joining sheet metal parts by interlocking bends. ASM Gloss.

seamless-ring rolling. Hot rolling of a circular blank, with rotating electrodes, to form a weldless, circular ring by continuous compressive forces exerted by a main roll on the outer diameter against a pin on the inner diameter. ASM Gloss. May be obtained by appropriate contouring of the pin and roll. The height of the ring is controlled by auxiliary rolls. ASM Gloss.

seam-out. A shot that merely blows out a soft stratum in the coal or escapes through a seam without loosening the main mass of coal. In Arkansas, called squal-out. Fay.

seam structure. The physical characteristics of a seam. It refers to the seam thickness, and to the seams, splits, partings, and bands of dirt or inferior coal. The seam structure will influence the method of working, the choice of face machines, machine cutting, and shotfiring. The graduation and dirt produced will depend on the seam structure. See also cleat. Nelson.

sea mud. A rich saline deposit from salt marshes and seashores. Fay.

seam welding. a. Arc or resistance welding in which a series of overlapping spot welds is produced with rotating electrodes, rotating work, or both. ASM Gloss. b. Making a longitudinal weld in sheet metal or tubing. ASM Gloss.

seam. a. The layer or stratum of a coal bed at which the different layers or strata of coal are easily separated. Fay. f. See seam ident. Mason.

g. Mark on ceramic ware or glass indicating work, or both. ASM Gloss. b. Making a longitudinal weld in sheet metal or tubing. ASM Gloss.

seaquake. Earthquake of which the origin lies below the sea bottom. Often unnoticed on land but observed at sea as shocks felt on board ship. Synonym for submarine earthquake. Schiefferdecker.

sea state. Numerical or written description of ocean surface roughness. Hy.

seasteam. Amber, Shipley.

seal earth. a. The underlay or fireclay on which a coal seam rests. Also called sealing earth. Perry. b. The floor of a mine. Fay. c. The foundation or framework on which a structure rests, for example, on a coal seat, cage seat. Fay. d. A synonym for socket. See also socket, d. Long. e. The surface against which the closure parting is worked is usually cut off. Long. f. A place prepared on the siege of a gash pot furnace for the support of heat. See also top seal.


seal earth. a. A layer of remnant old soil, usually containing abundant rootlets, underlyng a coal seam. See also fire clay. B.C.I.

seal earth. b. A layer of remnant old soil, usually containing abundant rootlets, underlyng a coal seam. See also fire clay. B.C.I.

sea water. a. A layer of remnant old soil, usually containing abundant rootlets, underlyng a coal seam. See also fire clay. B.C.I.

sea state. Numerical or written description of ocean surface roughness. Hy.
seated. a. Placed in position. See also socket, d. Long. Closed by pressing the closure part of a valve against its seat. See also seat, e. Long.

seating. To fit into the point of support for a heavy load. Ham.

seating block. A block of fire clay refractory shaped to support a boiler. Dodd.

seating curve. The curve at the bottom of the tooth gap on a roller chain sprocket. ASM.

seated. a. Placed in position. See also socket, d. Long. Closed by pressing the closure part of a valve against its seat. See also seat, e. Long.

seawater batteries. Silver-zinc batteries acti-...
secondary dispersion. Geochemical dispersion occurs when a particle of ore is broken up into smaller particles, so that the surface area available for chemical reactions is increased.

secondary crusher. Crushing and pulverizing machines next in line after the primary crusher. This group of machines includes the finer types of jaw crushers and gyratory crushers, and also crushing rolls, hammer mills, and edge runner mills.

secondary crushing. In ore dressing, the secondary crushing is the second stage of grinding in which the discharge from the primary crusher is broken down to a size suitable for feed to the fine grinding machines. Newton, p. 38.

secondary drilling. The process of drilling; the so-called "poppers" for the purpose of breaking the large masses of rock thrown down by the primary blast. Fay.

secondary enlargement. The deposition around a nucleus, in optical continuity with it, of material of the same composition as the nucleus. Under proper conditions, good crystal faces may be developed in this way. A.G.I.

secondary enrichment. An enrichment of a vein or an ore body by material of later origin, often derived from the oxidation of decomposed, overlying ore masses. Nelson, p. 958. The property exhibited by some fire clay and high-alumina refractories of developing permanent expansion at temperatures within their useful range; not the same as overfiring. H.W.

secondary fan. Any fan installed underground to ventilate tunnels or workings where the air current is sluggish. See also auxiliary fan.

secondary fertilizer components. Fertilizer components, other than primary, essential to proper plant growth, for example, calcium, magnesium, sulfur, phosphates, copper, zinc, and boron. Bennett.

secondary filtration. Fertilizer components, other than primary, essential to proper plant growth, for example, calcium, magnesium, sulfur, phosphates, copper, zinc, and boron. Bennett.

secondary grinding. Further comminution of material already reduced to sand sizes in rod or ball mills. Prager, 3.

secondary hardening. Tempering certain alloy steels at certain temperatures so that the residual austenite is greater than that obtained by tempering the same steel at some lower temperature for the same time.

secondary hardness. Further increase in hardness produced on tempering high-speed steel after quenching. C.T.D.

secondary haulage. That portion of the haulage system which collects the ore from the various gathering-haulage delivery points and delivers it to the main haulage system. Wheeler, p. 3.


secondary interstices. Those developed by processes that affect the rocks after they had been formed. A.G.I.

secondary lead. Lead deposited from salvage of wornout end-product items, such as battery plates, cable covering, pipe and sheet, which at one time was roasted, remelted, and refined in secondary smelters to produce refined lead or various lead-base alloys. A.G.I.


secondary mineral. A mineral resulting from the alteration of a primary mineral. Thus, original sulfides by oxidation change to sulfates, carbonates, and oxides, and these by hydration become hydrous forms of the same. Fay. A mineral that was formed later than the rock in which it is found. See also primary mineral. Nelson.

secondary mineral deposits. Primary mineral deposits are eventually subjected to alterations through weathering, both chemical and mechanical, and give rise to secondary deposits which are divided into three groups: sedimentary rocks, secondarily enriched ore deposits, and residual or detrital ore deposits.

secondary mineral matter. In a cosi or isom, the material brought in solution by percolating waters and deposited in cracks and joints, subsequent to the formation of the coal. Nelson.

secondary openings. Voids produced in rocks subsequent to their formation through agencies, such as solution, weathering, or movement. A.G.I.

secondary ore. The alteration or secondary concentration products of primary ore. A.G.I.

secondary orebody. Porphyry developed after the formation of a deposit and resulting from subsequent replacement, solution, or weathering. A.G.I.

secondary production. See middlings.

secondary precipitation. Other than the primary radiation emitted by any irradiated material or of materials accumulated by organisms. The term was also used in the past as one of the series—primary, secondary, Tertiary, and Quaternary—to designate one of a series of successively formed groups or rocks. In this sense, it is no longer employed but the term Tertiary and Quaternary have been retained as period names in the time scale. Stokes and Varnes, 1955.

secondary processing. The process of growing the primary settling in surface subsidence in which the surface subsides gradually. This period may continue for many years or even decades. Compare primary settling. Stokes, v. 1, p. 497.

secondary shaft. The shaft which extends a mine below the bottom of the primary shaft but not in line with the primary shaft. Spalding.

secondary shooting. In quarrying, the reduction in size or dimension of blasted rock by additional or secondary blasting. Streeter, p. 17.

secondary slime. See slimes. Prager, p. 817.

secondary source. If an operation violates or disperses dust, it is a secondary source. Hatman, p. 59.

secondary sulfide zone. A zone developed only over the area of a deposit where limited data are collected. See also subordinate station. Hy.

secondary stratification. Stratification developed after the minerals already deposited are thrown into suspension and redeposited. A.G.I.

secondary structure. Structure in a sedimentary rock which developed penecontemporaneously with sedimentation or shortly thereafter. Refers to an accretionary structure of chemical origin. A.G.I.

secondary sulfide zone. In many metalliferous deposits, particularly those of copper, there is found below the zone of oxidation, a second zone containing sulfide minerals that have precipitated from down-trickling solutions containing metals leached from the oxidized zone. This secondary sulfide zone generally marks the change from oxidizing to reducing conditions, such as the level of ground water, at the time of secondary deposition. The sulfide zone is often greatly enriched and may constitute economically recoverable ore whereas the original primary deposit may not. Stokes and Varnes, 1955.

secondary twinning. Twinning produced subsequently to the original formation of a layer of crystalline material, under a pressure, causing the inversion of the atomic
pattern of the crystal structure in certain lamellae. The cause of parting is Slippery, second foot. A mineral vein which was discovered after the original or discovery vein on which the claim was based. Also called incidental vein. Nelson. The extra- lateral rights of secondary veins in a claim depend on the dip of the original vein on which the claim was located; that is, extralateral rights are allowed on the secondary veins if they dip in the same general direction as the original vein, but they are not allowed if the secondary veins dip in the opposite direction. Lewis, pp. 33-34.

second water. Water entering the mine from other workings, as opposed to water inherent in the area worked by the mine. B.S. 3618, 1963, sec. 4.

second wave. Synonym for distortional wave; equivoluminar wave; shear wave; S-wave; transverse wave. A.G.I.


secondary wave. A term or synonym for wave; equivoluminar wave; shear wave; S-wave; transverse wave. A.G.I.

-secondary bye. A convenient unit in storage computations. A.G.I.

-secondary wave. A wave; an expression at constant volume is k²[A].(13].

second quality fire clay brick. A trade term, usually indicating fire clay brick of the best quality, but not broken or twisted. Briggs, p. 162.

section bar. A core barrel, the length of which can be increased by coupling unit sections together. See also extension core barrel. Long.

sectional change. An increase or decrease of intensity and/or change of direction of the total magnetic field over a period of many years; usually given as average gammas.

second ripplogs. The first back rippings on a seam. Seely, p. 114.

second outlet. An emergency exit from the roadway. Nelson.

second quality fire clay brick. A trade term, usually indicating fire clay brick of the best quality, but not broken or twisted. Briggs, p. 162.

second outlet. An emergency exit from the roadway. Nelson.

second order. A term used in a second order reaction. Pryor, 3.

second working. a. The recovery of pillar coal by the multiple entry system has com- pleted. Hudson. b. The recovery of pillar coal by the first working. Fay. In coal mining, unless the pillars of coal are left permanently to support the surface, they are removed. This phase of mining is called the second working or pillar working. Where the pillars are removed the greater portion of the coal is produced in the second working. Compare first working. Also called pillar working. Kentucky, pp. 334-335.

sectional belt conveyor. A belt conveyor so arranged that it can be lengthened or shortened by the addition or the removal of interchangeable increments or parts. NEMA MBI-1961.

sectional mining. A water tank built up of standardized pieces, each having external flanges which are bolted together in an assembly for varying sizes of tank. Ham.

-sectional-type conveyor. A conveyor that is lengthened or shortened by adding or removing intermediate sections. NEMA MBI-1956.

section boss. A more or less loosely used term applied to the assistant mine foreman in charge of an area, although used in law in some states in lieu of assistant foreman and certified as such. B.C.I.

section factor. See section modulus. Ro.

section foreman. In anthracite and bitumi nous coal mining, a foreman who has complete charge of a section of mine. Also called section man. D.O.T. 1. See also assistant.

section man. See section foreman. D.O.T. 1. A section is a mechanical sectioning device that pertains to the cross section of a beam. The section modulus with respect to either principal central axis is the moment of inertia with respect to that axis divided by the distance from that axis to the most remote point of the section. The section modulus largely determines the flexural strength of a beam of given material. Ro.

section of rectifier unit. A part of a rectifier unit with its auxiliaries which may be operated independently. Coal Age, 2.

sector. Any area enclosed within a circle in- clude the arc of a circle.

sector gate. A roller gate in which the roller is in the form of a sector of a circle instead of being cylindrical. Ham.

sector. A part of a rectifier unit with its auxiliaries which may be operated independently. Coal Age, 2.

sector gate. A roller gate in which the roller is in the form of a sector of a circle instead of being cylindrical. Ham.

sector gate. A roller gate in which the roller is in the form of a sector of a circle instead of being cylindrical. Ham.

sector gate. A roller gate in which the roller is in the form of a sector of a circle instead of being cylindrical. Ham.

second-foot-day. The volume of water repre- sented by 1 foot per second. See lye.

second-class lever. A lever whose force is exerted between the fulcrum and the point where it is applied. Nichols.

second-class ore; mill ore. An ore that must be given some preliminary treatment, such as concentration, nickel, etc., before a marketable grade or a grade suit- able for further treatment can be ob- tained. See also first-class ore. Nelson.

second derivative. The magnetic field inten- sity or of one of its components with re- spect to the vertical coordinate. Schierer-decker.


second-foot-day. The volume of water repre- sented by 1 foot per second for 24 hours. It is 88,400 cubic feet, or nearly 2 acre-feet (actually 1.9853); a convenient unit in storage computations. Seely, 1.

second mining. a. The recovery of pillar coal after first-mining in chambers has been com- pleted. Hudson. b. The recovery of pillar after development of block pillars by the multiple entry system has com- pleted a panel. Bureau of Mines Staff.

second moment of area. The correct term for the moment of inertia (I) of the plane cross-section of a body. A.G.I.

second or back explosion. Aust. Supposed to be due to the ignition of gases developed from highly heated coal dust, and gases sucked out of the faces of coal by the partial vacuum resulting from the pri- mary explosion, or liberated by fall of roof. Compare retraction wave. Fay.

second order reaction. Chemical treatment in which the rate expression at constant volume is k = the velocity constant. Pryor, 3.

second order reaction. Chemical treatment in which the rate expression at constant volume is k = the velocity constant. Pryor, 3.

second surface. A smooth surface when cut with a knife, without breaking off in pieces. A.G.I.

section bar. A core barrel, the length of which can be increased by coupling unit sections together. See also extension core barrel. Long.


sectionalizing switch. A sectionalizing switch is used for connecting and disconnecting (or both) adjacent electric circuits. See A.G.I.

sectional mining belt conveyor. A belt con- veyor so arranged that it can be length- ened or shortened by the addition or the removal of interchangeable increments or parts. NEMA MBI-1961.

sectional tank. A water tank built up of standardizd pieces, each having external flanges which are bolted together in an assembly for varying sizes of tank. Ham.

sectional-type conveyor. A conveyor that is lengthened or shortened by adding or removing intermediate sections. NEMA MBI-1956.

second working. a. N.S.W. The second-class ore that is prepared for examination. See A.G.I.

second working. a. The recovery of pillar coal by the first working. Fay. In coal mining, unless the pillars of coal are left permanently to support the surface, they are removed. This phase of mining is called the second working or pillar working. Where the pillars are removed the greater portion of the coal is produced in the second working. Compare first working. Also called pillar working. Kentucky, pp. 334-335.

sectionalizing switch. A sectionalizing switch is used for connecting and disconnecting (or both) adjacent electric circuits. See A.G.I.

second-rip. See first-rip. Seely, 1.

second rippings. The first back rippings on a roadway. Nelson.

second order reaction. Chemical treatment in which the rate expression at constant volume is k²[A](B).

second rippings. The first back rippings on a roadway. Nelson.
secular change per year for intensity values and minutes per year for directional values. Hy. sedimentary variation. A relatively large, slow change in part of the earth's magnetic field caused by the internal state of the planet. It is reversible and is expected from a simple but not quite uniformly polarized sphere. A.G.I. secondary dikes. A dike that is injected into a hot country rock; contact generally irregular, close-welded, the grain generally equal throughout, either finer or coarser at or near the margin. This is a characteristic mode of occurrence for pegmatites and aplites. J. Geol., v. 30, No. 2, Feb.-Mar., 1922, p. 165.

separate explosives. The explosives are a type of plastic explosives with a balanced oxygen content which satisfy very high requirements for safety. They are built up on a non-explosive, hydrophilic gel also containing oxygen-emitting salts and solid high explosive. They also contain water. In spite of the high degree of safety against accidental initiation they detonate easily with a blasting cap of normal strength. They have about the same density as the plastic nitroglycerine explosives. Fraenkel, 3, Art. 16:01, pp. 35, 37.

security risk. Operation in which there is an unusual possibility of theft of valuable property, or danger to personnel or plant, or of leakage of classified or secret information of great importance. Pryor, 3.

sedimentary. Formed in place, without transport, by the disintegration of the underlying rock or by the accumulation of organic material; said of some soils, etc. Fay.

sediment. a. Solid material settled from suspension in a liquid. A.G.I. Supp. 2. Solid material, both mineral and/or organic, that is in suspension, is being transported, or has been carried from its site of origin by air, water, or ice and has come to rest on the earth's surface either above or below sea level. A.G.I. Supp.

sedimentary. A descriptive term for rock formed of sediment, especially (1) clastic rocks, (2) chemical or biological precipitates, (3) rocks formed of fragments of other rock transported from their sources and deposited in water, or (2) rocks formed of material in suspension or from solution, as rock salt and gypsum, or from secretions of organisms, as most limestone. Webster 3d.

sedimentary ash. a. Mineral matter introduced into the coal substance during its accumulation. See also extraneous ash. Nelson. b. Ash in coal derived from the mud mixed up with plant debris during the coal formation. Tomkeieff, 1923, p. 34.

sedimentary clay; secondary clay. A clay that has been geologically transported from the site of its formation and redeposited elsewhere. The English clay balls or example, are secondary kaolins. Compare primary clay. Dodd.

sedimentary environment. The geographical, physical, chemical, and biological conditions under which a sediment accumulates. Clauer.

sedimentary ore. Ore formed by the chemical reaction of iron in solution with other materials, in which it comes into contact, especially lime. Mersonau, 4th, p. 383.

sedimentary peat. Peat formed under water, principally in lakes, and largely made of algae and other aquatic plants. Tomkeieff, 1954 and Dons.

sedimentary petrology. The science of laboratory investigations of sediments, their description, and classification. Also called sedimentography. Schieferdecker.

sedimentary rocks. Rocks formed by the accumulation of sediment in water (aqueous deposits) or on land (extrusive deposits). The sediment may consist of rock fragments or particles of various sizes (conglomerates to silt), suspended or dissolved in the water, or (certain limestones and coal); of the product of chemical precipitation of evaporites (salt, gypsum, etc.); or of mixtures of these materials. Some sedimentary deposits (5%) are composed of fragments blown from volcanoes and deposited on land or in water. A characteristic feature of sediment deposits is a layered structure known as bedding or stratification. Each layer is a bed or stratum. Sedimentary lycics as deposited lie flat or nearly flat. Fay.

sedimentary surf. A tuff containing a subordinately high percentage of detritus derived from either during or after deposition, for example, the finer deposits of some mud flows, or all products by the chemical precipitation of evaporites (salt, gypsum, etc.); or of mixtures of these materials. Some sedimentary deposits (5%) are composed of fragments blown from volcanoes and deposited on land or in water. A characteristic feature of sediment deposits is a layered structure known as bedding or stratification. Each layer is a bed or stratum. Sedimentary lycics as deposited lie flat or nearly flat. Fay.

seed charge when selecting materials for stabilized road construction and concrete. Soil, after pretreatment, is shaken up in water and allowed to settle out. The change in specific gravity of the suspended matter with time is measured, and the equivalent diameter is calculated from Stokes' law. Also see organic test. How.

sedimentation trend. The direction in which the sediments were laid down. Uranium mineralization often follows such trends, due to increased porosity, carbon precipitants, etc. Ballard.

sedimentation unit. A layer or deposit formed under conditions of essentially constant flow and sediment discharge; distinguished from like units by change in grain size above and below. Issel. Sediment transport rate or sediment load. Issel. Sedimentography. Schieferdecker.

seed test. A test used to determine the quality of seed. Issel.

seed. A small charge of material used to initiate precipitation. A.S.M. Gloss.
seed core; seed and blanket core

A reactor core which includes a relatively small volume of the blanket (seed) surrounded by a much larger volume of natural uranium or thorium (blanket). As a result of neutron capture, the seed, neutrons are supplied to the blanket. In this way the seed causes the blanket to furnish a substantial part of the core power. LBL.
seed gypsum. Gypsum beds of loose small crystals. New South Wales, p. 54.
seep. A spot where a fluid (as water, so after, or gas) contained in the ground oozes slowly to the surface; and often forms a pool; a small well. Webster 3d.
seepage. a. A quantity of a fluid that has seeped through porous material (as soil). Webster 3d. b. (pepera 23). The slow movement of gravitational water through the soil. ASCE P1826. c. Naturally occurring movement of crude oil, gas, or bitumen to the earth's surface. Institute of Petroleum, 1961. 6. Movement of water through soil with a change in the position of definite channels. Nichols. e. Seepage into a body is referred to as influent seepage; that away from a body, as effluent seepage. Searle, 1.
seepage force. The force transmitted through the soil grains by seepage. ASCE P1826.
seepage line. See line of seepage. ASCE P1826.
seepage velocity. The rate of discharge of seepage water through a porous medium per unit area of void space perpendicular to the direction of flow. ASCE P1826.
S.E.G. Abbreviation for the Society of Exploration Geophysicists, a professional organization of geophysicists primarily engaged in exploration for oil and gas and other minerals. Williams.
Segner core. A small cone made of a clay and talc mixture which softens at a definite, known temperature. Segner cones are used for the approximate determination of temperatures in furnaces (for example, melting furnaces) and in volcanology, to determine the approximate temperature of molten lavas. A.G.I.
Segner formula. A procedure commonly used for the representation of the composition of a ceramic glaze. The chemical composition is recalculated to molecular fractions and the constituent oxides are then arranged in three groups: the bases, which are made equal to unity: $R_2O$, $R_2O_3$, for example, (O.J)NiO:O.2CaO:O.5 Al_2O_3-0.2 Al_2O_3 (3.SiO_2-0.7SnO_2).
Segner's porcelain. A German porcelain composition of 30 percent feldspar, 35 to 40 percent quartz, 30 to 35 percent kaolin. It is covered with a glaze prepared from 40 percent feldspar, 55 percent kaolin, 35 parts whiting, 54 parts flint. It is biscuit fired at a low temperature and glazed after firing.
Segner's rules. A series of empirical rules for the prevention of crazing and peeling. To prevent crazing, the body should be adjusted as follows: decrease the clay, increase the free silica (for example, frit), replace coarse plastic clay with fine plastic clay to decrease the feldspar, grind the flint more finely, biscuit fire at higher temperature. Although the body can be adjusted to increase silica and/or decrease fluxes, replace some $SiO_2$ by $B_2O_3$; replace fluxes of high equivalent weight by fluxes of lower equivalent weight. To prevent peeling, the body should be adjusted in the reverse: direction. Dodd.
Segregate. See segregate. Fay.
Segment. a separated part; an individual piece. Kinney.
Segmentation or A sprang arch having the contour of a segment of a circle. Dodd.
Segmented sluice gate. See radial gate. Ham.
Segmental wheel. An abrasive wheel that is covered with a glaze prepared from 83.5 parts feldspar, 26 parts kaolin, 40 percent quartz, 30 to 35 percent kaolin, and other minerals. Williams.
Segment die. A die made of parts that can be separated for the ready removal of the workpiece. Synonymous with split die. ASPH Gloss.
Segmented belt. A coated abrasive belt made of sections spliced together. Segmentation is necessary to obtain belts wider than 50 inches, the widest coating width. ASGC, 1963.
Segmented. Bonded abrasive sections of various shapes to be assembled to form a continuous or intermittent circular grinding surface. ASGC, 1963.
Segregation. a. A term which refers to the occurrence of different physical characteristics in different physical characteristics. B.S. 3552, 1962. d. Partial segregation of a previously mixed batch of material into its constituent parts which is induced either naturally or by special processes such as centrifuging, and usually persists throughout subsequent heating and working operations. C.T.D. c. The involuntary separation of particles of different sizes. Webster 2d. See also segregated vein. Fay.
Segregated vein. A vein in which the filling is believed to have been derived from the adjacent country rock by percolating water carrying the dissolved mineral matter into the fissure. Fay.
Segregation survey. The survey of a mining claim located on lands classified as agricultural. Fay.
Segregation survey. Same as segregated vein. Fay.
Sele. a. Stationary inertia oscillation of the water of a lake, bay, or marginal sea. Synonym for standing wave. Schiebeacher. b. In oceanography, an apparent tide in a lake (originally observed on Lake Geneva) due to the periodic oscillation of the water when excited by wind. C.T.D.
Self-dune. A long, sharp-crested dune extending in the direction of the wind that constructed it. Mathen.
Seignette electric. See Sieme.
 Seligette salt. See Rochelle salt (potassium acid tartrate). Crystals of this composition are markedly piezoelectric and were used, for this property, before tita- nite ceramics were introduced. The term Seignette electric is still used in Western Europe and in the U.S.S.R. to signify ferroelectric. Dey.
S.E.I. photometer. In this instrument the internal comparison lamp is set to a stand- ard brightness as indicated by a photome- ter and not by reference to a voltmeter or ammeter. Roberts, 11, p. 32.
Semi. a. Pertaining to, characteristic of, or produced by earthquakes or earth vibra- tions, as, seismic activity. See seismicity. b. Describing a record of the amplitudes of seismic waves generated by earthquakes or natural or explosive sources, to map subsur- face structure. Wheeler.
Seismic activity. See seismology.
Seismic analysis. A quick, easy, and inexpen- sive method of determining the consoli- dation of overburden. The process is based on the principle that sound or shock waves travel through different sub- surface materials at varying speeds and along different paths. By this method the operator can determine whether over- burden can be ripped or whether it will need to be drilled and blasted. Coal Age, 71, No. 8, August 1966, p. 219.
seismic belt. One of the broad, more or less well-defined, elongate tracts in which most earthquakes originate. Stokes and Bennett.

seismic drill. Synonym for seismograph drill. Long.

seismic explosives. Special forms of blasting gelatin, gelatin, and ammonia gelatin dynamos. They are used in geophysical prospecting. The initiation of shock waves is achieved by the firing of an explosive charge at a known point. The disturbance must start at the beginnings of the test shoot consistently at their characteristic rate of detonation under unusually heavy water pressure. Lewis, p. 109.

seismic focus. The place of origin, within the seismic region. Arca in which earthquakes frequently occur. Varnes, 1955.

seismic method. A geophysical prospecting method based on the fact that the speeds of propagation of shock waves through the earth vary with the elastic constants and the densities of the rocks through which the waves pass. A shock wave is initiated by firing an explosive charge at a known point (the shot point) and recorded at the time of the travel times taken for selected shock waves to arrive at sensitive recorders (geophones). There are two main divisions of development of operations, that is, the reflection method and the refraction method. The seismic method has not been applied to any great extent to elucidate mining problems, partly due to the high cost. It has been used to investigate the base of drift deposits, and drill-filled channels have been successfully outlined. Nelson.

seismograph. A device for recording seismic waves in which the waves are converted into electrical impulses which vary with time and are recorded as a continuous velocity log or an electric seismogram. A.G.I.

seismograph placing method. A method of geophysical prospecting in which vibrations are set up by firing small explosive charges in the ground. Precise measurements of the resulting waves are taken, from which the nature and extent of underlying strata are determined. Deborin, p. 9-90.

seismic reflection method. In this geophysical prospecting technique, the structure of the subsurface is mapped by reflection using the times required for a seismic wave (or pulse), generated in the earth, to return to the surface after reflection from the formations themselves. The reflected waves are used by detecting instruments responsive to ground motion, which are laid along the ground near the shot. Seifert.

seismic reflection. In refraction shooting, the detecting instruments are laid down at a distance from the shothole that the shock wave can be measured compared to the depth of the horizon to be mapped. The explosion travels over long horizontal distances through the earth and the time required for travel gives information on the velocity and depth of certain subsur-

seismic region. Area in which earthquakes are frequent. Schieferdecker.

seismic refraction. An exceptionally long wave caused by water displacement following a submarine earthquake. Synonym for tsunami; tidal wave. Schieferdecker.

seismic shooting. The initiation of shock waves in the rocks by the firing of an explosive charge at a known point. The disturbance must start at the beginnings of the test shoot consistently at their characteristic rate of detonation under unusually heavy water pressure. Lewis, p. 109.

seismic survey. An exploration technique utilizing the variation in the rate of propagation of shock waves through different media. It is used primarily to delineate subsurface geologic structures of possible economic importance. Seismic surveying is employed most frequently by the petroleum industry. Long.

seismic waves. A disturbance caused by an earthquake. Earth tremors produced by a mechanical disturbance on the surface or underground, and are utilized in the seismic method of geophysical exploration. Three types of waves are produced: (1) longitudinal or P waves; (2) transverse or S waves; (3) surface or Raleigh or L waves. The speed of propagation is characteristic for each type of rock, depending on its density and its compactness. In sandy clay, the speed of the P wave is about 4,000 feet per second; in sandstone, 8,000 feet per second; and in igneous rock up to 22,000 feet per second. Nelson.


seismist. A. Geophysical science which is concerned with the study of earthquakes and measurement of the elastic properties of the earth. A.G.I. c. Also called seismic recording instruments. Also called jackknife rig; rotary shot drill; seismic drill; shothole drill. Long.

seismograph. A collared, tapered, V-thread-coupling drill rod used on seismograph drills. Long.

seismograph shooting. The process of seismology to his work, for example, oil exploration, earthquake detection, and analysis. Nelson.

seismology. The science of earthquakes and attendant phenomena. Schieferdecker. A. A geophysical science which is concerned with the study of earthquakes and measurement of the elastic properties of the earth. A.G.I. c. Also called seismic recording instruments. Also called jackknife rig; rotary shot drill; seismic drill; shothole drill. Long.

seismometer. An instrument buried in the ground which transforms the mechanical effects of earth shocks into electrical energy. This is transmitted by a circuit to a recording station, which records the impulses. Ham. b. Detecting device which receives seismic impulses. Nelson. c. Wire bound securely around the end of a seismic record. Electrical amplifiers are usually connected to the geophone. The instrument can be used for listening. A rate of 3 or more microseisms a second indicates probable tremor. Nelson. d. To protect rope ends by binding with yarn, marline, or seizing; seize. a. To bind wire rope with soft wire, to prevent it from unraveling when cut. Nelson. b. To freeze. Long. c. To cohere or stick to an inadequately lubricated moving part, such as the bearing of a machine, to prevent it from running. Nelson. d. To protect rope ends by binding with yarn, marline, or seizing; seize. Long.

seismometer. A device for recording the velocity of vibrations in the earth's crust. A.G.I.

seismometer spacing. Distance between seismometer stations. Schieferdecker.

seismometer spread. Number of seismometers placed along a straight line, that record the transmitted energy of the seismic waves. Ham. c. Also called seismic record. Nelson.

seismoscope. An instrument which indicates that an earthquake has occurred. Considered by some as equivalent to seismograph. A.G.I.

seize. a. To bind wire rope with soft wire, to prevent it from unraveling when cut. Nelson. b. To freeze; bind; freeze. Long. c. To cohere or stick to an inadequately lubricated moving part, such as the bearing of a machine, to prevent it from running. Nelson. d. To protect rope ends by binding with yarn, marline, or fine wire. Long.

seizing. a. Stopping of a moving part by a mating surface as a result of excessive friction caused by galling. ASM Gloss. b. Wire bound securely around the end of a machine part, such as a bearing or a journal, to prevent it from wearing or becoming loose. Nelson. c. Securing by wire two parallel portions of a submarine wire. Ham.
Seleng conform process

Seleng process. See Uigeo-Selen process, ASM Gloss.

selective. Haury's name for a rock consisting of chert or selenite dispersed through an intimate mixture of amphibole and feldspar, but it has been since applied to so many different rocks of the same type unselect. Sometimes used as a synonym for select group.

selective filling. Hand filling, during which the miner rejects stone or dirt and loads select. Sometimes used as a synonym for select group.

selective freezing. A process involved in the selective freezing of a mixture of amphibole and feldspar, but this phenomenon is not applicable where the valuable minerals rather than the gangue. Sometimes used to mean differential flotation.

selective flotation. a. Generally refers to the selective flotation of a mixture of amphibole and feldspar, but this phenomenon is not applicable where the valuable minerals rather than the gangue. Some times used to mean differential flotation.

selective grinding. Grinding in such a manner as to cause one ingredient of the ore to be crushed preferentially to others. B.S. 3552, 1962.

selective heating. Heating only certain portions of an ore body in mining operations. Nelson.

selective reflectance. Refracting or reflection by a substance, such as an opaque gem, of light of only certain wavelengths, the others being absorbed. This cause of color in gems is a sort of selective absorption.

selective replacement; preferential replacement. Replacement of one mineral in preference to or more rapidly than another. A.G.I.

selective scruff feed. A drill scavenged with the whole feed, in its various parts, sets of feed gears and a shifting mechanism, whereby the driller can easily select and engage the pair giving the desired rate of feed. B.S. 3552, 1962.

selective wetting. In mineral processing, designation of wetting that is selective rather than the gangue. Sometime used to mean differential flotation.

self-annealing. sulfur and tellurium chemically, Symbol, Se; atomic weight, 79.96. C.T.D.

self-acting retarder. A rectifier of the dry-contact type. It is built up of a number of units each consisting of a disk or plate of nickel-plated steel or aluminum, one surface of which is sprayed with a thin coating of metallic selenium. The rectifier consists of a number of these plates forming a stack when clamped over an insulating sleeve; the stacks are connected in series or in parallel to give the necessary current and voltage. The a.c. supply is generally connected through a transformer to give the required d.c. voltage with the load in series with the rectifier; the current then passing through the nickel-steel to the selenium but not in the reverse direction. The transformers and rectifiers may be oil-immersed, and contained in a tank mounted on wheels to run on the pit road. The efficiency of this type rectifier is over 80 percent. Sinclair, 9, pp. 243-246.

self-acting lime. A. Wadsworth's name for rocks composed of gypsum or anhydrite. Fay. b. A mineral, SeO, reported as white needles more or less massive, hymphatic, and ferruginous at Cacharua, Argentina. Dana, 7, u. 1, p. 595.


self-acting door. A ventilation door consisting of two halves, so constructed that they are forced apart centerly by the trams as they come in contact with the converging beams which operate them. The door halves move on small pulleys which run on inclined rails so that after the passage of the tram the doors close by gravity. Nelson.


self-aligning plane. An inclined plane upon which the weight of or force of gravity acting on the full car is sufficient to overcome the resistance of the mine. In other words, the full car, running down, pulls the other car (empty) up. Fay.

self-aligning rope haulage. Gravity rope haulage. A system of rope haulage used for transporting material on the surface and to transfer loaded cars from one elevation to a lower one in mines. Slope must be sufficiently steep so the loaded cars will pull the empty cars up the grade. Lewis, p. 225.

self-advancing supports. Power-operated sup ports. An assembly of self-advancing supports, usually of steel hydraulic supports, on a long- wall face, which are moved forward as and when the face is advanced, by means of a ram coupled to the heavy steel face con veyor. Nelson. Also called walking props.

self-aligning carrying belt. A kind of conveyor which controls and limits the side runout of the carrying belt within practical limits by means of a swivel mechanism. NEMA MB1-1961.

self-aligning return idler. A belt idler which controls and limits the side runout of the carrying belt within practical limits by means of a swivel mechanism. NEMA MB1-1961.

self-bonding. A term applied to metals such as lead, tin, and zinc, which recrystallize...
self-annealing

at air temperature and in which little strain hardening is produced by cold working. C.T.D.

self-centering chuck. A drill chuck that, when closed, automatically positions the drill rod in the center of the drive rod of a double-drill swivel head. Long.

self-cleaning gradient. The gradient at which flow in a pipe of a particular diameter will carry away all solids in it. This gradient must not be too steep nor too gradual, and is usually laid down under bylaws affecting drains and sewers. Ham.

self-contained breathing apparatus. A self-sufficient breathing unit which permits freedom of movement, unencumbered by air hoses. It offers the wearer respiratory protection in atmospheres either oxygen-deficient or too highly toxic to permit the use of gask masks or respirators. The operation or air is supplied in compressed form or by chemical generation and the wearer’s exhalations are removed to the surrounding atmosphere. The equipment is devised to afford protection for special lengths of time, time, with the standards set by the U.S. Bureau of Mines. The two hour apparatus is used for mine rescue and recovery operations, and shorter units for apparatus for industrial uses and auxiliary equipment. Bests, p. 165.

self-contained cooling unit. A combination of apparatus for room cooling complete in one package; usually consists of compressor, condenser, fan motor, and air filter. Requires connection to electric line. Strick, 10.

self-cleansing gradient. A self-cleansing gradient. The gradient at which flow in a pipe of a particular diameter will carry away all solids in it. This gradient must not be too steep nor too gradual, and is usually laid down under bylaws affecting drains and sewers. Ham.

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semiautomatic control. A system to control an intermediate between the selvage. a. Coal intermediate between the selvage. a. Eng. Joint or parting in a stone surface. Should the driver still defer the power supply.

shoulder. a. In coal mining, every effort to reduce dust, and the instantaaneous cam position being directly related to the position of the cage.

surface. Should the driver still defer the power supply. This can be largely prevented if the glaze is semiconducting as a result of the incorporation of metals oxides, such as Fe₂O₃, Fe₃O₄, MnO₂, CaO, Co₃O₄, Cu₂O, or TiO₂; SiC and carbon have also been used as semiconducting constituents. Dodd.

socket. See Coalite. C.T.D.

semiconducting glaze. Porcelain insulators that are covered with a normal glaze are liable, particularly if the surface gets dirty, to surface discharges which cause radio interference and may lead to complete flashover and interruption of the power supply. This can be largely prevented if the glaze is semiconducting as a result of the incorporation of metals oxides, such as Fe₂O₃, Fe₃O₄, MnO₂, CaO, Co₃O₄, Cu₂O, or TiO₂; SiC and carbon have also been used as semiconducting constituents. Dodd.

semiconductor. Crystal system in which, though the electrons are ionically bound, a slight rise of temperature frees the valence electrons so the system becomes a conductor. Amorphous germanium. Conduction of electricity proceeds in one direction only. Pryor, 3.

semiconductive casting. See dc (direct chill) casting.

semicontinuous mill. One that incorporates some stands in tandem, either for roughing or finishing, an example being a semi-continuous wire rod mill with a continuous roughing train and a looping finishing train. Osborne, p. 358.

semicircular. Having a semi-continuous wire rod mill with a continuous roughing train and a looping finishing train. Osborne, p. 358.

semicircular fermentor. A fermentor with a semicircular cross section.
semimatt finish. An enameled or glazed surface that is not altogether rough to the touch, and having a slight glossy appearance. Enam. Die cut-off.
sensible horizon. The visible horizon. *Ham.*

sensible earth fault protection. A system of earth fault protection in which the fault current is recognized by a device which generally requires amplification in order to operate an earth fault relay. In the distribution system, the limitation of the leakage current may be affected by either (1) inserting a current limiting coil between the neutral point of the system and earth (single-point earthing), or (2) connecting, in each circuit to be protected, all phases, in star, through current limiting devices, each star point being connected to earth through an earth leakage protective device (multipoint earthing). B.S. 3618, 1963, sect. 7.

sensitive explosive. See explosive sensitive.

sensitivity. The property in a high explosive of permitting it to be exploded by a shock. The more insensitive an explosive is, the stronger detonator it requires to develop the full strength. *Fay.*

sensitivity to propagation. Sensitivity to propagation of an explosive can be ascertained by a method called the Arder double cartridge, or A.D.C. test. The A.D.C. test consists of firing an explosive cartridge, standard detonator and determining the maximum length of the gap across which the detonation wave will travel without attachment to the first cartridge or receptor, cartridge. Both the primer and the recepto cartridge should be of the same composition, and of the same diameter, length, and weight. *McAdam II,* pp. 19-20.

sensitization. A very small amount of hydrophilic sol (1 or 2 gal). It is used to protect a hydrophobic sol (such as gold or amine sulfide) from the coagulation which results when the sol is placed in a medium in which the sol is nonsoluble. The small amount either coagulates the hydrophobic sol or makes it more sensitive to the action of an electrolyte. This phenomenon is known as sensitization and is thought to be due, in many cases, to the action of the hydrophilic colloid as a colloidal electrolyte. *Mull.*

sensitometric. The science of measuring the sensitivity of photographic emulsions. In practice, it includes the quantitative measurement of the relation between the image produced on a photographic material and the original to which it has been subjected, including exposure and development. *ASM Gloss.*

septarian nodule. Under primary concretions the term may be used to describe nodules of volcanic ash. *Stokes and Varnes, 1955.*

separation density. The effective density at which a separation has taken place, calculated from a specific-gravity analysis of the products; commonly expressed as either partition density or equal errors in a separation. B.S. 3552, 1962.

separation valve. Eng. A massive cast-iron plate suspended from the roof of a return airway through which all return air from a separate district flows, allowing the air to always flow past or underneath it. Used in the event of fire, the force of the blast closes it against its frame and prevents a communication with other districts. The blast being over the weight of the valve causes it to return to its normal position, allowing the ventilation to continue. *Fay.*

separatory. a. A machine for separating, with the aid of water or air, materials of different specific gravity. b. A separator parts two or more ingredients, both valuable, while a concentrator saves but one and rejects the rest; but the terms are often used interchangeably. *Fay.* b. Any machine for separating materials, as the magnetic separator for separating metallic from nonmetallic, or the developing separator for separating materials held within photographic materials. c. A screen, especially a revolving screen for separating things like stones or coal into sizes. *Standard, 1964.*

separation. a. Indicates the distance between any two parts of the vessel (tube, bottle, vein, etc.) disrupted by a fault. Horizontal separation is separation measured in an E-W direction, while vertical separation is separation measured along a vertical line. *Billings,* 1954, p. 136. b. Treatment of ore to separate values (concentrates) from tin. *B.S.* 3525, 1962.

separation coal. Eng. Coal that has been prepared to remove combustible material. *McAdam II,* pp. 19-20.

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septarian nodule

occur in the form of lenticular nodules with or without an appreciable concen-
tration of material parallel to the long axis of the beds, continuous for long distances. Clay
ironstone, an impure carbonate of iron, occurs in this type of deposit.

These latter often crack on drying and consequent shrinkage, the cracks extend-
ing 7 mm within outward. In these cracks, calcite is subsequently deposited, whereby
the nodule is divided into septa of a white or yellowish color. On being cut
and polished, these often form beautiful and unique objects. To such the name
septarian nodule is commonly given.
A.G.I.

septarian texture. A concretionary nodule in-
tersected within by cracks often filled with a later mineral. Schierferdecker.

septaria. A roughly spheroidal concretion,
generally of limestone or clay ironstone,
cut into polyhedral blocks by radiating and intersecting cracks that have been
filled (and the blocks cemented together) by veins of some material, generally cal-
cite. Plural, septaria. Also called sep-
tarian boulder; septarian nodule; turtle
stone. Fay.

septavalent; heptavalent. Having a valency
of 7, as with chlorine and manganese in
perchlorates and permanganates. Pryor, 3.

septemsite. Synonym for amesite. See also

septemberite. A group name for the amesite-
seedrites; the name refers to the activity of
272 of the metallic ion in question; for exam-
ple, sodium metaphosphate and ethylene-
diaminetetraacetic acid (EDTA). Bennett
et al., 1962 A444; CDC 6d, 1961.

seracs. When two or more sets of crevasses
intersect, the surface of the glacier
is torn into a broken mass of jagged ice
pinnacles known as seracs. Stokes and
Varnes, 1955.

sericite. A peachblossom red acid meta-
silicate of manganese, calcium, sodium,
and potassium, 15 (Mn, Ca) 0.3 (Na, K ) 20.20Si-

sericite. A typical product of complete sericitization
of a complete welding cycle except weld
time or heat time. A$M Gloss.

sequence control. A method of control where-
by, once a sequence has been initiated, a
number of electrical circuits will auto-
matically function in a prescribed order.
B.S. 3618, 1965, sec. 7. b. The electrical
arrangement whereby in a system of con-
veyor belts the conveyor nearest to the
main discharge point starts first and the
auxiliary conveyors are automatically
started at 5 to 10 second intervals, the
furthest away starting up last. With se-
quence control (1) attendants are not
required at each of the terminal drives
of individual conveyors, and (2) the
staggered starting brings on the electrical
load gradually. See also actuated roller
switch. Nelson. c. Sequence control in
which centrifugal devices are driven by
the conveyor belt, by a sprocket and
chain from a large sprocket wheel, or by a
flexible drive from a special pulley from
the conveyor belt. Their speed, therefore,
is proportional to that of the belt; con-
tacts or microcontacts are opened or
closed at definite predetermined speeds.
Belt conveyors are connected to conveyors
and leading between 150 and 450 feet
per minute, but should be as low as possible in
that case. Their use is then less, although
a wider belt is required to deliver the

sequence interlock. An interlock provided
for automatically functioning in a prescribed order, and which
prevents a circuit from being operated
unless the preceding circuit has com-
pletely its part in the sequence. B.S.
3618, 1965, see.

sequence starting. An arrangement whereby
the starting of one belt conveyor starts
all of its feeder conveyors in a predeter-
mined manner. The purpose of sequence
starting is to prevent spilling at transfer
points and to reduce the power demand in
a system. NEMD Jagger, 1961.
See also power sequence; pilot sequence;

sequence welding. In resistance welding, a de-
vice used for controlling the sequence and duration of any or all of the elements
of a complete welding cycle except weld
time or heat time. A$M Gloss.

sequence; sequestration; sequestering agent.
A sequestering agent forms soluble com-
pounds with trivalent cations or with metals having a valency
of 7, as with chlorine and manganese in
perchlorates and permanganates. Pryor, 3.

series circuit. A circuit in which all the compo-
nents are connected in series. Electrical
agents are connected in such a manner
that only a single battery, or other source
of electricity, is used in the circuit.

Series connection. When the various parts of
a circuit are connected in sequence so
that the current passes through each of
them in turn, they are connected in series
and the total electromotive force is found
by adding together the electromotive forces
of the individual parts. Mason, V, p. 386.

series contacts. A circuit arrangement which
is connected in series with an armature. Pryor, 3.

series of igneous rocks. See igneous rock
series. A.G.I.

series parallel circuit. A method of connect-
ing together a number of devices which
are to be fired electrically in one blast.
The detonators are connected in the same
manner as the currently accepted
method. King, 1955; C.T.D.

series resistors. Gneiss containing sericite in the
place of the ordinary more coarsely
crystalline muscovite. Fay.

sericite schist. Mica schist whose mica is
sericite. Sericite is also used as a prefix
to many names of metamorphic rocks
containing the mineral.

sericitization. a. A type of hydrothermal al-
teration which results in a complete loss
of soda and a large gain in silica, potash,
perhaps pyrite and other substances. The
typical product of complete sericitization
is a finely granular aggregate of sericite,
quartz, mica, and sericite, which usually
forms a very incompetent rock. Sericitized
rocks are often white to light yellow in
color and are usually soft. Leufl, p. 695.
b. Development of sericite in schists and
other rocks due to metamorphism.

series circuit firing. A method of connecting
together a number of detonators which are
to be fired electrically in one blast. Each
detonator is connected to the adja-
cent detonator to form a continuous circuit having two free ends which are
then connected to the firing cable. In
British coal mines, all rounds of shots
must be connected electrically in series.

The result is a much lower resistance
having a high electrical resistance, requiring high
voltage at the exploder which in turn increases the chance of misfires due
to current leakage. See also parallel circuit
firing. Nelson.

Series connection. When the various parts of
a circuit are connected in sequence so
that the current passes through each of
them in turn, they are connected in series
and the total electromotive force is found
by adding together the electromotive forces
of the individual parts. Mason, V, p. 386.

series conveyor. A conveyor system in which
the belts from a number of drives are
connected to a single drive, and the
conveyors are started and stopped in
sequence. Nelson.

series drain. A drain in which the various parts
of a system of pipes or conduits are
connected in series and are started and
stopped in a predetermined plan.

series firing. The firing of detonators in a
round of shots by passing the total sup-
ply current through each of the deto-
nators. Compare parallel firing. B.S. 3618,
1962. See also series circuit firing.

series motor. Electric motor with field wind-
ings in series with armature. Pryor, 3.

series welding. A method of connecting
together a number of devices which
are to be fired electrically in one blast.
The detonators are connected in parallel
in a number of groups and these

sequence interlock. An interlock provided
between a number of manually controlled
electrical circuits, which are required to
function in a prescribed order, and which
prevent a circuit from being operated
unless the preceding circuit has com-
pleted its part in the sequence. B.S.
3618, 1965, see.

sequence starting. An arrangement whereby
the starting of one belt conveyor starts
all of its feeder conveyors in a predeter-
mined manner. The purpose of sequence
starting is to prevent spilling at transfer
points and to reduce the power demand in
a system. NEMD Jagger, 1961.
See also power sequence; pilot sequence;

sequence welding. In resistance welding, a de-
vice used for controlling the sequence and duration of any or all of the elements
of a complete welding cycle except weld
time or heat time. A$M Gloss.

sequence; sequestration; sequestering agent.
A sequestering agent forms soluble com-
pounds with trivalent cations or with metals having a valency
of 7, as with chlorine and manganese in
perchlorates and permanganates. Pryor, 3.

series circuit. A circuit in which all the compo-
nents are connected in series. Electrical
agents are connected in such a manner
that only a single battery, or other source
of electricity, is used in the circuit.

Series connection. When the various parts of
a circuit are connected in sequence so
that the current passes through each of
them in turn, they are connected in series
and the total electromotive force is found
by adding together the electromotive forces
of the individual parts. Mason, V, p. 386.

series copper-refining process. See Hayden
process; Smith process; Randolph process.
Liddell 2d, p. 695.

series firing. The firing of detonators in a
round of shots by passing the total sup-
ply current through each of the deto-
nators. Compare parallel firing. B.S. 3618,
1962. See also series circuit firing.

series motor. Electric motor with field wind-
ings in series with armature. Pryor, 3.

series of igneous rocks. See igneous rock
series. A.G.I.
parallel groups in turn connected in series. See also parallel series circuit. Nelson.

series parallel firing. The firing of detonators in a round of shots by dividing the total number between two or more branches, each containing a certain number of detonators wired in series. B.S. 3618, 1964, sec. 6. series refracting. See Haydon process. series shots. A number of loaded holes connected and fired one after the other. In contradistinction to simultaneous firing, where the charges are connected electrically, and are all exploded at one time. Staz, R.E.

series ventilation. A system of ventilating a number of faces consecutively by the same air current. B.S. 3618, 1965, sec. 2. series welding. A method of resistance spot, seam, or projection welds simultaneously by a single welding transformer with the molten metal forming a series circuit. ASM Gloss.

serpentine. a. A hydrous magnesium silicate, Mg$_3$Si$_2$O$_5$(OH)$_4$, of greenish-black, but only as pseudomorphs. It is always of secondary origin. The translucent varieties are used for ornamental purposes; those with a fibrous habit (chrysotile) are called asbestos. Commonly green, greenish-yellow, or grayish-green. The variety includes at least two distinct minerals, antigorite and chrysotile, very difficult to distinguish. Most asbestos is chrysotile. Fay; A.G.I.; Dona 17. b. In petrology, a metamorphic rock serpentine composed of serpentine in the whole or a part of the mineral serpentine. Fay.


serpentine jade. A variety of the mineral serpentine, resembling bowenite, occurring in China; used as an ornamental stone. C.M.D.

serpentine marble. See chrysotile. C.M.D.

serpentine rock. A rock generally having a full green color and often spotted or mottled, resembling the spots of a serpent's skin. Meniscus, 9th, p. 302.

serpentine; serpentine. Occasionally it happens that a variable or periodically shifting currents extend a spit first in one direction, then in another; as a spit of sea mud, etc. Fay, S.M.

serpentine tale; serpentinithke. A mineral between serpentine and talc in composition, Mg$_3$Si$_2$O$_5$(OH)$_4$, and physical characters. From silification of dolomite in anhydrite bed of the Werra salt deposits, Thueringia, Germany. Spencer 21, M.M., 1958.

serpentine ware. a. A hard, green-spotted or mottled pottery, often called serpentine. Webster 3d. b. A variety of Wedgwood ware. See also pottery. Fay.

serpentine, color constancy. Almost wholly of serpentine minerals derived from the alteration of previously existing olivine type rocks. A.G.I.

serpentinization; serpentinization. The conversion of ferromagnesian minerals or rocks into aggregates of the serpentine minerals. A.G.I.

serpilite. A bluish-green mineral occurring in association with chrysotile, H$_2$O, Tabular, and in tufts with 1 very perfect cleavage: Larsen, p. 179.

Serpillite grit. A minor subdivision of the Glenlyon Formation of Cambrian age in the Northwest Highlands of Scotland, characterized by the occurrence of the organism serpulites, by some geologists regarded as a very large colonial echinopod, by others as merely a segmented worm. C.T.D.

serpentine. Notched or toothed on the edge; saw-toothed. Webster 3d. Frequently applied to mountain ranges. Fay.

serpentine. (An edge) cut into a line of teeth. Nichols.

serpentine saddle. A refractory support for pot-metal or char. Fay, S.M.

serpentine texture. A term denoting saw-toothed contacts between minerals. A.G.I.

serpentine. A bonding clay for foundry sands. Other.


servant. One who carries and carries out the will of the master or of a mine operator in the execution of the work not only as to whether or not to be accomplished but also as to the means to be employed, is a servant and not an independent contractor. Ricketts, 1.

serve. To furnish; supply; as, the gas wells serve the town with light and heat. Webster 2d. Gas is said to serve when it issues more or less regularly from a fault; a break, etc. Fay.

service-employee. A. A person employed by an employer or company and member of staff. A.G.I.

service agreement. Contract between employer or company and member of staff. Pryor, 3.

service compartment. The section of a mine shaft in which are located the water pipes, the pipeline for compressed air, the cable for the winding gear, and signaling and similar arrangements. Stoices, v. 1, p. 508.

service cistern. An apparatus for exercising control over the rate of inflow of water into a tank of which it is a part. Fay.


service shaft. A shaft employed solely for the hoisting of men and materials to and from underground. Nelson.

service tee. A pipe tee having inside thread on one end and on branch, but outside thread on other end of run. Also known as street tee. Stroke, 3.

service valve. A valve controlling almost wholly of serpentine minerals derived from the alteration of previously existing olivine type rocks. A.G.I.

service water. Water supplied to mines, etc. A.G.I.

set. A. A put together, as a group. Fay, 5. A group of mines under lease. Webster 2d. a. A flat steel bar; a kind of wrest. Webster 2d. i. A piece placed temporarily upon the head of a pile that cannot be reached directly by the weight or hammer. Webster 3d. g. A train of mine cars; a trip. Fay, v. 1. To mine the sides off and trim up a heading. Fay, v. 1. N. of Eng. To load a tub unfairly by placing the aggregate of the coal on the top of it and leaving the bottom part mostly empty. Fay, k. N. of Eng. The natural giving way of the roof for want of support. Fay, i. To make an agreement with miners to do certain work; for example, to set a stall. Fay.

set casing. The cementing of casing in the sides of an excavation, shaft, or tunnel. Also called sett. Webster 3d. See also one-piece set; two-piece set. See also A.G.I.

settle. To settle, as in the case of a miner or of a mine. See also sett. Webster 3d.

sett. A. A group of mines under lease. Webster 2d. a. A flat steel bar; a kind of wrest. Webster 2d. i. A piece placed temporarily upon the head of a pile that cannot be reached directly by the weight or hammer. Webster 3d. g. A train of mine cars; a trip. Fay, v. 1. To mine the sides off and trim up a heading. Fay, v. 1. N. of Eng. To load a tub unfairly by placing the aggregate of the coal on the top of it and leaving the bottom part mostly empty. Fay, k. N. of Eng. The natural giving way of the roof for want of support. Fay, i. To make an agreement with miners to do certain work; for example, to set a stall. Fay.

set cement. A bonding clay for foundry sands. Other.

set cistern. An apparatus for exercising control over the rate of inflow of water into a tank of which it is a part. Fay.
hole. The cement is introduced between the casing and the wall of the hole and then allowed to harden, thus sealing off intermediate formations and preventing fluids from passing into the hole. It is customary to set casing in the completion of a producing well. Williams.

set casing shoe. DCDMA name for a casing shoe set with diamonds. Often used for a one-shot attempt to drill casing down through overburden to bedrock. Also called casing-shoe bit. Compare casing-bit; casing shoe. Long.

set coal. a. Used among British miners for coking purposes. b. The part of a small lump of coal that remains after the coal has been reduced to a fine powder. Synonym for setting.

set i.d. Also called bore; center bore; inside gage; inside set diameter of a core bit. Usually written set i.d., or inside set diameter. Long. Also called setting ring; ring gage; setting gage; setting rod; ring gage; setting gage; Long.

set hammer. The flat-faced hammer held on a handle used by a blacksmith when shaping or smoothing a surface by aid of his striker's ledge. Long.

set i.d. Synonym for set inside diameter.

set inside diameter. The minimum inside diameter of a set core bit. Usually written set i.d. in drilling industry literature. Also called bore; center bore; inside gage; set. Long.

set off. Eng. The part of a connecting rod to which the bucket rod is attached. Set.

set of turns. A group of gas retorts or chambers. Also known as a slip. ASTM C286-65.


set outside diam. The maximum outside diameter of a set bit. Usually written set o.d. in drilling industry literature. Also called outside gage; set o.d. Long.

set reaming shell. A reaming shell, a portion of the reaming shell; it is used to check the setting diameter of a bit or reaming shell. Also called spigot gage; bit ring gage; setting ring; ring gage; setting gage. Long.

set rod. A special diamond-drill rod used to hold a deflecting wedge in a borehole. Long.

set ring. A ringlike sleeve the inside diameter of which is the same as a specified inside diameter of a core bit. Also called setting ring; ring gage; setting gage. Long.

settime; set time; set. The time required by a freshly mixed paste of cement and water to acquire an arbitrary degree of stiffness as determined by specific tests for initial and final set. Taylor.

settled. a. See settlement. b. See settlement ring; settling ring.

settled production. The production of an oil well which, apart from the normal progressive annual diminution, will last a maximum of one year. Turrsets. Fay. b. N. of Eng. See cage shutts. Also spelled settle boards. Fay.

settle. a. A term used to indicate the amount of vertical deformation, that takes place in a kiln full of bricks. Fay. b. To clear of dregs and impurities by causing them to sink. Webster 2d. c. To cause to sink; to depress; to render close or compact. Webster 2d. d. To sink or drop as sediment, especially of ooze or dust. Schiefer, dacker.

settle blow. The stage in the blow-and-blow glassmaking process when glass is forced into a finish or ring mold by air pressure. Dodd.

settle boards. a. N. of Eng. Iron plates or sheets forming the floor of a heapstand, to admit of the tubs being pushed and turned about with facility. Turnsets. Fay. b. N. of Eng. See cage shutts. Also spelled settle boards. Fay.

setting. a. The downward movement of a specific gage in a set core bit. Also called setting gage; setting ring.

setting rate. A compartment term referring to the time required for the glass surface to come within a specified range of the glass-pressure range. A short time implies a fast setting rate, and a long time implies a slow setting rate. ASTM C1200-85.

setting rod. A diamond-drill rod used to hold a deflecting wedge in a borehole. Long.
structure, due to compression of the soil below the foundations. Uniform settle-
ment of a reasonable amount is not harm-
ful to normal structures. Damage is liable to occur when different parts settle by
different amounts—known as differential
displacement. N.L. b. The gradual low-
ering of the superincumbent strata in
mines as the co. 1 or stratified mineral is
extracted. See: ; to subsidence; differential
displacement; seat of settlement. Nelson.
settlement clerk. One who calculates pay-
ment.
shack. Derb. An irregular ore deposit. See also self-open. Fay.

shackamite. A variety of analcite trachyte with phenocrysts of rhombic feldspar. A.G.I.

shackle. a. A connecting link or device for fastening parts together. Usually in such a manner as to permit some motion. Critpin. b. A connecting device for lines and drawbars which consist of a U-shaped section pierced for cross bolt or a pin. Nichols. c. A short wrought iron or manganesee steel chain for connecting mine cars to form a journey or train, for transport by rope haulage or locomotive to and from the pit bottom. He attaches the cars at the junction to form trains for the locomotive or rope haulage. Another idea is to limit the pit bottom for loading into the cage. Nelson.


shade. a. A color that has been darkened by shadow photometer. See Rumford's shading. b. A common method of showing shading. Fay. c. A short wrought iron or manganese steel chain for connecting mine cars to form a journey or train, for transport by rope haulage or locomotive to and from the pit bottom. He attaches the cars at the junction to form trains for the locomotive or rope haulage. Another idea is to limit the pit bottom for loading into the cage. Nelson.

shading. a. A common method of showing relief on maps. The map is shaded so that the inclinations appear as if illuminated with parallel rays of light from a given angle and viewed from a post vertical. Form the topographic forms are thus shown by the shadows they cast. Stokes and Varnes, 1955. b. A pleasing effect produced in enamel by applying, thus shown by the shadows they produce. The topographic forms are noted with parallel rays of light from a point vertically above. The map is shaded so that the inclinations are shown. A.C.T.D. c. The upper zone of the blast furnace. Mersereau, 4th, p. 399.

shaft allowance. The difference between the excavation diameter and the finished diameter in a mine. Nelson.

shaft bottom. See loop-type pit bottom; pit bottom; a; single approach pit bottom. Nelson.


shaft cable cleat. A clamp fixed to a shaft wall or to a run to support vertical cables in a shaft. B.S. 3618, 1965, sec. 7.

shaft capacity. The output of ore or coal that can be expected to be raised regularly during the mine. Weed, 1922.

shaft caving: air lock. The structure enclosing the top of a shaft designed to prevent short circuiting of air into or out of the shaft. B.S. 3618, 1963, sec. 2.

shaft cave. A looted or abandoned shaft or shafts. A.G.I.

shaft collar. See collar set; collar structure. Nelson.

shaft column. A length of pipes installed in a mine shaft for pumping, compressed air, or hydraulic stowing. Nelson.

shaft crane. Hand-rock crane in upcast shaft, set to reduce larger lumps of ore to convenient size for delivery to skip by way of leading pocket. Pryor, 3.

shaft deformation bar. A useful contrivance for measuring the deformation in the cross section of a rock mass. It consists of a length of 1½-inch pipe fitted at one end with a micrometer and at the other end with a hard steel cone. The micrometer should have a range of 3 to 4 inches and should fit into a bushing in the pipe in some manner. It can also be removed from the bar for safe keeping or during transport. Isaacson, p. 207.

shaft drill. The drilling of small shafts up to about 5 feet diameter with the shot drill. In shafts from 4 to 6 feet diameter have been sunk by core drilling. A ring 4 inches wide is formed by roller bits similar to oilfield rotary drilling. Six tricone cutters are used and a large core is formed. A special tool is drilled in the core and a small explosive charge fired to break it for removal. In some cases, it is rumbled bodily. Nelson.

shaft driver. See hoistman. D.O.T. 1.


shaft feeder cable. A cable mounted in a shaft to transmit electrical power to the shaft bottom and/or to an intermediate level. B.S. 3618, 1965, sec. 7.


shaft furnance. A high furnace, charged at the top and tapped at the bottom. Fay. The iron blast furnace is the most important example of a shaft furnace. Newton, p. 275.

shaft head. See cage guides; fixed guides; rope guides. Nelson.


shaft horsepower. A. Actual horsepower produced by the engine after deducting the heat loss of exhaust flue gases, and loss due to friction. Fay.

shaft house. A building at the mouth of a shaft, where ore or rock is received from the mine. Weed, 1922.

shaft inset. The point where a horizontal tunnel intersects a shaft. See also inset. Nelson.

shaft kiln. A vertical kiln charged at the top and discharged at the bottom. If solid fuel is used it is fed in with the charge, but shaft kilns can also be fired with gas or oil by burners placed directly on the bottom of the shaft. Such kilns are used for the calcination of flint, dolomite, fire clay, etc. Dodd.


shaft lighting. The lighting of shafts at landing stations is often found to be far from ideal. Work in the cages, during loading and unloading, and examination of shaft equipment by the provision of fittings to provide a directional flux distribution in such a way that light is thrown forwards from the pit bottom or inset roadway into the shaft area. There must also be adequate illumination on a vertical plane at the shaft inset. Roberts, II, p. 122.

shaft lining. The timber, steel, brick, or concrete structure fixed around a shaft to support the walls. In modern shafts, a concrete lining is generally favored as a shaft lining support. Nelson.

shaftman. a. A miner; one who inspects shaft timbering, guides, guards, and parts from time to time or by climbing down manway, replacing and repairing damaged or defective shaft timbers, cage guides and guards, and other parts; and tightening joints of compressed air, steam, and water pipes. Also called shaft tender; sheavenman. D.O.T. 1. b. See shaft sinker. D.O.T. 1.

shaft mine. a. One where ore or coal is reached by a vertical shaft which may...
shaft mine

vary in depth from less than 100 feet to several thousand feet. Kentucky, p. 329.

b. A mine in which the main entry or access is by means of a shaft. Compare mining (passageways) from the surface.


shaft miner. See shaft miner, b. Dodd.

shaft pillar. a. A large area of a coal seam which is left unworked around the shaft bottom to protect the shaft and in the surface buildings from damage by subsidence. All roadways in the shaft pillar are narrow and coal faces are not opened out until the limit line of the shaft pillar is reached. The area of shaft pillar is considerably greater than the surface area requiring protection. Nelson. Also called high pillar. Fay. b. A solid block of ore left around the shaft where it crosses the lode, for protection against earth movement. Pryor. 3.

shaft plumbing. a. The operation of transferring one or more points at the surface of a vertical shaft to plum line positions at the bottom of the shaft; a method to

shaft raising. See raising.

shaft set. a. Supporting frame of timber, shaft siding. The station or landing-place arranged for the full and empty tubs at the bottom of a shaft. Fay. b. A working face or station in a vertical shaft, a landing or station from which coal is loaded and unloaded

shaft plumbing. a. Ore storage, excavated at depth, which receives trammed ore pending removal by skip. Pryor. 3. b. Loading pockets of one or more compartments for different classes of ore and for waste built at the shaft stations. They are cut into the walk on one or both sides of a vertical shaft or in the hanging wall of an inclined shaft. Lewis, p. 257. c. See measuring chute. Nelson.

shaft rating. See raising.

shaft rent. a. Rent paid for the use of a shaft for mining the minerals from another property. Fay. b. Interest on capital invested in sinking a shaft. Fay.


shaft section. A drawing or log giving details of the structure and the nature of strata intersected by a shaft. B.S. 3618, 1965, sec. 1.

shaft set. a. Supporting frame of timber, maintaining proper support of the sides of the shaft and the gear. Composed of two wallplates, two end plates, and dividers which form shaft into compartments. Pryor. 3. b. A system of mine timbering similar to square sets. The shaft sets are placed from the surface downward, each new set supported from the set above until it is blocked in place. New wallplates are installed on the upper end of the set above by hanging bolts. Blocking, wedging, and lagging complete the work of setting this set. At stations the shaft posts are made much longer than usual to give ample head room for unloading timber on the shaft set. C.T.D. b. See also Weibach triangle, a. Pryor. 3.

shaft signal recorder. A device which records, on paper or otherwise, the signals given by the bankman and the onetower and the movement of the order drum. B.S. 3618, 1965, sec. 7.

shaft signal recorder. a. A device which records, on paper or otherwise, the signals given by the bankman and the onetower and the movement of the order drum. B.S. 3618, 1965, sec. 7.

shaft sinking. a. Excavating a shaft downwards, usually from the surface, to the workable coal or ore. High sinking rates are possible by (1) mechanical mucking; (2) increased winding capacity; (3) improved concrete supply and placing; (4) improved surface layout; and (5) improved methods of blasting. Nelson. b. Excavating a shaft by the method of sinking drill. Bureau of Mines Staff. Compare raise.

shaft sinking drill. A large-diameter drill with multiple rotary- or thrust-cutting bits used for shaft sinking. An adaptation from oil well drills Engineering and Mining J., p. 378.

shaft sinking power supply. A supply of compressed air at a working pressure of about 100 pounds per square inch. At a new mine where two shafts are being sunk, the power installation may comprise eight slow-speed water-cooled compressors with a total output of about 2,000-2,500 cubic feet per minute. A new machine which compresses 20,000 to 30,000 cubic feet per minute. Nelson.

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shaker conveyor 984

shaly sandstone


shaker-conveyor engine. A reciprocating engine operated by compressed air which is used to impart the reciprocating motion to a shaker conveyor panline. Jones.


shaker screen. A screening medium mounted in a rectangular frame, supported in a horizontal or slightly inclined position, and reciprocated longitudinally by a crank or eccentric. The unique feature that differentiates the shaker from all other screens is that the load applied to the screen is transferred to the medium by the shaking motion of the screen. Mitchell, p. 134.

shaking conveyor. A machine for loading coal, ore, or rock usually in headings or tunnels. It consists of a wide flat shovel which is forced onto the surface; for a glossy or livery appearance; then, squeezing the pad; and observing if a rapid apparent drying and subsequent cracking of the soil occurs. ASCE P1226.

shale. A. A laminated sediment, in which the constituent particles are predominantly of the clay grade. Holmes, 1928. b. Shale includes the indurated, laminated, or fissile claystones and siltstones. The cleavage is that of bedding and such other secondary cleavage that is approximately parallel to bedding. The secondary cleavage has been produced by the pressure of overlying strata and plastic flow. A.G.I. c. One of the impurities associated with coal seams; this term should not be used as a general term for washery rejects. B.S. 3552, 1962.

shale-and-clay feeder. One who keeps conveyor belt that feeds dry mill constantly loaded with shale and clay. Also called clay-and-shale feeder; clay conveyor; shale conveyor; shale-and-clay conveyor man; shale feeder. D.O.T. 1.

shale assay ton. In the assay of oil shale, the oil distilled is usually measured in cubic centimeters. To obviate the need of conversion to gallons per ton the shale is weighed in units of 239.66 grams, or 1 gallon per short ton. The weight is, of course, only an approximation, as the specific gravity of the oil varies. Hess.


shale crescents. Crescents formed by shale filling the troughs of ripple mark. Pettijohn.

shale cutter; shale planer. A mechanical excavator sometimes used for getting clay from deposits that are both hard and friable, and that will maintain a steel face for a long period. The purpose of the machine is an endless chain that carries a series of cutters which bear downwards on the clay to a depth of about two inch thick. The machine makes semi-circular sweeps into the clay face before being moved forward or sideways. Dode.

shale dust. The dust obtained by drying and grinding shale. Rice, George S.


shale naphtha. Naphtha obtained from oil shale. Fay.

shale oil. A crude oil obtained from bituminous shales, especially in Scotland, by submitting them to destructive distillation in special retorts. Fay.

shallow. Has a bottom yielding oil on distillation. This term was formerly used as signifying argillaceous rock. Fay.

shallow pipe. A hollow bore hole drilled from red burning hard clay with a distinct fissile structure. Vitrification, from 1,350° to 1,250° C, and salt glazing is successful only at highest temperature. Hess.

shale pit. A dumping place for coarse material screened out of rotary drill mud. Fay.

shale planer. See shale cutter. Dode.

shale screen. See shaker, c. Long.

shale, and. shale screen. A reciprocating mud circulating system of a rotary drill. Nichols. b. A cylindrical stieve or vibrating table that removes the drill cuttings from the circulating mud stream. Wheeler. c. See shaker, c. Long.

shale spirit. Coals of boiling fractions obtained in the refining of crude shale oil. Fay.


shale nature. Shakeness is the property of lustrous rocks, not so smooth and having concave or shelly surfaces in a general way parallel to the bedding planes. A.G.I. c. Having the bedding not far below the surface or top; not deep. Standard, 1964.

shale cave. A cave close to the ground surface. A.G.I.


shallow investigation laterolog. The main use of this log is to provide data on the resistivity of a porous zone (immediately behind a mud filter cake) which is fully flushed by mud filtrate to correct induction log readings. It may also be used in conjunction with a porosity log and other focused devices to give a suite of logs which, in theory, can be unequivocally interpreted. The so-called "grand slam" technique. This log is also called the laterolog B, or more often LLS. Williams, p. 92-93.

shallow vein zone deposits. These deposits are formed at depths probably not greater than 1,000 feet below the surface and within a temperature range of from 50° to 200° C. They are found as tabular veins, irregular veins, and veins in quartz, and as ledges and irregular replacement deposits; they constitute a very important class of deposits, being the source of the world's silver, all of its mercury and important quantities of gold, copper, lead, and zinc. Williams, p. 92-93.

shallow water. Water of a depth less than one-half the length of the waves concerned. Fay.

shallow-water blackout. A carbon dioxide accumulation or excess in a breathing system, as a shaly sandstone or limestone. HBG.

shallow well. A shaft sunk to pump surface or top; not deep. Standard, 1964.

shale. A type of sediment; shale is a sediment, or rock, composed of, or resembling shale, having the characteristic structure and fissility of shale, as a shale sandstone or limestone. Fay. b. Brittle ground. Fay.

shale blues. Term used among Scottish miners to denote coal rock. Fay.

shale sandstone. Arkose of a shale base.
shaly sandstone

with a fissile structure. Bureau of Mines Staff.

shandy-gaff. Shakes or benches, from one to the other of which one is thrown successively in raising it to the level above, or for raising water. See also shambles.

shammel. a. A stage for shoveling ore upon, or for raising water. See also shambles.
b. To work a mine by throwing the material excavated onto a stage or in the "cast after cast" method, which was the usual way before the art of regular mining by means of shafts had been introduced. Fay.

shanty. A mineral, Ni2PbSi, rhombohedral, with X-ray pattern distinct from parkerite and from the system Ni5Si2PbSi. From Trial Harb., Tasmania. Spencer 13, M.M., 1952.

Shanks's classification. A classification of igneous rocks based on crystallinity, degree of saturation with silica, degree of saturation with alumina, and color index. A.G.I.

shandy-gaff. Aus. Shovel-filled coal. Coal that is cut only by a shovel without screening, hence containing an excess of fines; run-of-mine coal. Fay.

shared. a. A pit or shaft. Fay.
b. To work a mine by throwing the material excavated onto a stage or bench or for raising water. See also shambles.

c. A curved, spicularike fragment of volcanic glass. A.G.I.

d. A share of stock of a corporation. ASCG.

e. A share on a piece of paper certifying that the owner possesses one of a number of equal parts of the business. Hooe, p. 246.

Sharon quartzite. A quartzite occurring in Ohio and dated as the prototype of all quartz refractories. A quoted analysis is: 98.7 percent SiO2, 0.3 percent Al2O3, 0.3 percent Fe2O3, and 0.3 percent alkalies. Dodd.

sharp bit. a. A bit in which the exposed acute edges and points of the diamonds have not been worn off, dulled, or blunted by use. Long. b. A newly set and unsharpened bit. Fay.

sharpening stone. a. Any natural or artificial stone with grit used for putting an edge to steel tools. Mersonerau, 4th, p. 268.
b. Hand-used stones that include scythe-stones, whetstones, oil stones, water stones, razor stones, holystones, and rubbing stones. AIME, ps 13-14.

c. The art or skill of sharpening. Dodd.

sharp gay. Eng. Firedamp that explodes suddenly within a safety lamp without showing any perceptible cap. Gas is sharp when at its most explosive point. Fay.

sharp gravel. Angular flint gravel. Arkell.

sharp finish. See finish. Dodd.

sharp fire. Combustion with excess air and short flame. ASTM C162-66.


sharp lime. Derb. A very hard limestone, containing small lumps burnt clay in the vicinity of Horsetown. Arkell.

sharpLinde. Green to blue, monoclinic mineral, 2CaO.2SiO2.4H2O; fibrous. Lar sen, p. 137. Possibly identical to plancheite, the formula being 6CaO.5SiO2.15

sharp. 1. A fine-grained sandstone, free from mud, grit, and angularity problems. Developed by Shock for a sedimentary rock made up of angular particles more than 2 millimeters in size. Fay.

shatter index. The percentage of a specially prepared sample of coke remaining on a 4.75-mm sieve. Fay.

shatter test. An empirical test for coke or briquettes which gives an indication of the resistance of the cone to breakage. A 50-pound sample of test material over 2 inches in size is dropped four times from a height of 6 feet onto an iron plate. It is then screened and each fraction recorded as a percentage of the total sample. Moul.

shatter zone. Applied to a belt of country in which the rock is cracked in all directions, resulting in a network of small cracks or fissures. Fay.

shatterproof glass. Layers of glass cemented to clear plastic sheets to prevent shatter. Fay.

shatterproof. B. Staff. Burnt clay in the vicinity of burnt coal. Arkell.

shattuckite. Green to blue, monoclinic mineral, 2CaO.2SiO2.4H2O; fibrous. Lar sen, p. 137. Possibly identical to plancheite, the formula being 6CaO.5SiO2.15

shavings. A. Staff. In the stoneindus. industry, one who trims the outline edges of granite blocks, using an abrasive saw. D.O.T. 1.

shaving. A. As a finishing operation, the accurate removal of a thin layer by drawing a cutter in a straight-line motion across the work surface. A.S.M. Gloss. b. Trimming parts like stampings, forgings, and tubes to remove uneven shaped edges to improve accuracy. A.S.M. Gloss.

shave. 2. A gas-fired chamber kiln; one of the main features being that the proportion of the hot gases past beneath the kiln floor to improve the temperature distribution from top to bottom of the setting. Dodd.

shaver. A. In making a cast in a coal seam that has been percut. Standard, 1964, p. 90.

shear. a. To make vertical cuts in a coal seam that has been percut. Standard, 1964, p. 90.
b. See shearing. Fay.
c. Mode of failure of a body or mass whereby the portion of the mass that the side of a plane or surface slides past the portion on the opposite side; important property in soil stability. ASTM D1696. See also shear tests. Nelson. d. That type of force which causes or tends to cause two contiguous particles of a solid to slide relative to each other in a direction parallel to the plane of contact. ASM
Shear

A type of cutting tool with which a material in the form of wire, sheet, plate, or rod is cut between two opposing blades. ASM Gloss. I. The type of cutting action produced by rake so that the direction of chip flow is other than normal to the cross section to the cutting edge. ASM Gloss. II. To make into shear steel by condensing blister steel and making it homogeneous. Standard, 1904. b. Application to material of external force (stress) parallel to the cross section concerned. Shear strength (I) is

\[ f = \frac{Z}{A} \]

where BM is the bending moment and Z is the section modulus. Pryor, 3.

Shear angle. In metal cutting, the angle that shear takes place with debris. Shear bursts frequently have not taken stress, throwing still more small lateral movements aka: innumerable shear fractures. See also shear fractures. A.G.I. Shear bursts. a. A fracture that results from stresses which tend to shear one part of a specimen past the adjacent part. Contrast with tension bursts. Billings, 1954, p. 93. b. A fracture in which a crystal (or a polycrystalline mass) has separated by sliding or tearing under the action of shear stresses. ASM Gloss.

Shearing. a. The vertical side cutting which, together with horizental under-cutting, constitutes the attack upon a face of coal. Fay. b. Making a vertical cut or groove in a coal face, stope, or bogie, as opposed to a kerf, which is horizontal cut. B.C.I. Called in Arkansas a cut or cutting. Fay. c. The term given to vertical cut drops are made in coal headings only to provide an additional free face, since in heading work it is usual to employ deeper cuts than on longwall faces, and the shots in headings are much lighter. McAdam II, p. 96. d. The deformation of rocks by cumulative small lateral movements along: innumerable parallel planes, generally resulting from pressure, an inducing职权, shear cleavage, minute plagioclase, and other metamorphic structures. Fay.

Shearing force; sliding force. a. A straining action wherein tangentially applied forces tend to produce a skwing type of deformation. Shearing force is usually accompanied by normal forces produced by tension, thrust or bending. McGraw Hill Encyclopedia of Science and Technology, p. 17, 1969, p. 243. b. A force such as the force on rivets securing two plates together, for example, boilers and bridges. Morris and Cooper, p. 141.

Shearing jib. A jib of a coal cutter or cutter loader which makes a vertical or shear cut in the coal, ore, or rock. Nelson.


Shearing-machine operator. See shearers.

Shearing of rocks. Shear zones, which are common in metamorphic rocks, are indicated by bands of crushed rock (cataclase, etc.) and by the development of such minerals as chlorite. See also strain-slip cleavage. J.T.D.

Shearing strain. See strains.

Shear stress. See also shear fractures. A.G.I. Shear leg. A vertical line parallel to the longitudinal tensile or compressive bending stress in wide beam flanges diminishes with the distance from the web or web; this stress diminution is called shear lag. Ro.

Shear legs. a. High wooden frame placed around an engine or pumping shaft fitted with small pulleys and rope for lifting heavy weights. Zett.

Shear strain. Angular displacement of a structural member due to a force acting across
shear strain

it, measured in radius. See also shear modulus. Ham.

d. The stress or load at which a material fails in shear. Nelson. b. The internal resistance offered to shear stress. a. The shear force operating on a material. c. The shear stress acting on a material. d. The shear value of a material. e. The shear failure of a material.

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Shear tests. Tests to determine the shear properties of soil samples. The shear test or the triaxial compression test may be performed in the laboratory, but the vane test is more suitable for the in situ soils in a borehole. Nelson.


shear wave. a. The same as transverse wave. Slichter. b. A wave, usually in a solid, which causes an element of the solid to change its shape without at the same time undergoing a change in volume. Also called rotational wave. Hoy.

shear zone. a. In geology, a zone in which the rocks are fractured and sheared and stretched in a plane of weakness resulting in a change in volume. Also called a shear zone. b. The same as a shear zone. c. A zone of fractures or shear fractures that has been sheared and displaced by a shear zone. d. A rock mass that has been sheared and displaced by a shear zone.

sheared. Sheared or sheared-out refers to a rock mass that has been sheared and displaced by a shear zone.

sheared-out. Sheared or sheared-out refers to a rock mass that has been sheared and displaced by a shear zone.

sheathed. A sheath or a sheath around a rock mass that has been sheared and displaced by a shear zone.

sheathed. A sheath or a sheath around a rock mass that has been sheared and displaced by a shear zone.

sheeted vein. A group of closely spaced, distinct parallel fractures filled with mineral matter and separated by layers of barren rock. Fay. Sheeted vein deposit. An ore deposit occupying a group of closely spaced, distinct parallel fractures or fractures separated by narrow plates of country rock. After metatilization, a composite vein or a replacement lode results characterized by a band structure. Schieferdecker.

sheeted zone. A zone of closely spaced fractures whether mineralized or not. A.G.I.


sheet glass. a. Flat glass made by sheets of surface water, and both its volume and its velocity will be the same at all points equally distant around the’summit. Erosion accomplished by sheets of running water, as distinct from streams, is sheet (or sheetflow) erosion. A.G.I. b. Lowering of land by nearly uniform removal of particles from its entire surface by flowing water. Nichols.

sheeters. Light steel poling boards driven down to protect trench sides from collapse. Ham.

sheetgood. Under certain conditions, sand-laden water flowing over an erodible plain tends at first to divide into small streams like those of pure water on an indestructible surface, yet, since the streams formed in this way begin to overland themselves and thus check their own flow, this tendency is soon counteracted and the water is directed elsewhere. Thus the ultimate tendency is toward movement in a more or less uniform film or sheet and the term sheetflow has come into use in notes and conversation. A.G.I.


sheet lode. a. A line of closely spaced, or closely spaced cracks. Bateman. b. A thin, smooth parting of a mineral and hence a variety of luster, as pearly and silky luster indicate. Shipley. c. A thin, smooth parting of a mineral and hence a variety of luster, as pearly and silky luster indicate. Shipley.

sheet-ground. A term used in the Lower Mississippi Valley for a widespread deposit of silt and sand that is continuous with the levee sand. A.G.I.

sheeted deposit. A mineral deposit (as a group of closely spaced, distinct parallel fractures) that is separated by narrow plates of country rock. After metatilization, a composite vein or a replacement lode results characterized by a band structure. Schieferdecker.

sheeting caps. A row of caps placed on blocks about 14 inches high placed on top of the drifts or when constructing the permanent floor in the stopes. Round poles are then laid lengthwise of the stopes on the ground.
sheeting caps

the sheeting caps and are covered with
lacing. Lewis, p. 498.

sheeting driver. An air hammer attachment
that fits on plank ends so that they can be
driven without splintering. Nicholls.

sheeting. A. Change type. Head spurs, used
to set ditch banking. Nicholls.

sheet. See sheet. Fay.

sheet iron. See sheet. Fay.

sheet-iron gang. Anti-Molly Maguire vigi-
lantes. Kors.

sheet-iron pitch. The inclination of a coal
seam at which loose coal will not move
on the natural bottom, but at which it
will slide or can be easily pushed along
on iron slides placed on the bottom
in the chambers or rooms. Fay.

sheet metal. See sheet. Fay.

sheet metal gauge. A gauge used for measuring
the thickness of sheet metal. Crispin.

sheet mica. Mica that is relatively flat and
sufficiently free from structural defects to
enable it to be punched or stamped into
specified shapes for use by the electronic
and electrical industries. Sheet mica is
classified further as block, film, and splittings.
Skow.

sheet minerals. Those minerals belonging to
the phyllosilicates having sheets of linked
SiO$_4$ tetrahedra. Includes the mica, chlo-
rite, and most of the clay group of min-
erals. c. A.C.I.

sheet pavement. Continuous road surfacing,
such as asphalt, tarmacadam, or con-
crete. Ham.

sheet pile. A wall of sheet metal, reinforced cement,
pressed concrete, or steel driven vertically into the ground
or seabed and anchored back at one or two levels. See
also guide pile. Ham.

sheet piling. a. A diaphragm made up of
members or of interlocked with
like members to form a diaphragm, wall,
or bulkhead. H.G.

sheet-iron wall. A wall formed of sheet
which may be of cast-iron or,
anchored back at one or two levels. See
also guide wall. Ham.

sheet-iron winch. A winch having a drum
or drum and a sheave for winding
rope or chains around. Fay.

sheetquit. A steeltube from which air or
other gas at high pressure is discharged
with explosive force in a shothole; as
used with a special kind of mechina
rock encountered in well boring. Fay.

g. A hollow structure or vessel. A.M. Glas.

shell core. A tabular casting used in making
mechanical parts of cast iron, steel,
and other metals.

shell core. A. A core barrel. Long.

shell core. A. A shell-molded sand core. ASM
Gloss. k. A tabular casting used in making
mechanical parts of cast iron, steel,
and other metals.

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mechanical parts of cast iron, steel,
and other metals.

shell core. A. A shell-molded sand core. ASM
Gloss. k. A tabular casting used in making
mechanical parts of cast iron, steel,
and other metals.
shell marl

apparently also to some extent of precipitated carbonate of calcium and the hard parts of minute organisms. Fay.

shell molding. Forming a mold from thermostating resin-bonded sand mixtures brought in contact with preheated (300°F) to 500°F) metal patterns, resulting in a firm shell with a cavity corresponding to the outline of the pattern. Also called Coring Glass. Shell-natron.

shell-natron. A commercial compound used as a carbon dioxide absorbent in diving. A.G.I.

shell-perm process. A method of reducing the flow of water through a permeable soil into an excavation, by injecting the soil with bituminous emulsion containing a coagulant, which will solidify in the ground. See also permeability. Hart.

Shell phosphate process. A wet scrubbing process for removing hydrogen sulfide from fuel gases in which a solution of tripotassium phosphate removes H2S from gases, particularly underpressure, and without appreciable effect upon carbon dioxide. The hydrogen sulfide is regenerated by boiling, and sulfur may be recovered in a Claus kiln. The plant consists of a reactant tower, or a bubble-cap tower, for absorption, preferably underpressure, and a bubble-cap tower for regeneration of the absorption solution. The regen

shell pump. A simple form of sand pump or sludger consisting of a hollow cylinder walled on one side with a ball or clack valve at the bottom, used with a flush of water to remove debris. Webster 3d. See also sand pump; sluiter.

shells. The outer walls of tile. ASTM C483-63T.


shells of the earth. Concentric shells composing the interior of the earth. Scheider.

shellstone. Eng. A china stone from Cornwall, consisting of sea shells containing too much iron (as brown mica) for use as a flux in pottery glazes but of potential value in sewer pipe glazes. See also china stone. Dodd.

shell wall. Ring wall. The wall of freestall of the type from which the outer steel casing of a hobbled stove. See also hot blast stove. Dodd.

shelly. a. A name applied to coal that has been so crushed and fractured that it breaks up easily into small pieces. Broken ground. Fay. b. A laminated roof that sounds hollow and breaks into thin layers of slate or shale. Zern.

shelly formation. A thin and generally hard stratum encountered in drilling. See also shell. A.G.I.

shelly stone; shelly metal. Eng. Laminated stone liable to flake; fissile stone; marl containing flakes of limestone, Northumberland. Cheshire, Northamptonshire. Arkell.

shelly cove. a. A cove formed from without, for example, by the wind or by waves. Scheider. b. A cove formed within the rock, mostly by solution. Scheider. c. A cove only partially under

sheer. A. Eng. An old term denoting a district of about eight or nine bight bords. Thus a "sheth of bords," or a "shet of pillars." Fay. b. N. of Eng. To course the air in the workings. See also coating. Fay. c. N. of Eng. The rib of a childern wagon. See also sheaths. Fay.


shelting the air. N. of Eng. Ventilating the goafes in a systematic way. Fay.

shelves. The most stable areas of the craton that are hydrologically flooded by marine waters. A.G.I.

shelving. The effect produced in the refractory lining of a glass tank furnace by successive erosion of the horizontal joints between the tank blocks. Dodd.

shelving stone; shelyngstone; shilling stone. Corn.; Som. Slate; a roofing slate or tile. Arkell.

shepherd. Aust. A miner who preserves legal rights to a claim while doing the minimum possible amount of developing. Nelson.

sherardizing. A galvanizing process in which the metal to be coated is heated, with or without tumbling, in contact with zinc; the metal to be coated may or may not be used. Webster 2d. Also called sheuch. Fay. b. Scot. A shaft or coalpit. Fay.


shiel. a. In mining or tunneling, a framework or screen of wood or iron protecting the workers, pushed forward as the work advances. Standard, 1964. b. A metal diaphragm used in tunneling under rivers, or in water-bearing ore. Loose material under cities. The shield may be cylindrical and include the entire tunnel section, or it may be a roof shield and support the roof only. Sherard. c. Precambrian nuclear mass of a continent around which and to some extent upon which the younger sedimentary formations have been deposited. Webster 3d. d. A layer or mass of material used to reduce the passage of ionizing radiation. See also biological shield; thermal shield. L&L.

shield basals. Basaltic accumulation of smaller size than the flood basals, arising from the confluence of lava flows from a large number of small, closely spaced volcanoes. The flows coalesce into masses hundreds to thousands of square miles in size. Synonym for multiple vent basalt. A.G.I.

shielded arc welding. Arc welding in which the arc and the weld metal are protected by an atmosphere of shielding gas, the products of decomposition of the electrode covering, or a blanket of fusible flux. A.G.I.

shielded carbon-arc welding. An arc-welding process wherein coalescence is produced by heating with an electric arc between a carbon electrode and the work. Shielding is obtained from the combustion of a solid metallic fuel fed into the arc or from a blanket of flux on the work or both. Pressure may or may not be used and filler metal may or may not be used. Coal Age, v. 66, No. 3, Mar. 1961, p. 92.

shielded metal-arc welding. An arc-welding process wherein coalescence is produced by heating with an electric arc between a covered metal electrode and the work. Shielding is obtained from decomposition of the electrode covering, which is used and filler metal is obtained from the electrode. Coal Age, v. 66, No. 3, Mar. 1961, p. 92.

shielded monoelectrode. See guard electrode log. A.G.I.

shielded stud welding. An arc-welding proc

shelter hole. In coal mining, a niche in the rib along a haulage road into which one may step to inspect the seams. Grose.

SHELFON. A stopped-up portion of the steel mill. Fay. An expression used when an explosion of firedamp has taken place in the pit. See also squat lads! Fay.

sheltered. The broken-down roof of a coal mine. Fay.

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shielded metal-arc welding. An arc-welding process wherein coalescence is produced by heating with an electric arc between a covered metal electrode and the work. Shielding is obtained from decomposition of the electrode covering, which is used and filler metal is obtained from the electrode. Coal Age, v. 66, No. 3, Mar. 1961, p. 92.

shielded monoelectrode. See guard electrode log. A.G.I.

shielded stud welding. An arc-welding proc
shiel ded stud welding

weis wherein coal se is produced by heating with an electric arc drawn between a metal stud or similar part, and the work to be welded, until the surface to be joined are properly heated, when they are brought together under pressure. Shiel ded work is obtained from an inert gas such as helium or argon. (See page 92.)

shiel ded glass. A protective glass for use in nuclear engineering; although it is transparent to visible light, it absorbs high energy electromagnetic radiation. Such glasses contain a maximum proportion of oxides of heavy elements, for example, PbO, TaO, NbO, WO. (See page 92.)

shields. Large areas of ancient rocks that have remained relatively stable through most geologic time. (See page 92.)

shie d volcano. A broad, gently sloping volcano in extent, built chiefly of overlapping and interfering basaltic lava flows. Typical examples are the volcanoes, Mauna Kea and Kilauea, on the Island of Hawaii, and the great basaltic volcanoes of Iceland. (See page 92.)

shield shift. See top shift. (See page 92.)

shif tm en. Men engaged on a time-wage basis working at various jobs. Also called company men. (See page 92.)

shift work. Work performed at a mine and paid for by day wage as opposed to by piece rate. (See page 92.)

shift boss. The foreman in charge of a shift of men. (See page 92.)

shift least. Term for the Devonian slates used for brickmaking in the Plymouth and Torquay areas of England; the word is a dialect form of shale. (See page 92.)

shift men. See piece work. (See page 92.)

shingle. A flat roof of roofing tile. (See page 92.)

shingle blast. A vehicle for squeezing puddled iron. (See page 92.)

shingle rampart. See gravel ridge. (See page 92.)

shingle structure. Arrangement of veins en echelon in the Lower Chert of shingles on a roof. (See page 92.)

shingles. Minute fish scales that sparkle in reflected light; they are liable to occur in gemstones. A mounted or unmounted stone, usually a diopside, characterized by its high refractive index. (See page 92.)

shimmy die. See flat edge trimmer. (See page 92.)

ship newspaper. A special paper used for composition and publication of newspapers. (See page 92.)

shipping. Shipment by rail, ship, or plane. (See page 92.)

shipping structure. A series of thrust sheets lying against one another like the shingles of a roof. Also called imbricature structure. (See page 92.)

shipping. A machine for squeezing puddled iron. (See page 92.)

shipping. As applied to the degree of luster of minerals, means those which produce an image by reflection, but not one well-defined, as celadonite. (See page 92.)

ship plate. See suspension, a. (See page 92.)

ship and galley tile. A special quarry tile having an indented pattern on the face of the tile to produce an antislip effect. (See page 92.)

ship auger. An auger having a simple spiral (helical) body and a single cutting edge, with or without a screw on the end but without a spur at the outer end of the cutting edge, used to obtain soil samples and water levels. (See page 92.)

ship class. A floating steel box fitted to close the entrance to a lock, dry dock, or wet dock, or to gate chambers. (See page 92.)

ship liners. Longitudinal lining plates for ball mill of wedge-like shape. The thin edge of each wedge underlies the thick edge of the preceding plate in direction of revolution. (See page 92.)

ship polarscope. A geomorphologic polarscope suitable for use in the hand without use of microscope or other magnifier. Can be used in determinative geomorphology to detect glass laminae and to differentiate between singly and doubly refractive gemstones. A mounted or unmounted stone is held in an enclosed compartment, by a device which permits its being observed in various positions, affording rapid determination. (See page 92.)

ship observations. Meteorological and oceanographic data taken for a specific location, observed from a ship underway or at anchor. (See page 92.)

shipper. A. An official who inspects the coal in the rail cars. They are shipped to market. (See page 92.)

shop work. Work performed at a mine and paid for by day wage as opposed to by piece rate. (See page 92.)

ship. The term for a vessel of any size. (See page 92.)

shipper. A. An official who inspects the coal in the rail cars. They are shipped to market. (See page 92.)

shipper. An instrument used for placing an endless rope on its rollers in cases where it gets off the wheel. (See page 92.)

shipper shaft. In a dipper shovel, the hinge on which the stick pivots when the bucket is opened or closed. (See page 92.)

shipping. Measuring for shipping. (See page 92.)

shipping. Measuring for shipping. (See page 92.)

shipping. Measuring for shipping. (See page 92.)

shipping. Measuring for shipping. (See page 92.)

shipping. Measuring for shipping. (See page 92.)

shock loss. Losses resulting from changes in direction of flow or area of duct. They also occur at the inlet end of a blast system, at splits or junctions of two or more currents of air, and at obstructions in air. See shock-proof.

shock-proof. As applied to the currently carrying parts of an electric system, excepting trolley wires, taken to mean that contact with such parts is prevented by the use of grounded metallic coverings or sheaths. See shock-silver.

shock-silver. A rather generous name for steels used for tools that are required to withstand much pounding. There are two general types, one containing chromium, vanadium, and a small amount of molybdenum, with usually fairly high manganese; the other type contains up to 2 percent of silicon, with usually some molybdenum. The silicon steels are used for punches and other purposes as coining dies. Brady, 4th ed., 1940, p. 426.

shock wave. A wave of air and dust which, in some cases, travels ahead of the flame of a coal dust explosion. It may occur when an ignition takes place near the closed end of a mine roadway, and the reaction products behind the flame cannot escape freely. The wave sent out through the air by the discharge of the shot initiating an explosion. This wave travels with the velocity of sound and produces to the human ear the noise like the boom of a cannon. Rice, George S. 1964.


shod. Fay. Also spelled shoad. Fay.

shoe. A. Pieces of steel fastened to a mine or rock. Nelson. i. A ground plate forming a link of a track, or bolted to a track link. Nichols. i. A support for a bulldozer blade or other digging edge to prevent cutting down. Nichols. i. A cleanup device used to pull the buckets of the ditching machine. Nichols. i. A boat-shaped ingot of syce silver weighing about 68% ounces. Standard, 5. i. A metal block used in a variety of bending operations to form or support the part being processed. A.G.I. n. In glassmaking, a crucible with open end, placed in a furnace, in which the blowers heat the ed. i. and purges. Webster 2d. o. A hollow refractory shape that is placed in the mouth of a glass pot and used for forming the blowing iron. Dodd.

shoestring claim. A mining claim in the form of a long narrow strip. Fay.

shoestring location. A location of a long and narrow strip of mineral land. Rickett, I.

shoestring sands. A narrow and relatively long body of sandstone, sludge, or other deposit, as described from the Pennsylvanian system of east-central Kansas. They originated as channel fillings, bars, beaches, etc. A.G.I. b. A type of lenticular formation in which a porous, permeable sandstone lens or streak is surrounded by pervious rock, frequently shale. Such stratigraphic traps are difficult to locate because of the absence of significant structural relief. Williams.

shionite. A melanocratic syenite often containing a small amount of nepheline; the principal minerals are augite and orthoclase. Other minerals that may often be present in varying small amounts are olivine, plagioclase, sodalite, and analcime, with accessory apatite and opaque oxides. A.G.I.

shoofly. A. Miner's work train. Korsan, b. Any crosstie between a haulage-way and airway through which cars are run. See also shank, a. Fay.

shoofly. a. To break coal loose from the seam by the use of explosives; loosely used, also as applied to other coal breaking devices. B.C. 2. To break down by airblasting. B.S. 3618, 1964, sec. 6. c. To explode a charge in blasting operations. Hudson. d. To detonate an explosive. Long. c. Incorrect spelling of chute. Long. i. A body of ore, usually of elongated form, extending downward in an inclined or downward direction in a vein. Also called ore shoot. Long. g. The payable section of a lode; an enriched portion of a continuous ore body.


**Shooting**

An instrument granting permission to conduct a geophysical survey; to shoot an area or prospect. A.G.I.

**Shooter**

The man who fires a charged hole after satisfying himself that the place is free from firedamp. A shot firer. Fay. b. In the petroleum industry, one who shoots oil wells with nitroglycerin to loosen or shatter the oil-bearing formations. Fay. c. Tamping the sandstone, A.G.I., Supp. d. See blast. D.O.T. 1. c. The shooter is that person on a seismographic crew who has some or all of the following duties: (1) loading the shot-holes; (2) damping the shots; (3) firing the shot; and/or (4) care of explosives and shooting equipment. A.G.I.

**Shooting**

a. Eng. Blasting in a mine. Fay. b. In the petroleum industry, one who shoots oil wells with nitroglycerin to loosen or shatter the oil-bearing formations. Fay. c. Tamping the sandstone, A.G.I., Supp. d. See blast. D.O.T. 1. c. The shooter is that person on a seismographic crew who has some or all of the following duties: (1) loading the shot-holes; (2) damping the shots; (3) firing the shot; and/or (4) care of explosives and shooting equipment. A.G.I.

**Shooting off-the-solid**

Mining the coal by explosives to carry explosives, materials, and equipment for preparing, loading, tamping, and firing explosive charges. A.G.I.

**Shooting valve**

The control valve provided for the purpose of admitting compressed air to an airblasting shell and of venting residual air, in the shell and hose, to atmosphere. B.S. No. 1264, 1954, sec. 5. shooting off-the-solid. Fay.

**Shooting of ore**

A body of ore with relatively small horizontal dimensions and steep inclination in the place is free from firedamp. A shot

**Shooting on-the-free**

The use of a small charge of powder to blow down the face of the coal after it has been undercut as distinguished from "shooting off-the-solid." Fay.

**Shooting rights**

The right to enter upon land and make a geophysical survey. Williams.

**Shooting the gob**

N. Staff. Working the coal in the pillars of inclined coaledbacks by blasting. Fay.

**Shooting truck**

In seismic operations, a truck equipped to carry explosives, materials, and equipment for preparing, loading, tamping, and firing explosive charges. A.G.I.

**Shoran**

A high-frequency radio wave location system using microwave pulses used for offshore and airborne prospecting operations. Two stations are located at fixed points, the third is on the mobile station whose location is desired. The fixed stations broadcast pulses, the mobile station rebroadcasts them, and the round trip time is measured by means of cathode-ray screens to an accuracy of ±25 feet. A.G.I.

**Shore**

a. Eng. A studded or thurrying stage. Zern. b. Min. A term used in prospecting to indicate particularly the course of ore, which is flatter. See thrusting stay. Nelson. c. Any considerable and somewhat irregular mass of ore found in a vein, usually fractured. Johnson. Sheet hardening is front hardness in front of the scale of hardness of rocks as determined by the Shore scleroscope test. The test utilizes the drop and rebound method using a diamond-tipped hammer. This scale avoids the limitations of Mohs' scale of hardness and gives a better assessment of rock hardness. Welsh quartzitic sandstones have an average hardness of 85 Shore; the quartz and ironstone bands between 90 and 102 Shore and shales between 35 and 55 Shore. Nelson.

**Shore hardness tester; scleroscope**

A procedure for the determination of the hardness of a surface by dropping a ball from a fixed height above the surface and noting the height of rebound. This technique was first proposed by A. F. Shore in 1906. Although primarily for the testing of the hardness of metals, it has also been applied to a limited extent in the testing of ceramics. Dodd.

**Shoreline**

a. The line of intersection of the sea with the land. The region immediately to the landward of the shoreline is called the coast, and seaward from this line, the shore. Thus, cliffs and deltas are coastal features while wave and tide processes and retreat along the shore. A.G.I.

b. A more or less concave, wavy line which appears in the boundary of the fired enamel, similar in appearance to the shore of a lake which has receded and deposited silt in water conditions, most frequently found in sheet-steel, acid, and glass enamels, may be caused by too rapid drying of the wet enamel coating or insufficient enamel setup. A shoreline is commonly thought to be the direct result of a too high concentration of sulfate salts in the enamel milling. Enam. Dict.

c. Shoreline cycle; cycle of marine erosion; marine cycle. The sequence of coastal forms as waves and tide processes attack the coast. Shoreline showing a regular seaward movement in consequence of sedimentation. Schieferdecker.

**Shoreline of advance**

See shoreline of progradation. Schieferdecker.

**Shoreline of emergences; emerged coastal A coast, havin glandesture a relative raise. Schieferdecker.**

**Shoreline of progradation; shoreline of advance; prograded coastal; accretion coastal**

Shoreline showing a regular seaward movement in consequence of sedimentation. Schieferdecker.

**Shoreline of retrogradation; abrasion shoreline**

Shoreline produced by the cutting back of the shore in a line of cliffs. Schieferdecker.

**Shoreline of submergence; submerged coastal**

A coast having undergone a relative lowering. Schieferdecker.

**Shoremant, dredge**

In metal mining, one who buries anchor logs (deadmen) in the earth, attaches wire cables, and performs their duties to keep dredges in the digging positions. D.O.T. 1.

**Shore platform**

On a rocky shore, the tendency is to produce a horizontal or gently sloping platform, the outer edge of which corresponds to the ground level of the cliff that its surface is bare at low water. This platform often is called a scar, and its inner edge is known as the brecor, which falls freely down a graduated tube.
shore sceroscope

of glass from a constant height. The hardness of the surface under test is measured by the height of the rebound. In one type of this instrument the rebound of the hammer is measured with the point of a scale so that the height of rebound is recorded. See also sceroscope hardness test. Ham.

shore terrace. a. A coastal terrace that is cut in rock or built up of gravel or sand. Webster 3d. b. See marine terrace. Schie- fer.

shore up. To stay, prop up, or support by braces. Fay.

shoring. Timbers braced against a wall as a temporary support. Also, the timbering used to prevent a sliding or exhuming of the surface. Crisis.

short. Cut with a pick, as in undercutting coal. Fay.

short. a. Said of roof shale that tends to break up or crush under pressure into small fragments and which will not hold in any span over a few inches. Also called tender. Retriek & Marshall, pp. 36-37. b. Brittle; friable; breaking or crumbling readily; inclined to flake off; said of coal. Fay. c. Said of a roof that has very little structural strength. TIME. d. Term applied to a clay body that has little plasticity or to a glaze that quickly sets. Dodd.

short and rough. Unmellowed, as by weathering, with edges and corners of brick, as distinguished from mild and tough. Standard, 1964.

short awn. A direction more than 45° to the center of the awn of the glume in the coal. Also spelled horn. TIME. Compare long awn.

short circuit. A short circuit is an abnormal connection of relatively low resistance, whether made accidentally or intentionally, between two points of different potential in a circuit. ASA M2.I-1963.

short cleft. Forest of Dean. Cleft with pronounced cross fracture or cleat. Arkell.

short coal. See short.

short column. A column so short in relation to its cross section that, if overloaded, will fail by buckling rather than by buckling. See also long column. Ham.

short-delay blasting. a. A method of blasting with small charges where the delay is set with a very short delay interval between them. It enables shots to assist one another as in simultaneous firing and also each shot or group of shots establishes a free or semifree face for the following group of shots. Nelson. b. Method of blasting by which charges are caused to explode in a given sequence with time intervals of 0.001 to 0.002 second. Frankel.

short-delay detonator. a. A detonator in which the interval of time delay is incremental in milliseconds. B.S. 3618, 1964, sec. 6. b. The original 1-second delay detonators are no longer used and the choice now lies between the 5/4-second type and those known as short-delay deto- nators. The new type gives better fragmen- tation of rock and consequently better loadings. Jones.

short finish. An imperfection in plate glass, resulting from incomplete polishing. ASTM C95-68.

short fire. See underfire. a. Fay.

short flame. A strongly aerated flame, such as a blast of air blown through and well mixed and delivered at high speeds with turbulent flow. Francis, 1965, v. 2, p. 406.


shorflame explosive. See permissible explo- sive. Fay.

short fuse. a. Any fuse that is cut too short. b. The practice of placing a blast, the fuse on the primer of which is not suffi- ciently long to reach the top of the charge. The primer, with fuse attached, is dropped into the charge while burning, and tamping may, or may not, be attempted. It is an exceedingly dangerous practice. Fay.

short glazed. See starved glaze. Dodd.

short hole. a. A blasthole or charge that is not properly stopped and that is likely to release the molten charge prematurely. Henderson. b. See blasthole; grout hole. Long.

short-hole drill. A blasthole or grout-hole drill. Long.

short-hole work. Diamond drilling where the length of borehole generally does not exceed 100 feet. Long.

shortitude. A double carbonate of sodium and calcium, NaCo3(2CaCO3), as hemimor- phic orthorhombic crystals from Wyoming. Satterlee, 15.2.1940.

short leg. One of the wires on an electric blasting cap, which has been shortened so that when placed in the charge, the two splices or connections will not come op- posit each other and make a short cir- cuit. Fay.

short point. Refers to luster less than 8 feet in length. Crispin.

shortness. A form of brittleness in metal. It is defined as cold, hot, and red, to indicate the temperature range in which the brittleness occurs. ASM Gloss.

short nipple. One whose length is a little greater than that of two threaded lengths or somewhat longer than a close nipple. It always consists of some unthreaded portion between the two threads. Strock, 3.

short out. Outcrops. Outcrops that do not extend for the full length of the claim have ex- tralateral rights allowed, but only between planes through the ends of the outcrop and parallel with the boundaries of the claim. Sidelines may become the endines in these cases. Lewis, p. 33.

short-period delay, millisecond delay. An electric blasting cap that explodes one- fiftieth to one-half second after passage of an electric current. Nickel.

short periods. The time required to drill a few holes for trolley hangers or a few short block holes, or one or two holes for bringing down a piece of loose roof. Bu- mines. Coal Mine Inspectors’ Manual, June 1966, pt. 3-21j, p. 81.

short-range order. Identical first-neighbor coordination of atoms. Typical of glassy structures. V.V.

short run. To be forced by adverse condi- tions or core blockage to pull the drill string before the core barrel being used is filled to capacity with core. Compare long run. Long.


defined by terms of visible size. Sinclair, W. E., p.288. There may be particles of nonfibrous serpentine and the fibers may vary from microscopi- cally thin filaments to crudey bundles of fibers of appreciable thickness. Included may be particles of nonfibrous serpentine ranging from a palpable powdery to mate- rials of visible size. Similair, W. E., p. 286. f. The product that is retained on a specified screen in the screening of a crushed or ground material. ASTM C162-66.

short section. A section of land according to the United States Governmental Survey which contains less than 640 acres. Williams.

short shot. Colloquialism for weathering (or loose-footing layer) shot in seismic prospect- ing. A.G.I.


short-term engagement. Engage- ment, men are taken on by the day, week, or month; there is little encourage- ment given them to become permanent employees, and discharges are frequent. Spalding, p. 370.

short-time rating. The maximum electrical load which a device can carry for a specified short time without exceeding the specified temperature rise limitations under pre- scribed conditions of load. It is usually limited by the limitations of established standards. Coal Age, 1.

short shot. A unit of weight that equals 20 short hundredweights or 2,000 avoidoridis pounds. Used chiefly in the United States, in Canada, and in the Republic of South Africa. Webster 3d.

shortwall. a. The reverse of longwall, fre- quently used to mean the face of a room. Zern. b. A method of mining in which comparatively small areas are worked sepa- rately, as opposed to longwall; for example, room and pillar. B.C.I. c. A length of coal face intermediate between a stall and a normal longwall face. A shortwall face may be any length between about 5 and 30 yards and is generally employed in pillar methods of working. Rooms and stales may also be classified as shortwall faces. See also shortwall development. Nelson.

shortwall coal cutter. a. A machine for undercutting coal which has the cutter bar fixed in relation to the main body of the machine. It sumps and cuts across a face in a more or less continuous motion, ex- cept when it becomes necessary to stop to change the position of the rakes used to move the machine through the action of rope drums, or when difficulties in cutting are experienced. Jones. b. This coal cutter has a long, rigid chain jib in line with the body of the machine and cuts across a heading from right to left, being drawn across by means of a steel wire rope. This machine cannot be readily fitted from one heading to another unless a power-propelled jib is available, otherwise each heading requires its own shortwall cutter. A shortwall cut- ter will make a 6-foot cut across a 15-foot heading in 20 minutes, including lumping in and out of the cut. Maun, p. 106.

shortwall development. A system of coal working sometimes employed in seams 4 feet or under in thickness, with the aid of a shortwall development. A system of coal working sometimes employed in seams 4 feet or under in thickness, with the aid of a shortwall development. A system of coal working sometimes employed in seams 4 feet or under in thickness, with the aid of a shortwall development.
shortwall development

yards wide, are driven at 50 to 70 yards centers, with crosstabs to assist coal transpor-
t and ventilation. The ripping are used to form roadway packs. The short-
walls are driven to the boundary and the coal pillars worked by longwall retreating.

shortwall working. N. of Eng. An enlarged
version of rib-and-stall working with faces of
30 yds. long. In its execution, the coal pillars are made at both ends of the face. Trist.


shortwall working. N. of Eng. An enlarged
version of the shortwall working. In some collieries, the coal pillars are worked by
longwall retreating. Trist.

shot blasting. A method similar to sand-
blasting, except that spherical meter-size
spherical stones with radiating structure and
d. Spheres of steel and aluminium into the
circulation downward through the rods or pipe
connected to the core barrel and bit of
a drill. Fay.

shot break. In seismic exploration, the elec-
trical impulse which records the instant of
explosion. A.G.I.

shot charger. In bituminous coal mining, one
who charges explosives in drill holes to
prepare them for blasting. D.O.T.1.

shot copper. Small, rounded particles of na-
tive copper, somewhat resembling small
shot in size and shape. Fay.

shot-core-drill operator. See diamond-
drillers, d. A.G.I.

shot data. Seismic calculations are usually
reduced to a convenient reference surface
or plane. These calculations simulate a
condition where the charge is shot on the
reference surface and the energy is also
recorded at the reference surface. Fay.

At this reference surface, the time-depth
charts have their origin. A.G.I.

shot deep. The distance from the surface to
the charge. In the case of small charges
the shot depth is measured to the center
of the charge, expressed in feet. In the
case of large charges, the distances to the
top and to the bottom of the column
of charge are frequently given, and
may be reduced to effective shot
depth to give the equivalent of a con-
centrated charge. A.G.I.

shot drill. A core drill generally employed
in rotary-drilling boreholes of less than
3 inches to more than 6 feet in diameter
in hard rock or concrete, using chilled-
steel shot as a cutting medium. The bit
is an annular-shaped, flat-face, steel cylin-
der with one or more diagonal slots cut
in the bottom edge. As the bit and at-
tached core barrel are rotated, small
quantities of chilled steel shot are fed, at
intervals, into the drill stem with water.
The shoot works its way under the flat
face of the bit and thus away the rock
at the bit rotates. At intervals, the core
is removed from the borehole in somewhat
the same manner as in diamond core-
drilling operations. Also called adamantine
drill; calyx drill; chilled shot drill. Long.

shot-drilled shafts. Shafts of up to 5 feet in
diameter drilled through rock to a maxi-
mum depth, usually by means of a shot
drill. The latter makes use of shot
for cutting a circular groove in the
rock being penetrated from which solid
cores are extracted. Ham.

shot-drill hole. Borehole produced by a shot
drill. Long.

shot drilling. The act or process of drilling
a borehole with a shot drill. See also shot
drill. Long.


shot firer. a. A man whose special duty is to
fire shots or blasts, especially in coal
mines. A shot firer may also be a shooter.
Fay. b. In a colliery, a quali-
fied miner who tests for gas before firing
explosive shots. Fay. c. In Great
Britain, the shot firer has charge of op-
erations which are a potential source of
gas danger in mines, and it is there-
fore imperative that he be thoroughly
competent for his job. He must be ap-
pointed in writing by the manager, who
is entirely responsible for seeing that the
shot firer is in every way qualified for his
duties. Mason. d. A. of Eng. Also called
shotman. d. N. of Eng. An official whose
sole responsibility is to charge, stem, and
fire known undercut coal for filling. See
also shotfirer. Long.

Shot Firer. A multiple shot permissible blast-
ing unit introduced in 1946, known as
Capacitor Type Permissible Shot Firer.
Weighing approximately one pound and
about the size of an ordinary flashlight,
the non-electrical unit is simply placed
in a belt hook which permits its being car-
ried under supervision of the shot firer.
If ignited, the firer is to be fired without
moving the unit from the belt. It is
Capacitor operated, eliminating depend-
ence on a source of operation for electri-


shot-firing cable. A simple electric generator
depending for its action on electromagnetic induction. Morris and Cooper, p. 235.

shot firing. a. The action of detonating or
igniting a charge of explosive, usually in a
drilled hole. B.S. 3618, 1964, sec. 6.
b. The firing of an explosive charge in a
drilled hole to break the material to a
suitable size for loading. Nelson.

shot-firing cord. A conductor cable used for completing the circuit be-
tween the electric blasting cap (or caps) and the blasting unit or other source of
electric energy. ASA C42.85:1956.

shot-firing cable. A pair of insulated copper
conductors which lead from the expoder
to the detonator wires. It may be either
twin-core (both conductors contained in
the one cable) or single-core (each con-
ductor contained in a separate cable).
Twin-core cables having cores of 4
strands, each 0.018 of an inch in dia-
meter (4/0018) with a resistance of ap-
proximately 9 ohms per 100 yards, are
commonly used. Actual choice of cable
must depend upon conditions of use and
the relevant regulations. Nelson.

shot-firing cable tests. The methods of testing
two-shot-firing cable are identical.
Two tests are applied, one for insulation
and one for continuity, and where large
sections are involved, one after being fired, as in tunnel, wellhole, and
quarry blasts, tests are made before

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shot examiner. a. In Iowa, a shot firer. Hess.

shot firer. b. Coal mined by blasting; shot off the
solid. Fay.

shot feed. A device to introduce chilled-steel
shot, at a uniform rate and in a quantity
proportional to the charge of granite,
flowing downward through the rods or pipe
connected to the core barrel and bit of
a drill. Fay.
shot-firing cable

every blast. For the cable insulation test, an approved circuit tester or ohmeter is connected to one end of the cable, the two conductors at the other end being separated so that current should flow and the resistance should be infinite. For the continuity test, the two far ends of the cable should be joined. The tester should show that the current is complete, or if an ohmeter is used, this should show the correct resistance of the shot-firing cable. Nelson.

shot-firing circuit. Extends from the exploder along the shot-firing cable, detonator wires, and finally the detonator. The shot-firing circuit is the path taken by the electric current from the exploder when a shot is detonated. Nelson.

shot-firing curtain. A steel chain mat suspended from the roof about 9 to 12 feet from the face of an advancing tunnel to limit damage to equipment and danger from flying debris when shot firing at the face. It consists of a steel frame with chains suspended about 6 inches apart. See also blasting curtain. Nelson.

shot fires. The firing of a number of shots in a tunnel, or shaft sinking occasion only. It also saves the time of recharging shot holes. In Great Britain, the practice of firing in rounds is increasing and nearly every blast. For the cable insulation test, the correct resistance of the shot-firing ohmeter is used, this should show the continuity test if an ohmeter is used, this should show the resistance should be infinite. For the continuity test, the two far ends of the cable should be joined. The tester should show that the current is complete, or if an ohmeter is used, this should show the correct resistance of the shot-firing cable. Nelson.

shot hole. a. A hole drilled for the purpose of shot firing. B.S. 3618, 1964, sec. 6. b. A borehole filled in coal, ore, or rock, usually from 3 to 9 feet in length (underground) for breaking down the material by means of explosives. See also blasting. Nelson. c. The borehole in which an explosive is placed for blasting. Fay. See also blast hole. d. A borehole drilled with a shot drill. Long. e. See shot point.

shot hole bridge. When an obstruction in the shot hole makes it difficult or impossible to get the charge deeper, the hole is said to be bridged. A narrow diameter in the hole due to a resistant bed often makes it difficult to get the charge deeper in the hole. A mechanical device is the market that purposely bridges the hole at a shallow depth in order that the hole may be filled. A.G.I.

shot hole casing. Light weight pipe, usually about 4 inches in diameter. A typical joint of casing is 10 feet long and has threaded connections at both ends. The primary use of casing is to prevent the shot hole from caving and bridging. The lightweight casing may be considered as a expendable item. A.G.I.

shot hole drill. Drills for shot holes are two general types: (1) the rotary drill and (2) the churn drill. The chimney drill is similar to the larger cable-tool type. It is seldom used except in areas where underground cavities hamper the flow of the circulating fluid used in rotary methods. The rotary methods can be divided into (1) percussion and (2) hydraulic feed. Both types pro-

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Schieferdecke.


shot rock. The term used to describe the surface finish of building limestone that is deeply scored by using steel-shot abrasive with gang-saws. A.I.M.E, p. 330.


shotter. Bedded pebbles and sand; glacial outwash gravels. Arkell.


shotting. The production of shot by pouring molten metal in finely divided streams. Solidified spherical particles are formed during the descent and cooled in a tank of water. A.S.M. Gloss.

shottby gold. Small granular pieces of gold resembling shot. Fay.

shoulder. a. The graded part of a road on each side of the pavement. Nichols. b. The side of a horizontal pipe, as the shoulder of the center line of an arc. A line formed by the intersection of the face or leading surface of a bit crown and the straight-wall side surface of the crown. Long. d. A ledge formed by an abrupt change in the course of a borehole. Long. e. A ledge or projection on drill rods, couplings, pipe, or bits formed at points where an increase in diameter occurs. A.G.I. f. The butt of a threaded part. Long.


shoulder cutting. S. Staff. Cutting the sides of the upper lift of a working place in a thick coal coallier next the rib, preparatory to breaking the coal. Fay.

shouldering. The splay at the top right-hand and bottom left-hand corners of a single-lap roofing tile. Dodd.

shoulder nipple. A nipple of any length, which has a portion of pipe between two pipe threads. As generally used, however, it is a nipple about halfway between the length of a close nipple and a short nipple. Strock, 3.

shoulder stone. The diamonds set in a bit at or along the line formed by the intersection of the face or leading surface of a bit crown and the straight-wall side surfaces of the bit crown or shank. Compare kerf stone. Long.

shoved moraine. See push moraine.

shovel. a. Any bucket-equipped machine used for "scooping" and loading earth or material, as a "shoveling" a strip mine. May be designated according to type of power, as electric-shovel crane.

shovel craneman. In bituminous coal mining, a man whose duty is to record the dynamite charge in seismic exploration. See also blasting.

shovel cranean

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shroud laid rope

craneman; steam-shovel craneman. Also called stripping-shovel craneman. D.O.T. 1.

shovel dozer; dozer shovel. A tractor equipped with a mounted bucket that can be used for pushing, digging, and truckloading. Nichols.

shoveler. a. In anthracite and bituminous coal mining, the man who shovels coal, slate, or refuse into mine cars or containers at working places, along haulage ways, or at other places underground and at the surface of the mine. May be designated according to material shoveled, such as coal shoveler. D.O.T. 1. b. A man below ground who shovels ore into cans. Hess. c. See mucker. D.O.T. 1.


shovel front. In power-shovel nomenclature, the shovel front is composed of a main boom and a secondary boom known as the dipper stick at the outer end of which is the dipper or shovel bucket. Carson, p. 38.

shovel frame. The loading machine mounted on driven wheels by which it is forced into the loose rock at the tunnel face. A bucket hinged to the chassis, scoops up the material which it éléments over and discharged behind the machine. There are two types: (1) the bucket is discharged directly into a mine car behind the machine, and (2) a short conveyor, built into the loader, receives the discharged material and conveys it back into a car or conveyor. See also mechanical mucking. Nelson.

shovel sample. A small flat sample of porcelain enamel obtained at the smelter by allowing the molten enamel to run onto a steel shovel during the discharging of the smelter to the quench tank. The shovel sample is air quenched and examined for smoothness, uniformity, and color. Dodd.

shovel trough. In a derrick, the shovel part of the loading mechanism which is advanced into the coal pile or retracted according to the adjustment of the operating carrier. Jones.

shoe. a. The pale blue, lambent flame on the top of a common candle flame, indicating the approach to an outcropping dipping lode with strong walls. Pryor, 3. 

shred. a. The decrease in volume of a soil or fill material through the reduction of voids by mechanical consolidation, superimposed loads, or natural consolidation. Nelson. b. The settling or reduction in volume of earthen fills, cement slurries, or concrete on setting. Long. c. Synonym for outage. Long. d. In bitmaking by the powder-metal processes, the difference between the dimensions of the finished bit crown and those of the bit mold. Long. e. The reduction in dimensions of a ceramic shape caused by drying or firing. -g. Bureau of Mines Staff.

shrinkage cavity. A void left in cast metals as a result of solidification shrinkage. ASM Gloss.

shrinkage crack. a. One of a series of cracks, or of filled-up cracks, often seen on rock surfaces. They have resulted from the drying and shrinking of the layer while it was plastic mud. Synonym for sun crack. Freeman. 1964, b. Hot tears associated with shrinkage cavities. ASM Gloss. Cracks due to restrained shrinkage. Fay. c. See desiccation cracks; syneresis cracks. Pettijohn.

shrinkage cavity index. The numerical difference between plastic and shrinkage limits, ASCE P1726.

shrinkage limit. The shrinkage limit of a soil is that moisture content, expressed as a percentage of the weight of the oven-dried soil, at which a reduction in moisture content will not cause a decrease in the volume of the soil mass, but at which an increase in moisture content will cause an increase in the volume. Pettijohn. 1955.

shrinkage ratio. The ratio of a given volume change, expressed as a percentage of the dry volume to the corresponding change in water content above the shrinkage limit, expressed as a percentage of the weight of the oven-dried soil. ASCE P1826.

shrinkage rule. A measuring ruler with graduations expressed to compensate for the change in the dimensions of the solidified casting as it cools in the mold. ASM Gloss. shrinkage spalling. The shearing off of the face of a refractory as the result of stresses set up within the refractory by the shrinkage of the exposed face. AISI, No. 26.

shrinkage stope. One in which only part of a stope is drawn off when the stope has been mined out in successive slices, working upward. AISI, No. 24.

shrinkage stoping. a. The first appearance of a float, indicating the approach to an outcropping vein or seam. See also blossom. Zorn. b. See also surface occurrence of mineral. Hoffmann.

shrinkage test. A quantitative approximation is obtained as follows: (1) all course mineral and ore components are removed from the sample and water added and mixed until the soil is plastic; (2) the plastic soil is filled into wooden or metal trays of similar shape and size, and the length of the sample measured; and (3) the sample is allowed to dry out slowly and completely and the length again measured. The linear shrinkage is then expressed as a percentage. The formula used is (Original length - length after test) x 100

Original length

Also, the clay content = 5 x linear shrinkage (percent). Nelson.

shrinkage water. That part of the water of plasticity which contributes to drying shrinkage. ASGC, 1963.

shrinkage with waste fill. See shrinkage stoping, b. Fay.

shrink fit. A fit which allows the outside member, when heated to a practical temperature, to assemble easily with the inside member. ASM Gloss.

shrink forming. Forming metal wherein the inner fibers of a cross section undergo a reduction in a localized area by the application of heat, cold upset, or mechanical restraints, which are then removed mecanically induced pressures. ASM Gloss.

shrink head. A very large riser intended to fill up the casting while it was plastic mud. Synonym for sun crack. Freeman.

shrink-on method. Method of securing a tight fit either by casting molten metal on to a relatively cool shank or by driving an insulating shank into a heated bushing. Pryor, 3.

Shropshire method. See longwall method, b. Fay.
shutoff. a. A movable sliding door, fitted within the outer casing of a Guibal or other closed fan for regulating the size of the opening to suit the ventilation and secure economical working of the machine. Fay. b. A slide covering one or more arbor tracings, and forming a regulator for the proportionate division of the air current between two or more circuits of a mine. Fay.

shuttering. a. The casing to contain concrete during the period of setting and hardening. For the concrete lining of a circular shaft, the shuttering for 5-foot lifts usually consist of two 2½ feet high rings of ¾-inch steel plate with release segments. Nelson. b. A common name for formwork and which also include permanent shuttering. Ham.


car. A vehicle on rubber tires or caterpillar tracks and usually propelled by electric motors, electrical energy which is supplied by a battery or generator, by storage batteries, or by a power distribution system through a portable cable. Its chief function is the transfer of raw materials, such as coal and ore, from loading machines in trackless areas of a mine to the main transportation system. ASA C42.85:1956. The introduction of shuttle cars in the United States originated the term "trackless mining." See also rubber-tired haulage; trackless tunneling. Nelson.

car, explosion-tested. A shuttle car equipped with explosion-tested equipment. ASA C42.85:1956.

shuttle-operator. a. Any conveyor, such as belt, curved or straight or any system used to connect a track in parallel with the armature, that is, in shuttle, Mason, V. 2. p. 416.

shuttle. a. S. Staff. The crushed and broken-down roof of a seam of coal. Fay. b. S. Staff. Old workings. See also goaf, a. Fay.

shutdoor. A term denoting the work that has been completed, as pieces of brick. Dodd.

shut-door. One of the rate provisions in drilling contracts, specifying the compensation to the independent drilling contractor when drilling operations have been suspended at the request of the operator. Williams.

shut. See chute. Fay.

shut-height. For F-4 press, the distance from the top of the bed to the bottom of the slide with the stroke down and adjustment up. In general, it is the maximum die height that can be accommodated for normal operation, taking the bolster plate into consideration. ASCG, Gloss.

shut-in. In geology, a narrow gorge cut by a superposed stream across a ridge of hard rock, for which reason it is often cut on each side of the ridge. Standard, 1964.

shutoff valve. A device by means of which the flow of gas or fluid can be shut-off—at least temporarily with the intention of metering or regulating the flow. Long.

shut. Scot. Mobile or hinged supports for the sides of a shaft landing. Also called keps; keeps; chairs; doors; seat. Fay.

shutter. a. A movable sliding door, fitted within the outer casing of a Guibal or other closed fan for regulating the size of the opening to suit the ventilation and secure economical working of the machine. Fay. b. A slide covering one or more arbor tracings, and forming a regulator for the proportionate division of the air current between two or more circuits of a mine. Fay.

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sidal. A layer of rocks underlying all continental areas that range in thickness at the top to gradation at the base. The thickness is variously placed at 30 to 35 kilometers. The sequence derives from the original interbedding, silica and alumina. Specific gravity, about 2.7. A.C.I.

sidelines. Clay or other ceramic materials consisting of silica and alumina. Bureau of Mines Staff.

silica. A mammalian term derived from (si) for silica, (a1) for alumina, and (ma) for magnesia, and applied as a compositional term to a layer within the section which occupies a position intermediate between sial and sima. A.G.I.

Siberian garnet. A rare but incorrectly used term for blue zircon or for greenish spinel. Shipley.

Siberian ruby. A name sometimes erroneously applied to the dark ruby spinel found with the rubies of Siam. Fay.

Siberian ametyst. A long-established trade term for the deep red, almost red violet or purple amethysts although amethysts now found in the Ural Mountains, U.S.S.R., are characterized by the less desirable light violet color. Shipley.


Siberian jade. Nephrite from Siberia, fine almost emerald-green qualities being found in the Lake Baikal region. Shipley.

Siberian ruby. Rubellite; a red variety of tourmaline found in Siberia, U.S.S.R. Fay.

Siberian tourmaline. Light violet-red (rubellite) to violet tourmaline from the Ural Mountains, U.S.S.R. Shipley.

Siberian. A violet-red variety of rubellite. See also Siberian ruby. Fay.


siccative. A medium which promotes the drying of oils used in underglaze or overglaze coloring. ASCG.

Sicilian amber. Simetite. Shipley.

sickness. a. A scum that forms on the surface of mercury that retards amalgamating, caused by grease, sulfides, arsenides, etc. Gordon. b. The flooding of mercury. See also flooded. Fay.

sikkier, see sikkier. Fay.

sickly, dry-mica. Crude mica cobbled, ruffled, and dressed with a tuckle to eliminate major flaws. It has irregular outlines and beveled edges. Skow.

sicklerite. A dark brown hydrous phosphate of iron and manganese with lithia, Fe6Mn0.4P105.3 (Li,H),O. Orthorhombic (?). In cleavable masses. From Pala, San Diego County, Calif. English.

sick mercury. Mercury which has become contaminated so that it has neither a clean bright surface nor a spherical shape when in globules. Effect produced by sulfur, oil, tale, graphie, sulfides of antimony, bismuth, arsenic, or iron. Fay.

sickle. a. A scythe. Fay.

side. The more or less vertical face or wall of coal or goaf forming one side of the machine. Fay.
side

side adits. A side passage sometimes made when the main adit is choked with waste rock. Fay.
side arch. A brick with the two largest faces symmetrically inclined towards each other from 200 to 500 feet directly to port or starboard. Fay.
sidearm. A short bar connected to, and extending outward at a right angle from, a drill column and on which a small diamond or other-type drill can be mounted. Compars crossarm. b. Long.
sidebars. See bars. Hess.
side basse. A transverse direction of the line of dip in strata. Fay.
side blowing converter. A Bessemer converter in which the airblast is admitted through the sidewall near the bottom of the converter. Bennett 2d, 1962.
sideboard. a. A board which is used in timbering the sides of a heading. See side trees. b. Ham. b. Board applied to either side of a building or structure, extending from the foundation to the ceiling (or roof). Dow.
side boon dredge. Similar to the hopper dredge except that the discharge, instead of going down a hopper or directly back into the sea, is carried in a discharge pipe hung from a boom, a distance of from 200 to 500 feet directly to port or starboard of the vessel, and there discharged into the atmosphere, dropping vertically from a height of about 50 feet onto the surface of the sea. The drag heads of the dredge provide a channel, and the excavated earth is spread over a wide area on either side, without the necessity of hauling it to the sea. Carion, 2, p. 63.
side casting. Filling stop, also called side box. A casting made in a situtation from which it is taken. Nichols, 2.
side chain. A chain hooked onto the sides of cars running on an incline or along a grade, which holds the cars together in case the coupling breaks. Fay.
side construction tile. A tile designed to receive its compressive stress at right angles to the axes of the cells. ASTM C63-65. b. Tile designed for use in interior construction. ASTM C63-65.
side discharge shovel. A shovel loader, driven by compressed air or by electricity, for loading loose coal or rock. A 21-cubic-foot-capacity bucket, hinged to the chassis, digs, lifts, and discharges the material sideways onto a scraper or belt conveyor; suitable for stable holes, pillar methods of working, and general repair work. Nelson.
side dumper. An ore, rock, or coal car that can be tilted sidewise and thus emptied. Fay.
side entrance manhole. A deep manhole in which the access shaft is built to one side of the inspection chamber. Ham.
side eater. See either brick. Dodd.
side guide. See guard. a. Fay.
sidehill. A slope that crosses the line of work. Nichols.
sidehill cut. A long excavation in a slope that has a bank on one side, and is near original grade on the other. Nichols.
side-hitching. The practice of hitching which the mule is hooked by its harness to the side instead of the front of a loaded car to give it enough momentum to slide onto a cage. Korton.
side-lasting. S. Staff. The widening of an abandoned gate road, and making it part of the new side of work. Fay.
side lap. The distance by which the side of a roofing tile overlaps the joint in the course of tiles next below. Dodd.
side lengths. See lengths. Fay.
side line. a. The line connecting the dredger to the side of the vessel, and there discharged. b. A line which passes through the sidewall near the bottom of a building or structure and extends from the foundation to the ceiling (or roof). Dow.
side pocket. Alternative name for slag pocket as applied to glass-tank furnaces. See slag pocket. Dodd.
side ramps. A curved rodlike fishing tool with a serrated surface to help grip or hold an object lost in a borehole. Long.
side real. In a day, one complete revolution of our globe on its axis, as determined by transit of a fixed star (23 hours, 56 minutes, 4.0906 seconds of local mean time). In a year, one revolution around the sun (365.2564 solar days). Pryor, 3.
siderite. Native iron found in petrified wood. Nichols.
side shot
not intended to be used as a base for the extension of the survey. A side shot is usually made for the purpose of determining the position of some object which is to be shown on the map. A.G.I.
side skew. A brick modified so that one side is different from the other 90° to the largest faces. A.R.I.
side slicing. See top slicing combined with core casing. Fay.
side split. The emission of sparks through the sides of a burning fuse. Fay.
side state. a. On a road job, a stake on the line of the outer edge of the proposed pavement. Nicholls. b. Any stake not on the centerline. Nicholls.
side stopping. See overhead stopping, b. Fay.
sideway. A slight lateral movement of a structural frame in its own plane due to the action of a horizontal force such as wind pressure or to unsymmetrical loading. Ham.
sidewall. a. The lateral force against the borehole walls resulting from the buckling or sag in the drill rods at one or more points along the length of the borehole. The lateral force developed when the area covered by the bit is not uniformly hard. Long
sidetrack. When tools have been lost in the drill hole and fishing for their recovery is without success, the lost equipment is sometimes drilled by. The lost tools are forced out successively, the lost equipment is sometimes sidetracked. A.G.I.
sidetracking. 'The act or process of deflecting away from a normal, a tendency to drift or wand. Fay.
siebe-Gorman self-rescuer. A British-made self-rescuer consisting of a hermetically sealed, quick-release canister with inhalation and exhalation valves fitted to the top, a head strap, a rubber mouthpiece, a chin rest, and a note clip. It is carried on the miner's belt and weighs only 22 ounces. The air enters at the perforated diaphragm in the bottom of the canister, passes through layers of filters before it reaches the mouthpiece. The complete respirator is held in position by the head strap. Medadm, pp. 67-68.
siegburgite. A foalash from the brown coal near Rhenish, Germany; it varies in color from golden yellow to brownish-red, and is partly soluble in alcohol and ether. Fay.
seige. The floor of a pot furnace, often called bench. ASTM C162-66.
siegene. A member of the linneanite series with the formula, (Co,Ni),S4. Dana 7, p. 262.
siemens furnace. A reverberatory furnace, called bench. ASTM C162-66.
siemens. A highly refractory material, produced by Siemens and Halske process. A metallurgical process for the recovery of copper. Copper sulfides are dissolved by solutions of ferric sulfate containing free sulfuric acid, and the solution is then electrolyzed in a tank having a diaphragm. Copper is deposited and ferric sulfate regenerated. Liddell 2d, p. 495.
siemens direct process. A process for making wrought iron directly from iron ore, without the previous production of pig iron. Standard, 1964.
siemens furnace. A reverberatory furnace, heated by gas, with the aid of regenerators. Fay.
siemensite. A highly refractory material, produced by the fusion of chrome, bauxite, and magnesite, in the open electric arc furnace. Osborna.
siemens process. The production of steel in a reverberatory furnace by oxidation of the impurities by oxides added (either the rust on scrap, mill scale, or pure oxide). It may be carried out either on acid or basic lining. See also open-hearth process. Liddell 2d, p. 495; Fay.
siemens process. Siemens process. In the Southwest and the Pacific States. Local.
siemens marble. One of the most highly esteemed of marbles for interior decoration. The Bourelius marble is a granite, which is usually variegated with white and violet or purple. From Monte Arenti, in Montagnola, Switzerland.
sierra. Sp. A saw, a chain of hills or mountains; used as part of the name of many mountain chains, as Sierra Nevada, Local.
sierra Leone. A diamond from the Sierra Leone District in Africa. Long.
sieurin process. A process for manufacturing sponge iron, in which layers of high-purity ore, coal, and lime are heated in closed crucibles. After cooling, the porous cake of powdered metal is removed from the crucible and crushed for further processing. Bennett 2d, 1962.
sieve. a. Any screen that it used to separate particles according to size. Fay. b. The screen or grating fixed in a stamp box. Fay. c. Vessel, the bottom of which is porous, with apertures of defined size and shape, allowing contents to be retained as overflow or sieved through as undersize. The chief laboratory work are rings 8 inches in diameter with woven wire cloths to specified. Jones. d. A term applied when a borehole has been sidetracked. A.G.I. sieve fraction. The determination of the percentage of particles which will pass through a standard sieve of specified size. Amer.
sieve analysis. a. The determination of the percentage of particles which will pass through screens of various sizes. Britany 1. See also sieve analysis.
b. In powder metallurgy, particle size distribution; usually expressed as the weight percentage retained upon each of a series of standard sieves of decreasing size and the percentage passed by the sieve of finest size. Synonymous with sieve classification. ASTM Gloss. c. A test to determine particle size distribution in a soil. A set of sieves may contain the following sizes: 1/4 inch, 3/8 inch, 1/2 inch, 3/4 inch, 1 inch (of aperture), No. 7, 14, 25, 36, 52, 100, 200 (number of apertures to the linear inch). A set is complete with lid and receiving pan, and can be 9, 12, or 18 inch diameter sieves. See also sieve analysis. Fay.
sieve fraction. In powder metallurgy, that portion of a powder sample which passes through a standard sieve of specified size.
sieve fraction

number and is retained by some finer sieve of specified number. ASM Gloss.

sieve mesh. a. Standard opening in sieve or screen. B. A heavily wire mesh made of four boundary wires (warp and woof). The laboratory mesh is square and is defined by the shortest distance between two parallel wires as regards aperture (quoted microns or millimeters), and by the number of parallel wires per linear inch as regards mesh. Sixty (60) mesh equals sixty (60) wires per inch. Pryor, 3. b. The length of the side of a hole in a sieve. See also mesh, f. Fay.

sieve mesh. The length of the side of a sieve in a sieve. See also mesh, f. Fay.


sieve scale. Term applied to the list of screen apertures, taken in order from the coarsest to the finest. Pit and Quarry, 53rd, Sec. B, p. 115.

sieve shakers. Mechanized devices on which a nest of laboratory sieves can be shaken or electrically vibrated during the size analysis. See also mesh, f. Fay.

sieve sizes. Screens are standardized in British Standard 410, and sieve size diamond powders in British Standard 1907. Osborne.


sieving. a. Grading in accordance with particle size and shape by means of sieves or screens. Pryor, 3. b. The operation of shaking loose materials in a sieve so that the finer particles pass through the mesh, and the coarser remain on it. Also called sifting.

sieve. See sieve fraction.

sifting. See sieving, b.

 sightings. b. Operating signal hammers and bells. Fay.

sight. a. A bob or weighted string hung from an established point in the roof of a mine or tunnel entry or room. Fay. b. The operation of sighting or transit when making a survey. Fay. d. Any established point of a control or transit for use. Established control or transit sight. See also sight. Fay.


sightings. b. The arrangement in use for signaling in mine signal systems, both. See hoist signal system.

signaling system. a. A method of communicating by means of light, sound, or electrical currents, for telegraphic or telephonic purposes. See also mesh, f.

signal bell; signal hammer. Scot. A bell or other apparatus for signaling in mine shafts or on haulage roads. Fay.

signal code. See hoist signal code.

signal code, hoist. See hoist signal code.


signal phase. A hard, brittle, nonmagnetic intermediate phase with a tetragonal crystal structure, containing 30 atoms per unit cell, space group F4m/m, occurring in many binary and ternary alloys of the transition elements. The composition of this phase in the various systems is not the same and the phase usually exhibits a wide range in homogeneity. Alloying with a third transition element usually enlarges the field of homogeneity and extends it deep into the ternary system. ASM Gloss.

signal recorder; methanometer. See butane flame methanometer. Nelson.

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signal recording methanometer. See butane flame methanometer. Nelson.
silica fire clay

silica brick, and fire clay of various proportions; often called silica cement. HW.

silica flour. A sand additive, containing about 99.5% silica. It is produced by suspending quartz sand in large ball mills to a meth size of 80 to 325. ASM Gloss.

glass. The porous material consisting of pure silica dioxide. Used as a dehumidifying and a dehydrating agent. Bennett 26, 1962.

glass. a. Vitreous silicon dioxide, (SiO2); quartz glass; pure silicon dioxide, (SiO2); glass. ASTM C162 &-b. Fused quartz, occurring in shapes masses on the surface of the Libyan Desert, in Moravia, Czechoslovakia, and in parts of Australia; believed to be of meteoric origin. See also tektites. C.M.D.

calcite. Wadsworth's word for rocks composed of silica, such as diatomaceous earth, triplite, quartz, lydite, jasper, etc. Fay.

modulus. Fractional rate of SiO, in a hydraulic cement. In Portland cement this modulus usually lies between 2 and 3. A cement with a low silica modulus can be expected to have high early strength, but if this modulus is high, the final strength will be the greater. Dodd.

ramming mix. Usually a sized mixture of garnet, often with sand, silica flour, fire clay, bentonite, or combinations of them. Bureau of Mines Staff.

refractories. Refractories made from silica, such as diatomaceous earth, quartz, lydite, jasper, etc. Fay.

rock. a. A rock containing a high proportion of silica or quartz, for example, Dinas rock, which may contain 50 percent silica. Nelson. b. N.S.W. Usually refers to a clean hard quartzite suitable for making silica firebrick. New South Wales, p. 66.

sand. Sand very high in SiO2; hence a silica refractories. Refractories made from silica.

sol. Colloidal silica in the form of a dispersion stabilized by silicate and silicic acid. Fay. A. pools used extensively for sandblasting, for the initial grinding or surfacing of plate glass, and as a cutting medium for gang saws on stone. AIME, p. 15.

calcite. Suggested by Shrock for sedimentary rocks composed of siliceous minerals. Fay.

silica deposits. A group of natural earth materials including chert and flint and the deep-sea oozes which are formed of the skeletons of such organisms as radiolarians, diatoms, and sponges. Stokes and Varmus, 1955.

dust. Dust arising from the crushing or other dry working of sand, sandstone, trap, granite, and other igneous rocks are included in this class. Siliceous dusts are not soluble in the body fluids, and when introduced into the respiratory tract in the form of particles of the proper size and in sufficiently high concentration produce nodular growths that often result in a form of pneumoconiosis that has been known as silicosis or "stone cutters" consumption. Pi and Quarry, 53rd. Int. B, p. 252.

earth. A general term including both diatomaceous earth (diatomite) and radiolarian earth (radiolarite). A.G.I.

fire clay. A fire clay composed mainly of fine white clay mixed with clean, sharp sand, found in pockets. Nelson.

fire clay brick. Fire clay brick contains appreciable quantities of uncombined silica and usually low in fluxing constituents. A.R.I.


ocean. These are pelagic deposits which contain a large percentage of siliceous skeletal materials produced by planktonic plants and animals. The siliceous oceas are subdivided into two types on the basis of the predominance of the forms represented, namely: (1) diatom ooze, containing large amounts of diatom frustules, the siliceous frustules of planktonic algae, and (2) radiolarian ooze, containing large proportions of radiolarian skeletal forms formed by planktonic animals. H.O.G.


refractory. A refractory material that in the fired state, contains not less than 78 percent but less than 92 percent SiO2, the remainder being essentially Al2O3. Semisilica and subhypersilica refractories are also comprised within this definition. Dodd.

rocks. Rocks which are chiefly formed by sponges and small marine animals called Radiolaria and small plants called Chrysophyceae. Fay.

shale. A hard, fine-grained rock of shaly structure generally believed to be

behind the leaking tubing, is highly impervious. Nelson.


wet-pan charger. See wet-pan charger. T. J.

bricks. See silica brick.

calcite. See sand calcite.

clay. A clay containing appreciable free silica in particles which may or may not be visible to the naked eye. When visible particles of silica are present in large amount, the term sandy is often used. A.G.S.B., 1.

siliceous deposit. A group of natural earth materials including chert and flint and the deep-sea oozes which are formed of the skeletons of such organisms as radiolarians, diatoms, and sponges. Stokes and Varmus, 1955.

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siliceous shale

siliceous sinter. See fiorite. Fay.
siliceous. a. In petrology, containing silica in
dominant amount. Fay. b. In chemistry, containing silicon as the acid-forming ele-
ment. Fay.

Fay. siliceous hydrated silica. Applied to the
jelly-like precipitate obtained when a so-
dium silicate solution is acidified. The formu-
la Na2SiO3 is often used for conven-
tion but no such compound has been iso-
lated, and SiO.nH2O is the proper formula.
The proportion of water varies with the
conditions of preparation and decreases
gradually during drying and ignition, until
relatively pure silica, SiO2, remains. During
drying, the jelly is converted into white
amorphous powder or lumps. In this form,
the material has great surface area and
absorbing power. Used for decolorizing
(bleaching) oils, fats, and waxes; as a cat-
ayst, a carrier or base for other catalysts
and for chromatographic adsorption; and
recovery of gases and vapors including
moisture from air or gas streams. The ad-
sorbent properties may be regenerated by
heating to 150°C. See also silica gel. The
term silicic acid is also sometimes applied
to various hypothetical acids of silica, such
as H2SiO4 (orthosilicic acid. See ortho-
silicic acid), Na2SiO3, etc. CCD 64, 1961.
Two types of silicic acid are metasilicic acid
and dicalcic acid. Metasilic acid: H2SiO3;
molecular weight, 76.10; colorless; amor-
phous; decomposes at room tempera-
ture; insoluble in water; and soluble in
ammonia, in hydrofluoric acid, and in hot
alkalies. Dicalcic acid: H2SiO4; molecular
weight, 138.16; colorless; crystalline; de-
composes at 150°C on heating; insoluble
in water; and soluble in ammonia and
in hydrofluoric acid. Handbook of Chem-
B-134, B-217.
silicate. A binary compound of silica with a
metal. Osborne.
silicates. A group of special ceramic mate-
rials. Used chiefly in the form of alloys (as fer-
silicon), in combination with ceramic
materials in cermets, and as a semiconduc-
tor (as in transistors) and element in
photovoltaic cells. Symbol, Si; valence, 4;
solvent, water; hardness, 5; specific gravity,
2.33; atomic weight, 28.086; specific gravity,
2.32 to 2.34 and 2.33 (at 25°C); melting point,
1,410°C; 1,350°C; insoluble in water and in
hydrofluoric acid; and soluble in hydrofluoric acid and nitric acid
mixed. Webster 3d; Handbooks of Chem-
B-134, B-217. Silicon constitutes 25.7 per-
cent of the earth's crust by weight. Never
found uncombined in nature but occurs
abundantly as the oxide and as silicates.
This relatively inert element is not af-
fected by most acids, except hydrofluoric
acid, but it is attacked by halogens and
dilute alkalies. Handbook of Chemistry
B-134, B-217.
silicon alloys. Silicon bronze is a noncorro-
ding alloy with copper and tin. Silicon cop-
per (70 to 90 percent silicon) is an al-
loy is added to molten copper or brass
to remove oxygen. Silicon iron is a
grain-refining iron, or crystalization resis-
tant. See also ferrosilicon. Fryor, 3.
silicon and selenium rectifiers. Silicon
and selenium power conversion units are
an economical means of obtaining direct cur-
tent power from the excitation of syn-
chronous motors, magnets, magnetic chick,
arc lights, etc. The basic unit consists of
a three-phase, insulated transformer and
silicon rectifier diodes or selenium rectifier
stacks, enclosed in a ventilated steel cabi-
net. To this can be added the proper
accessories, alternating current and direct
current switchgear, voltage regulator, re-
generative protective panels, off-and-on
pushbuttons, meters, etc. Both convection
cooling and forced draft cooled units are
available. In most large industrial
applications, it has been found economical
to use forced draft cooled rectifier units.
Rectifier equipment using silicon diode basic
modular design requires less floor space,
is credited with higher effi-
ciency, and permits better voltage regula-
35.
silicon borides. Two compounds have been
reported: SiB6, oxidation resistant to 1,570°C;SilB12, ignition point 1,930°C. A
special refractory has been made by react-
ing silicon and boron in air, the product
containing 85% silicon and 15% boron.
One matrix; it is stable in air at 1,550°C
and has good thermal shock resistance.
Dodd.
silicon bronze. An alloy of copper and usu-
ally 1.5 to 3.0 percent silicon with small
amounts of various third elements (as zinc,
tin, or magnesium). Webster 3d.
silicon fur. See flue silicon. CCD 64, 1961.
silicones. A high-silicon, low-carbon
ferromanganese. Also called manganese
294.
silicones. See manganese alloys. CCD.
silicon. A tetravalent nonmetallic element
that occurs in combined form as the most
abundant element of the earth's crust.
It can be obtained as brittle, hard, lustrous,
steel-gray crystals with the lattice of a
diamond, as a glassy diamondlike, or as
dark brown powder. Usually prepared by
reducing sil-
ica with carbon in an electric furnace.
Used chiefly in the form of alloys (as fer-
silicon), in combination with ceramic

silicon dioxide. See silica. ACSG, 1963.
silicones. Group name for semi-inorganic poly-
mers made up of a skeleton structure of
alternate silicon and oxygen atoms with
various organic groups attached to the sil-
icon. Silicones range from low-molecular-
weight volatile materials to cyclic, linear,
and cross-linked high-molecular-weight po-
ylmers. Produced to the basic forms of
fluids, resins, and elastomers, they are also
further compounded to yield greases, rub-
ber, protective coatings, and foambale
powders. Silicones are heat stable; service-
able over a wide temperature span; water-
repellant; and resistant to oxidation and
weathering. Used in surface treatments for
glass and ceramic. CCD 64, 1961.
silicon ester. The first chemical compound
manufactured in which silicon replaces
carbon in a molecule in the realm of or-
ganic chemistry. One carbon atom in an
alcohol molecule is replaced by silicon.
One of the latest developments in the
manufacture of highly refractory materials
is the mixing of refractory powders with
silicon citer. This operation produces a
workable body which will not shrink dur-
ing drying and firing. Rosenthal.
silicon iron. A cast iron containing 0.7 to
14 percent silicon. Has low magnetic
hysteresis, used for sheets for transformer
cores and those containing the higher per-
centages of silicon are used as cathodic
protection anodes. Bureau of Mines Staff.
silicas. To unite or cause to unite with
silicon, as in the combination of iron with
silicon in certain metallurgical processes.
silicosis. Diffusing silicon into solid metal,
usually steel, at an elevated temperature.
ASM Gloss.
silicon nitride. A grayish powder, Si3N4
(can be prepared as crystals); sublimes at 1,900°C;
Molybdenum, 9-4; resistant to oxid-
ation, various corrosive media, molten alum-
num, zinc, lead, and tin. Used in abrasives
and in rocket nozzles. An important refrac-
tory. CCD & 64, 1961.
silicon-oxygen tetrabromide. A complex
ion composed of a silicon ion surrounded by
4 oxygen and 4 bromine ions. Used in
3 to 4 units, is represented by the symbol
(SiO)4Br4, is the diagnostic unit of silicon
minerals, and is the central building unit
of nearly 50 percent of the materials of the
earth's crust. Last.
silicon spiegel; silicospiegel. A. A spiclei-
gen containing 15 to 20 percent manganese
and 8 to 15 percent silicon used in making
certain special steels. Webster 3d. b. A
silicon steel. A variety of steel containing
0.5 to 5 percent silicon. It is very hard,
but brittle, and is used in the form of sheets
for making cores for electromagnets,
transformers and motors and generator armatures. Bureau of Mines Staff.
silicon ware. A slightly glazed stoneware
silicosis
ica dusts by those, as stonecutters, asbestos workers, miners, regularly exposed to such dusts. J. Ind. Med. 56, 1954. Also pneumoconiosis; simple silicosis. Nelson.
silicate. A finely ground-plastic clay of high luster. A metal fracture in which the broken metal surface has a fine texture. A naturally occurring cubic modification of BiO3 as greenish, waxy masses from Durango, Mex. Spencer 17, M.M., 1946.
sillet. D. Place where any fluid bed or mass of sediment, or any material, has been deposited in a mine in hydraulic mine-filling. Fay.
sillet. Trademark for heating element consisting principally of SiC; to maintain a constant resistance for a long period, silicon is included in the batch and the shaped rods are fired in a controlled atmosphere to cause some nitridation and/or carbonation. Dodd.
silic. Microscopically small inclusions in ruby or sapphire; surfacethe reflections which produce a whish sheen resembling the sheen of silk fabric. Inclusions now generally conceded to be tiny needles of rutile, although some authorities still mention calcite as negative crystals. Shipley.
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Silurian

The third in order of age of the geologic periods comprised in the Paleozoic era, in the nomenclature in general use. Also, silver medals deposited during that period. (The above usage, in which the term is restricted to the period following the Cambrian, the Devonian, is the one now prevalent. Formerly, Silurian included what is now called Ordovician, and it has been used by some geologists to include the Cambrian also.

Fay.

silver. A white metallic element in Group I of the periodic system; sonorous, ductile, very malleable, and capable of a high degree of polish. It is not oxidized in air, and has the highest thermal and electrical conductivity of any substance. Occurs massive, or as anbesert or filiform shapes. Native silver oxide has variable admixture of other metals: gold, copper, or sometimes platinum. Used for coin, jewelry, etc. Symbol, Ag; atomic weight 107.86; specific gravity 10.5 at 20° C. C.T.D.


silver amalgam. A solid solution of mercury and silver crystallizing in the cubic system. The percentage of silver is usually about 26 percent, but in the variety argentum it reaches 66 percent. It is of rare occurrence, and is found scattered either in mercury or silver deposits. C.M.D.

silver b还原. Eng. A compact oolite, the best silver lead ore. The name given to galena. C.M.D. and is found scattered either in mercury or silver deposits. C.T.D.


silver glance. The native silver sulfide, argentite. Fay.

silver halides. Silver bromide, AgBr; silver iodide, Ag I; silver chloride, AgCl; and silver fluoride, AgF. The bromide and chloride are sensitive to light and are of basic importance in photography. C.M.D.


silvering. a. A plating or covering of silver or an imitation of it, as applied to any surface; as, the silvering on the back of a mirror. Standard, 1964. b. The art or process of coating surfaces with, or as with, silver. Standard 1964.

silver jaspis. Same as owyheeite. English.


silver lead. Lead containing silver. Pryor, 3.

silver lead ore. The name given to galena containing silver. When 1 percent or more of silver is present, it becomes a valuable ore of silver. Also called argentiferous galena. C.M.D.

silver luster. Because silver tends to tarnish, silver luster is, in fact, made from platinum, with or without the addition of gold. Dod.

silver marking of glasses. Silver cutlery, or other relatively soft metal, will leave a very thin smear of metal on pottery ware if the glaze is minutely pitted. A glaze may have this defective surface as it leaves the kiln, or it may subsequently develop such a surface as a result of inadequate chemical durability. The fault is also known to Dodg.

silver mill. The mill or metallurgical plant used in treating silver ores by either the solvent or dry process. F. hydroxide. Bennett 24, 1962.

silver mill. Occurs native, alloyed with gold as a solvent of argenticite. The main source is argentiferous ores of lead, zinc, copper, silver, and copper. Pryor, 3.


silver ore. Slightly soluble in ethyl alcohol. An explo.

silver ore. Sometimes found native. See also antimony; amalgam; argentite; bronzin.

dine; cerargyrite; dyscrasite; electrum; embolite; freibergite; freieslebenite; hessite; iodinite; krennerite; mizangite; petzite; proustite; stephanite; stefeldite; stromeyerite; xanthoncite. Fay.

silver oxide. Black; black on exposure to light in the presence of organic matter; odorless; bitter, caustic metallic taste; corrosive; soluble in cold water; more soluble in hot water; soluble in glycerol; slightly soluble in ether; very slightly soluble in absolute alcohol; specific gravity at melting point, 121° C; and it decomposes at 104° C. Used as a reagent in chemical laboratories and in glass manufacture. C.C.D. 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-218.

silver powder. Provides the most convenient method of introducing silver into glass; a solution of the compound is poured over the batch. A very low concentration of silver produces a colorless glass which, upon reheating, can be struck to a yellow.

silver ore. Brittle. See stephanite.

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silver ore. Slightly soluble in ethyl alcohol. An explo.
silver zinc battery

the electrolyte, very little free liquid being present. The plates contain no paste. Neither the paste nor any air or moisture is required and the cells are claimed to be unaffected by prolonged charge or discharge. The most noticeable characteristics of the silver-zinc cell are those of its very low rate of weight and the small size and weight, when compared with other types in general use. They are less than half the size and less than one-third the weight of conventional type batteries of the same capacity. Roberts, II, p. 246.

Silver ore. The oldest manual method of artificial respiration on record, dating back to 1556. The cycle of operations is as follows: Lay the patient flat on his back and place a roll of clothing under his shoulders to ensure that the head is thrown well back and the respiratory tract is clear. Pull the patient's tongue forward and fix it in that position. Kneel at the patient's feet and grasp his arms immediately below the elbows. Swing forward and press his arms steadily and firmly downwards and forwards against the lower ribs, thus lifting the upper part of the abdomen. Maintain a steady pressure for 2 seconds to force air out of the lungs and simulate the movement of expiration. Then, after a pause, bring the patient's arms steadily backwards until they are in line with the body and the elbows are almost touching the ground. Hold the arms in the extended position for 3 seconds. In this position the chest cavity is extended, air enters the lungs, and the movement stimulates the natural inhalation movement of breathing. McAlpine.

simile. If a given charge will break a crater of double the linear dimensions and it is desired to break a crater of double the linear dimensions, then the charge dimension must be doubled or its volume (weight) cubed. If, however, linear dimensions in each case are divided by \( \sqrt[3]{W} \), then this should yield the same scaled values. The cube root of the weight of explosive is usually denoted by \( r \) and is given for convenience the dimensions of feet. Linear distances are scaled by dividing by \( r \), areas by \( r^2 \) and volumes of weight by \( r^3 \).

similer. A golden-colored variety of brass. Also called Mannheim gold; Prince Rupert.


siminosacco filter. A trade name for a rotary vacuum disk filter used in the final stages of coal preparation. It is continuously operated and designed for the filtration of froth concentrate from flotation plants and for the treatment of flocculated slurries. Nelson.

Simons theory. A theory of drilling to include the effects of drilling by percussion and by vibration (oil well) bit, cable tool, and pneumatic hammer. The formula developed is for rate of penetration of a given chisel-type bit into brittle rock. The rate of drilling may be defined by the following equation:

\[
R = \frac{NA}{d^2}
\]

where \( R \) equals rate of advance of bit, \( N \) equals number of wings of bit, \( f \) equals number of impacts per unit time, \( d \) equals diameter of the bit, \( A \) equals cross-sectional area of crater at periphery of drill hole. Lewis, A. G. I.

siminosyne. Synonym for bloodcote. Dana 64, p. 546.

simple alloy steel. An alloy steel containing one alloying element, as for example, simple nickel steel. See also ternary steel. Fay.

simple beam. A simply supported beam. Ham.

simple bending. The bending of a beam which is freely supported, having no fixed end. Ham.

simple cross-stratification. Lower bounding surface of cross-stratified unit is a nonerosional surface. Patschott.

simple curve. A curve having but one radius. Zorn, p. 455.


simple engine. A reciprocating engine from which steam or compressed air is exhausted to atmosphere after expansion in one cylinder only, Ham.

simple explosives. These explosives consist of one simple chemical compound. The explosive heat is liberated with the breaking down of the molecules and the atoms recombining to form water, carbon dioxide, nitrogen, and other gases and possibly solid substances such as carbon. To this group belong explosives in the proper sense of the word, such as nitroglycerin, nitroglycerine, trotyl, and cyclonite (RDX). Fraenkel, v. 3, Art. 16:01, p. 29.

simple mineral. A mineral found in nature, as distinguished from rocks, which, in the scientific sense, are mixtures of minerals. Standard, 1964. Calcite and hemate are simple minerals, while granite is a mixture of three simple minerals—quartz, feldspar, and mica. Fay.

simple ore. Ore that yields a single metal. Schieffelacker.

simple pegmatite. A pegmatite of simple mineral composition and corresponding to the last products formed during the main stage of magmatic crystallization, without replacement by pneumatolytic-hydrothermal agencies introducing rare elements. Schieffelacker.

simple pneumoconiosis. Pneumoconiosis of the lungs that can be related to the amount (and possibly the nature) of the dust breathed by miners over the years. See also complicated pneumoconiosis. Nelson.

simple sound source. A source that radiates sound uniformly in all directions under free-field conditions. Hy.

simple split seam. A coal seam which has separated into two layers of coal some distance apart vertically. See also multiple split seam. Nelson.

simple steel. A steel consisting chiefly of iron and carbon. Other elements are always present, but are not essential to the formation of the steel. The content of carbon may be very small. Often called carbon steel. Fay.


simplex kiln. A type of annular kiln in which two barrel-arch galleries are each divided by transverse walls into eight or nine chambers, each of which has grates at the corners for the hand firing of solid fuel. This kiln can be used for the firing of facing bricks, roofing tiles, firebricks, or (because the flue system permits each chamber to be isolated) blue engineering bricks. Dodd.

simplex pump. A reciprocating single- or double-action piston pump having one water cylinder. Long.

simplexite. Hydroz hydravandate of calcium, CaV;SO;H; monoclinic, as dark-green plates and warty aggregates with UV colors in crevices in sandstone from Pea nut mine, Montrose County, Colo., and localities in Colorado and Utah. Spencer 21, M.M. 1958.

simple silicosis. Silicosis which is not complicated pneumoconiosis. Nelson.

simulated insert bit. A core bit in the face of which are deeply cut, closely spaced waterways to produce the superficial ap-
simulated insert bit

ledge as a single bench the full height of the quarry face. Fay.
single crystal alunias. A product recrystal-
ized from a molten bath. The crystals are of
high purity alumina and each grain is essen-
tially a single complete crystal. ACGS, 1963.
single cut sprocket. For double-pitch roller
chain, a sprocket having one set of ef-
teffect teeth. JFM.
single-cycle mountain. A mountain that has
been folded and then destroyed without
re-elevation of any important part. Stokes and
Varner, 1933.
single-cycle reactor system. See direct-cycle
reactor system. LBL.
single entry. A system of opening a mine by
driving a single entry only, in place of a
single plow. A method of mining in which
one man works in each place on
the joint edge of one member is
kept open. Fay.
single fire. The process of maturing an un-
-fired ceramic body and its glaze in one
operation in contradistinction to double
fire. Fay.
single fire ignition. In the form of a .1 from one side.
single figback. An aerial ropeway in which
the steel.
single freshmen. A work plan for mining in a
core of the opening in the direction of the
quarry face. Fay.
single4 groove weld. A groove weld in which
the joint edge of one member is
beveled from one side. ASM Gloss.
single5 groove weld. A groove weld in which
the joint edge of one member is
beveled from one side. ASM Gloss.
single6 groove weld. A groove weld in which
the joint edge of one member is
beveled from one side. ASM Gloss.
single7 groove weld. A groove weld in which
the joint edge of one member is
beveled from one side. ASM Gloss.
single8 groove weld. A groove weld in which
the joint edge of one member is
beveled from one side. ASM Gloss.
single9 groove weld. A groove weld in which
the joint edge of one member is
beveled from one side. ASM Gloss.

Long.
single-layer roofing tile. This term includes
pantiles, double roman tiles, flat interlock-
ing tiles, and Pooles tiles. Dodd.
single-ply roofing. A method of roofing using
sheet metal in one layer. Fay.
single race. A conveyor in which
one man works in each place on
the joint edge of one member is
kept open. Fay.
single reduction. A gear set that causes one
rotation in contradistinctim to double refrac-
tion. Fay.
single reduction. A gear set that causes one
rotation in contradistinctim to double refrac-
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single reduction. A gear set that causes one
rotation in contradistinctim to double refrac-
tion. Fay.
single-road stall


single-roll breaker. A coal crushing machine in which the roll teeth crack downward; or the lump and the roll itself comprises the coal against the breaker plates. Teeth of two or more designs are used on the same roll, some for the slugging, cracking, or blow action and others for a pulling and splitting force. The breakers are not easy to stall by choking, since they will pass a heavy overload, partly because of the action of a relief mechanism, with which they are all equipped. Mitchell, p. 196-197.

single roll crusher. A crushing machine consisting of a rotating cylinder with a corrugated or toothed outer surface which crushes material by pinching it between the teeth and stationary breaking bars. ACSG, 1963. Compare double roll crushe.

double-round nose. A mill possessing batteries of one side only. ASM Gloss. See also double round nose.

double-screened ground refractory material. A refractory material that contains its original gradation of particle sizes resulting from crushing, grinding, or both, and from which particles coarser than a specified size have been removed by screening. ASTM C71-64.

double-stage compressor. A machine designed to compress air or gas against pressures exceeding 60 pounds per square inch. See also single-stage compressor. Ham.

double-stage pump. A centrifugal pump with a lift of 100 feet per stage. Ham.

double-tube core barrel. Long. A core barrel consisting of a single length of tubing, the core and the inside surface of the cylinder, a type seldom used for pressures exceeding 60 pounds per square inch. Coal Age, 1964.

double vein. A single ore deposit of identical origin, age and character throughout. A single small vein is weighed and measured by the same law and entitled to the same consideration as the mother lode, and very often is far more valuable in the eyes of the miner. Rickets, pp. 123-24.

double-U groove weld. A groove weld in which each member is beveled from the same side. ASTM Gloss.

single speed floating control system. In floatation, floating control in which the magnitude of the actuating signal. Fuerstenau, p. 549.

single stall. A single small vein is weighed and measured by the same law and entitled to the same consideration as the mother lode, and very often is far more valuable in the eyes of the miner. Rickets, pp. 123-24.

single-U groove weld. A groove weld in which each member is beveled from the same side. ASTM Gloss.

single way rectifier circuit. A circuit in which the alternating current between each terminal of the alternating-voltage circuit and the rectifying element conducts in one direction only, to it flows in both directions. Coal Age, 1. single welded joint. Any joint welded from one side only. ASTM Gloss.

double roll breaker. A coal crushing machine in which the roll teeth crack downward; or the lump and the roll itself comprises the coal against the breaker plates. Teeth of two or more designs are used on the same roll, some for the slugging, cracking, or blow action and others for a pulling and splitting force. The breakers are not easy to stall by choking, since they will pass a heavy overload, partly because of the action of a relief mechanism, with which they are all equipped. Mitchell, p. 196-197.

single roll crusher. A crushing machine consisting of a rotating cylinder with a corrugated or toothed outer surface which crushes material by pinching it between the teeth and stationary breaking bars. ACSG, 1963. Compare double roll crushe.

single screen. A borehole survey made to determine the average velocity of airflow along a mine roadway by anemometer. A velocity reading is taken at the center of the airway and the result is multiplied by the center constant to give the average velocity of flow. Alternately, the reading is taken along a midway line at a position some 1/7 to 1/3 of the width of the airway, measured from the side. At this position the mean velocity is obtained, so that no constant is required. Roberts, I, p. 49. Compare division method; traversing method.

single stage compressor. A machine designed to compress air or gas against pressures exceeding 60 pounds per square inch. See also single-stage compressor. Ham.

single-stage pump. A centrifugal pump with a lift of 100 feet per stage. Ham.

double-tube core barrel. Long. A core barrel consisting of a single length of tubing, the core and the inside surface of the cylinder, a type seldom used for pressures exceeding 60 pounds per square inch. Coal Age, 1964.

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single way rectifier circuit. A circuit in which the alternating current between each terminal of the alternating-voltage circuit and the rectifying element conducts in one direction only, to it flows in both directions. Coal Age, 1. single welded joint. Any joint welded from one side only. ASTM Gloss.

single spot method. One of three recognized methods of determining the average velocity of airflow along a mine roadway by anemometer. A velocity reading is taken at the center of the airway and the result is multiplied by the center constant to give the average velocity of flow. Alternately, the reading is taken along a midway line at a position some 1/7 to 1/3 of the width of the airway, measured from the side. At this position the mean velocity is obtained, so that no constant is required. Roberts, I, p. 49. Compare division method; traversing method.

single stage compressor. A machine designed to compress air or gas against pressures exceeding 60 pounds per square inch. See also single-stage compressor. Ham.

single-stage pump. A centrifugal pump with a lift of 100 feet per stage. Ham.

double-tube core barrel. Long. A core barrel consisting of a single length of tubing, the upper end of which may be threaded to fit a drill rod or a head, which also contains a drill-rod thread. The lower end puts to a standpipe, or casing down through overburden by rotation or by driving, chopping, or washing operations, employed singly or in combination. Long. a. A single small vein is weighed and measured by the same law and entitled to the same consideration as the mother lode, and very often is far more valuable in the eyes of the miner. Rickets, pp. 123-24.

single stage. A single small vein is weighed and measured by the same law and entitled to the same consideration as the mother lode, and very often is far more valuable in the eyes of the miner. Rickets, pp. 123-24.
sinker bar

to give force to the upward jar in well-drilling with cable tools. Webster 3d.

sinker bar guide. Bars of iron (usually 4) fitted to wooden tools in order to increase their girth and render it impossible for the drill to deviate. Fay.

sinker drill. a. A single-blade drill, ranging in weight from 25 to 80 pounds, that can be held in the hand but is frequently mounted. This drill has found wide application in sinking shafts and is made in several sizes, each suited for a particular kind of work. Also called plunger drill. Lewis, p. 209.

sinker hammer. A forged hammer type commonly used in shaft sinkings. Also called sinker. Webster 3d. c. A hammer used for striking a shock to a reference point, a piece of slack to be seized, a tumbler to be turned, or a similar purpose, usually of forged metal and driven into the hinge of the door to which it is fastened. The hammer is usually used with an adze or jack, and is also called sinker hammer or sledge hammer. Nelson.

sinker hoistman. In metal mining, one who operates — small power hoist hoist to raise rock and lower supplies in shaft sinking operations. D.O.T. 1.

sinker bar. a. Dross, slag. Webster 3d. b. To become sintered. See also sinter.


sinter. a. The process by which a mass of particles is agglomerated by heating without thoroughly melting) mixtures relatively high in alumina but usually containing associated minerals such as diaspore and various silicates. Commonly made of iron but sometimes microcrystalline. Also called alunina, manufactured. ACSG, 1963.

sintered carbides. Sintering as used in powder metallurgy consists of mixing metal carbide powders having different melting points, and then heating the mixture to a temperature approximating the lowest melting point of any metal included. In sintered carbides, powdered cobalt, having the lowest melting point, acts as the binder holding together the unmelted particles of the hard carbides. Compare cemented carbides. C.T.D. Supp.

sintered carbide-tipped pick. The pick generally used in coal cutters and cutter loaders, in which the sintered tip is brazed in various ways to the shank of the pick. In the external tip type, which is widely used, the sintered tip is brazed externally to the shank, which is usually a forging. It is self-drilling and as the tip wears down, the cutting edge maintains its shape and clearance. In the slotted type, the tip is brazed into a slot cut in the shank of the pick. In the inserted type, the sintered carbide takes the form of a rod inserted into a hollow in the shank of the pick which is a forging. These picks are widely used in the soft coal mines in Germany. See also coal cutter picks. Nelson.

sintered filter. A filter made from sintered aluminum or the equivalent, forming a firm mass in a piston pump. Compare ceramic filter. Dodd.

sintered glass. Glassware of controlled porosity used for filtration, separation, etc. It is made by carefully heating powdered glass so that the surfaces of the particles begin to melt and adhere to one another. Dodd.

sintered matrix. A bit-crown diamond-embedding metal or alloy produced by a sinter powder-metal process. See also sinter; sinter bit. Long.

sintered metal. See sintered matrix. Long.

sintering. a. The agglomerating of small particles to form larger particles, cakes, or masses in case of ores and concentrates, whereby powdered metal is compacted in a mold or other shape, usually by applying heat and pressure to a mixture of powdered metals, without thoroughly melting the particles or alloy produced by a sinter powder-metal process. See also sinter; sinter bit. Long.

sintering furnace. A heating furnace used for sintering. Webster 3d. c. To heat a mass of fine particles for a prolonged time below the melting temperature. Compare agglomeration. ASM Gloss. d. A ceramic material or mixture fired to less than complete fusion, resulting in a more compact or fine particle mass; in ores, the process involved. ASTM C242-60T. e. A chemical sediment deposited by a mineral spring, either hot or cold. Siliceous sinter, consisting of silica, is called geyserite and fumarite; calcareous sinter, consisting of calcite, is called travertine and tufa; and a mixture of both, and onyx marble. Fay. f. A process commonly used in making diamond bits, cutting the mixture in a diamond-set mold or die and the temperature raised to a point just below melting, thus fusing the entire mass together. Also called sintered. Long.
sintering

which causes adjacent particles of material to cohere, at a temperature below that of complete melting. *HW, d. A process in which a mixture with coke and ignited, the coke providing the heat to produce semi-molten lumps of ore, which can be more efficiently smelted in the blast furnace than the fine ores which would cause operational difficulties. See also conditioned sinter. Nelson.

sintering furnace. In powdered metallurgy, a furnace used to heat metal powders or compacts during the presintering or sintering operations. The heating and subsequent cooling may be carried out in a controlled inert or reducing atmosphere, or in a vacuum. Role.


sinter-machine operator. In ore dressing, smelling, and refining, one who burns out sulfur and other volatile impurities in iron, lead, or zinc ore prior to smelting. Also called burner man. D.O.T. Supp.

sintering. The action or operation of a sinter. Fay.


siphonage. A schist in which magnesia chloroiodite (sindolinite) is the chief constituent. See also schist. A.G. No. Eng. To settle or subside without breaking, as a mass of coal after undercutting and removal of the props. Standard, 1954.

site. a. The area investigated or selected for mining works. See also site investigation. Nelson. b. The location selected where a borehole is to be drilled, engineering work conducted, or a structure erected. Also called location. Long. c. In ion exchange, position where ions are attached to resin (uramin hydrometallurgy). Fay.

site exploration. a. The investigation and testing of the surface, subsoil, and any obstruction at a site to ascertain the full information necessary for designing a complete structure with its foundations. Ham. b. See site investigation; site exploration; site investigation.

site exploration; site investigation. The soil and geological examinations at a new mine site to obtain detailed information for the design and construction of surface works. At a large and important site, the following investigations may be necessary: (1) a geological survey to determine the nature, thickness, and dips of the superficial deposits; (2) a geophysical survey to obtain data regarding the subsurface geology; and (3) a drilling program and possibly a few trial pits for sampling and fixing bedrock. The amount of investigation will depend on the nature of the terrain and magnitude of surface works. See also geophysical survey; soil mechanics; site profile; c; foundation sampling. Nelson.

site plan; location plan. A plan, drawn to a suitable scale, showing the location of proposed shafts or opencast operations. It would show the area to be requisitioned, area to be worked (if opencast), grid of 100-foot squares with ground levels, all existing roads, railways, proposed access roads (in red), water and gas mains, powerlines, sewers, and proposed spoil dumps or topsoil dumps. The information shown is valuable to land and works contemplators. Nelson.

site rivet. A rivet which is driven on a construction site. See also shop rivet. Ham.

size. a. Eng. The extent of the displacement of the throw of a sheet or plate of ore, say, 100 tons and smaller, into a vacuum. Also called location. Fay. c. In brickmaking, plasticity, a tempered clay. Standard, 1964. d. A solution used to treat the surface of pottery ware or of plaster molds. Moldmakers' site is commonly a solution of soft soap. Decorators' size is traditionally based on boiled linseed oil; after its application, and after it has become tacky, the lithograph is applied and brushed down. Dodd.

size distribution. The division of a sample into size fractions with defined limits, the proportions of the fractions being expressed as percentages of the total sample, commonly with an indication of the ash percentage (and other characteristics, if required) of each fraction. B.S. 3552, 1962.

size assorter. One who inspects and racks finished tile according to color and size marking prior to further classification by boardman II. D.O.T. 1.


size-distribution curve. A graphic representation of the size analysis of a mixture of particles of various sizes, using an ordinary, logarithmic, or other scale. B.S. 3552, 1962.

size fraction. Portion of a sample of sand lying between two size limits, the upper being the limiting and the lower the retaining mesh. Pryor, 3.

size-frequency analysis. Determination of the statistical distribution of sizes of particles in powder or colloidal systems. Bennett 2d, 1962.

size of weld. a. The joint penetration in a groove weld. ASM Gloss. b. The lengths of the nominal legs of a fillet weld. ASM Gloss. c. The breaking of large coal, ore, or stone by primary breaker or of smaller sizes by grinding. See also reductive method.
size reduction

size selector. A device attached to the intake of sampling instrument to remove the bulk of the particles above 5 or 10 microns in size and thus the sample more representative of the health hazard size range of dust, mainly 5 microns and smaller. Nelson.
sizing. a. Secondary forming or squeezing operations, required to square up, set down, flatten, or otherwise correct surfaces, to produce specified dimensions and tolerances. See also restricting. ASM Gloss. b. Some burnishing, broaching, drawing, and shaving operations are also called sizing. ASM Gloss. c. A finishing operation for correcting ovality in tubing. ASM Gloss. d. In powder metallurgy, final pressing to impart. ASM Gloss. e. See screening. Pryor 2. f. The process of separating mixed particles into groups of particle size, and cutting up these groups into groups in which all particles range between definite maximum and minimum sizes. Mitchell, p. 128. g. Division of a material into products between nominal size limits. B.S. 3552, 1962. h. The operation of separating an aggregate of particles into sizes on a series of screens. When performed so as to show percentage of each size in a sample, called sizing analysis or screen analysis. See also size, b. Pryor, 3. i. See painting. Kentucky, p. 145.
sizing punch. A punch used for prising of the uninterred compact during the sizing operation. Osborne.
sizing screen(s). A screen or set of screens normally used for dividing a product (for example, washed coal) into a range of sizes. Also called grading screen(s) and classifying screen (s) (undesirable usage). B.S. 3552, 1962.
J. J. list. A pneumatic table of American development for the separation of materials of different specific gravity. It is rated at 15 tons per hour for ¾ to 1½ inch coal and 160 tons per hour for 2- to 4-inch coal. A sizing ratio of 2:1 is desirable the maximum range of sizes which the table can separate in one operation. Nelson.
skall. Scot. A quantity of air allowed to take a short cut to rejoin the main current; air finding its way into the return air course rather than the designed way. See also scale, a. Fay.
skailing air. Scot. Brushing out the foul air between all of this same size, into fresh air into the gaseous workings. Fay.
skars. See scars. Arkell.
skars. a. Scandinavian ore, carrying magnetite. Skarn-minerals include iron-garnets, iron-talc, hornfels, and other minerals. These are generally metamorphosed nearly entirely of lime-bearing silicates and derived from nearly pure limestones and dolomites in which large amounts of silicon, aluminum, iron, and magnesium has been introduced. See also calcareous schist, hornfels; lime; serpentine; pneumatolytic hornfels; tactite. A.G.I. skate-wheel conveyor. A type of wheel conveyor making use of a series of skates which are mounted on the shafts or axles or mounted on parallel spaced bars on individual axles. S.A.A. MH4-1958.
skeating rail. Skeating deal. a. Eng. A rail or timber fixed as a check to guide tubs around a curve. SMRB. Paper No. 61. b. Eng. A rail or deal fixed to roadway props to prevent their displacement by derailed tubs. SMRB. Paper No. 61.
skepodphyr. Suggested by Crou, Eddings, Pirson, and Washington for the texture of pyrope in which the phenocrysts are scattered more or less uniformly through the groundmass. Obolone. Johan- sen, v. 1, 1959, p. 212.
skeletone. a. A refractory block having an inclined face, or a course of such blocks forming the top of a wall, from which an arch or furnace may be sprung; also known as springer. D.O.T. 1.
skelebrick. A brick with one narrow side inclined so that the two large faces are unequal in size. VY.
skelebridge. A bridge spanning a gap at an oblique line and which is, therefore, longer than the width of the gap. Hone small islands and crags, formed by glacial action. Schieberdecker.
skeletone. a. A term for a process of metasomatic transformation of a rock or rock type under conditions that are not sufficient to produce new minerals. MORLEY, G. B. A. 1928.
skeletone structure. A mineral structure showing crystal outlines with emplacements that are not filled with the mineral. Schieberdecker.
skeletone texture. The texture of a rock or rock containing crystals. A.G.I. skeletone tubing. A temporary method of supporting a circular shaft sinking. It consists essentially of iron curved rings. Each ring consists of segments of wrought iron, 3 to 5 inches deep, ¾ to ¾ inch thick, and from 6 to 8 feet in length. The segments are bent to the curvature of the shaft and bolted together, each ring being subjected to the ring above. Lagging or backing beds are wedged before the rings. Every fourth ring or so is supported on steel strata bolts driven into holes drilled vertically at intervals, usually of about 4 feet, behind it. The banks consist of compacted, stable soils, primarily to prevent initial yield at the top. Compare bore sheathing; tight sheathing. Car- son, p. 244.
skeletone. The resulting network of accurate survey lines which have been obtained by triangulation. Him.
skeletone crystals. Hollow or imperfectly developed crystals formed by rapid crystallization. Fay.
skeletone sheathing. Consists of a continuous wood frame with sheathing planks placed vertically at intervals, usually of about 4 feet, behind it. The banks consist of compacted, stable soils, primarily to prevent initial yield at the top. Compare close sheathing; tight sheathing. Carson, p. 244.
skeletone. a. Proposed by Goodspeed for shaping the observed data to extend farther to one side of the average than to the other. Hinde, 1929.
skeletone. The term is generally reserved for a stratum, Hampshire. Arkell. c. A term for a process of metasomatic transformation of a rock or rock type under conditions that are not sufficient to produce new minerals. SCHIEBERDECKER, A. 1928.
skeletone. A rail or deal fixed to roadway props to prevent their displacement by derailed tubs. SMRB. Paper No. 61.
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skeletone. A rail or deal fixed to roadway props to prevent their displacement by derailed tubs. SMRB. Paper No. 61.
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hillsot, a drag. Webster 3d. b. A brake for a power machine, as a crane. Webster 3d. c. A horse, pole, or log, used in pairs or sets to form a roadway or runway, as for an incline from a truck to the ground, which is constructed over which certain coal cutting machines travel along the working faces. Fay. e. A metal slide placed under a mine car wheel temporarily to restrict the speed of a truck on a descending grade. B.C.I. f. A metal plate placed under a shaft to control the shaft while cutting. B.C.I. g. The sledlike platform forming the base on which a machine or structure and skid or fixed axles, or fixed upon which certain coal cutting machines travel along the working faces. Fay. c. A device on the taphole through which the cast from the furnace by which slag is automatically removed, as at the top of iron, or at the bottom, and diverted to ladles or pots. Fay. d. An iron bar for holding back the slag in pouring molten metal. Webster 3d. e. A tool for removing scum, slag, and dross from the surface of molten metal. Webster 3d. f. A Virginia term used in Missouri for a shallow hole. Webster 3d. g. A tool for removing scum, slag, and dross from the surface of molten metal. Webster 3d. h. To slide into place or adjoin. Long. i. A metal plate placed under a shaft to control the shaft while cutting. B.C.I. j. To stack molded bricks with places between to allow ventilation for drying. Webster 3d. k. A Virginia term used in Missouri for a shallow hole. Webster 3d. l. A metal plate placed under a shaft to control the shaft while cutting. B.C.I. m. A Virginia term used in Missouri for a shallow hole. Webster 3d. n. To stack molded bricks with places between to allow ventilation for drying. Webster 3d. o. A Virginia term used in Missouri for a shallow hole. Webster 3d. p. A Virginia term used in Missouri for a shallow hole. Webster 3d. q. To stack molded bricks with places between to allow ventilation for drying. Webster 3d. r. A Virginia term used in Missouri for a shallow hole. Webster 3d. s. To stack molded bricks with places between to allow ventilation for drying. Webster 3d. t. A Virginia term used in Missouri for a shallow hole. Webster 3d. u. To stack molded bricks with places between to allow ventilation for drying. Webster 3d. v. A Virginia term used in Missouri for a shallow hole. Webster 3d. w. To stack molded bricks with places between to allow ventilation for drying. Webster 3d. x. A Virginia term used in Missouri for a shallow hole. Webster 3d. y. To stack molded bricks with places between to allow ventilation for drying. Webster 3d. z. A Virginia term used in Missouri for a shallow hole. Webster 3d.
skip loader I. In metal mining, one who loads ore into skip (large-capped, canted cars from shafts; side pack, storage bins) at different shaft stations in mine, operating a mechanical device to open cars, load or unload, and close the gates of the loading place. Also called skipman; skipper.

D.O.T. I.

skip loader II. In metal mining, one who dumps ore from mine cars directly into skip in mines not equipped with skip yards. See skip loader I. D.O.T. I.

skipper. In bituminous coal mining, one who controls the skip hoist by which a skip car containing coke, limestone, or ore is raised or lowered from an inclined run to an incline on the shaft. Also called siding-over.

SMRB, Pape No. 61.

skip loader I. In metal mining, one who loads ore into skips. A (mine) shaft especially pre-skips. a. Metal buckets, usually opening at the pillar. To take a slice off the rib of the furnace. D.O.T. I.

skip feeder. A system of windings in vertical or steeply inclined shafts, in which skips replace cages. A skip is often loaded from a measuring chute positioned at the shaft bottom. Skip winding is often adopted where an increased output is required from a small-diameter shaft and which could not be obtained with cages.

skirt board. A vertical strip placed at the side of a conveyor belt to prevent spillage or to increase capacity. Nichols.

skirt. Cornish term for a pump. Fay.

skirt-type core spring. A core lifter, usually operated at the tips of cathodic electrodes, and referred to a stall or roadway working a slice or lift of coal along the side of a pillar. Nelson. b. Eng. A place driven alongside a fall of stone or an old fallin place. More especially applied to a bed in the broken or abandoned workings. Also called siding-over.

skirt plates. Steel sideplates which overlap the conveyor belt slightly and which assist in settling the coal on to the belt at the tail end or at a transfer point. Nelson.

skirt man; skirrrman; skittering. a. Used in pillar extraction and for widening out a coal road. Fay. b. A skip ot slice taken off the rib of the furnace top and dumped into the changing cast. Nichols.

skirtiNg. a. Used in pillar extraction and for widening out a coal road. Fay. b. A skip ot slice taken off the rib of the furnace top and dumped into the changing casts) in a straight line produced by regular intermittent impingement on bottom.

skirtiNg. a. Used in pillar extraction and for widening out a coal road. Fay. b. A skip ot slice taken off the rib of the furnace top and dumped into the changing casts) in a straight line produced by regular intermittent impingement on bottom.

skimming. a. Used in pillar extraction and for widening out a coal road. Fay. b. A skip ot slice taken off the rib of the furnace top and dumped into the changing casts) in a straight line produced by regular intermittent impingement on bottom.

skipping. b. As defined; as in just mentioned. Nichols.

d. Bagging. a. A rock produced by low-grade metamorphism of an argillaceous sediment with an alteration of chert. See also hornblende. A.G.I.

slabbing. a. The fusing of ceramic tiles to fireplace surrounds, etc., to provide a permanent unit. Dodd. b. A form of failure of refractories, also known as shelving. Dodd. c. Close tightening between sets of tiles. Fay. d. Lay, or folds, of a afterbar. Also called slabs. Fay. e. Cutting a slice or slab from the side of a pillar. See also slab, e. Fay.
slabbing out: swaging out. A drill hole pattern suitable for a wide rectangular tunnel, for example, 8 by 15 feet wide. The entire face is first drilled to the proper depth, and then the rock is broken by using the first or cut holes providing a free face for the remaining shots. The face is then slabbed in successive lifts or slabs from one side to the other. Nelson.

slabbing machine. a. A power-driven mobile cutting machine which is a single-purpose cutter in that it cuts only horizontal kerfs at variable heights. Also called arcwall machine. ASA C44.65 1956 b. A coal cutting machine designed to make cuts in the side of a room or entry pillar preparatory to skipping or slabbing the pillar. Jones.

slabbing method. A method of mining pillars in which successive slabs are cut from one side or rib of the pillar after a room is finished, until as much of the pillar is removed as can safely be recovered. This system has the disadvantage that the open area is always increasing and the loaders are working away from the solid pillars toward the goaf. Lewis, p. 543.

slab mill. A primary mill which produces slabs. ASM Glass.

slab pile. A pile built up wholly of flat bars or slabs. See also chunk pile. A Commonly used to describe the dab pile. A pile built up wholly of flat bars or slabs. See peripheral milling. ASM Glou.

slab NTILLING. See peripheral milling. ASM Glass.

slag pocket. 1. A reserved pocket of molten slag used to receive excess slag. This is usually done when cupola slag is being poured. 2. A slag reserve pocket at the base of a blast furnace hearth to receive excess slag. 3. The bed of slag in a reverberatory furnace or a basic open-hearth furnace. 4. The coating of slag, or scum, on the surface of a pool of molten metal. 5. A pocket of molten slag present at the base of a metal container.

slag. 1. The nonmetallic, partially molten materials that separate from the metal in the metal-making processes. 2. The nonmetallic, partially molten materials that separate from molten iron in furnaces. 3. The nonmetallic, partially molten materials that separate from the molten metal in the processes of steelmaking. 4. The nonmetallic, partially molten materials that separate from molten metal in the processes of metalworking, particularly the metalworking processes of the iron and steel industry.

slag breaker. slag handler, and slag yardman. Also called slag breaker. slag handler, and slag yardman. See also slag pot.

slag buggy. Local U.S. A very large pot for holding slag obtained in the smelting or ore. It is mounted on a railway truck or the like, so as to permit easy dumping. Standard, 1964. See also slag pot.

slag car. Iron vessel on wheels used to transport molten slag from furnace to dump. Also called slag buggy. Pryor, 3.

slag cent. Artificial ceements produced by grinding blast furnace slag and mixing it with lime, portland cement, or dehydrated gypsum. See also portland blast-furnace cement. Ham.


slag furnace. A furnace designed for obtaining lead by reducing slag. Fay.

slag, blast-furnace. See blast-furnace slag.


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slag, blast-furnace. See blast-furnace slag.
slag pocket

the bottom of the downcast of an open-hearth steel furnace, or of a glass tank furnace, designed to trap slag and dust free of valuable metals before they enter the regenerator. Dodd.

slag pot. A vessel for the disposal of slag at furnaces. Slag pots are mounted on wheels and handled by hand, while the larger ones are mounted on trucks for mechanical transportation. See also slag hug and slag car. Fay.

slag runoff. Tagging off excess slag after the ore boil in the basic open-hearth process of smelting. Bennett 2d, 1962 Add.


slag wool. An aggregate of fine filaments of slag produced by blowing a blast of air or steam through a stream of molten blast furnace slag; used for heat insulation in high-temperature furnaces, etc. Also called mineral wool. C.T.D.


slate-back. a. There are many successive ridges of bituminous coal, in which the direction of the slate changes, and often with narrow strips of marl enclosed between successive ridges. Such bands of slate are known by the appropriate name of slates in New Jersey. A.G.I. b. Swamp land, overgrown with dense underbrush. Local in the Northeast. A.G.I. c. An open or cutout tract in a forest strewn with debris, as from logging; also such debris. A.G.I. d. Eng. A mass of coal crushed and shattered by a movement of the earth's crust. Fay. e. Eng. A trough or hollow filled with fractured coal. Pembroke. Also called slatch. Arkell.


slate, b. A sheet of slate or other kind of flat material. Wright.

slate, c. A thin plate of slate or other kind of flat material. Wright.

slate, d. A form of black slate or other kind of flat material. Wright.

slate, e. A form of black slate or other kind of flat material. Wright.

slate, f. A sheet of slate or other kind of flat material. Wright.

slate, g. A thin plate of slate or other kind of flat material. Wright.

slate, h. A form of black slate or other kind of flat material. Wright.

slate, i. A thin plate of slate or other kind of flat material. Wright.

slate, j. A form of black slate or other kind of flat material. Wright.

slate, k. A thin plate of slate or other kind of flat material. Wright.

slate, l. A form of black slate or other kind of flat material. Wright.

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slate, o. A sheet of slate or other kind of flat material. Wright.

slate, p. A thin plate of slate or other kind of flat material. Wright.

slate, q. A form of black slate or other kind of flat material. Wright.

slate, r. A thin plate of slate or other kind of flat material. Wright.

slate, s. A form of black slate or other kind of flat material. Wright.

slate, t. A sheet of slate or other kind of flat material. Wright.

slate, u. A thin plate of slate or other kind of flat material. Wright.

slate, v. A form of black slate or other kind of flat material. Wright.

slate, w. A sheet of slate or other kind of flat material. Wright.

slate, x. A thin plate of slate or other kind of flat material. Wright.

slate, y. A form of black slate or other kind of flat material. Wright.

slate, z. A sheet of slate or other kind of flat material. Wright.
slate shooter
one who drills holes into the slate roof of houлагeways, and charges and sets off explosives to blast down slate to increase crown and to remove a layer of roof. D.O.T. 1.


slate splitter. In stone work industry, one who splits slabs of slate into desired thickness for roofing. D.O.T. 1.

slatestone. A slab of slaty rock, the surfaces being determined by the cleavage. Chiefliner.

slat gate. A gate, for controlling water, composed of two upright grooved posts with boards between the posts of slate being removed or added to regulate the height of water. Fay.


slat gate. A gate, for controlling water, composed of two upright grooved posts with boards between the posts of slate being removed or added to regulate the height of water. Fay.

slate. Characteristic of, pertaining to, resembling, or consisting of slate; having the characteristic cleavage and texture of slate. Fay.


slate cannon coal. Laminated cannel coal. Fay.

slaty cleavage. a. That variety of foliation typical of slates but found in many other kind of rocks. Generally, the result of parallel arrangement of platy or sheet-like minerals. See also foliation. A.G.I. b. A parallelism of the flakes in slate causing the tendency to split with ease in one direction. This is the outstanding characteristic of slates. Fay. c. A slate coal. Tomketeif, 1954.


slaty gate intermediate between a slate and a quartzite. Kemp, 64, p. 238.


sleddar. a. In bituminous coal mining, one who digs out dirt, rock, or coal with a long-handled heavy hammer used with water to slurry the debris. Fay.


sleeper block. See throat, a. b. c. Dodd.

sleipper. A leg of wond or other material toed as a support: as (1) a horizontal strip of wood that is driven between every other slice from 18 to 36 feet apart. Long.

slip. a. Smooth or even on the surface; smooth and glossy. Standard, 1964. b. Britt. Soft and trouble—one, as applied to the condition of the floor in steep seam. Fay. c. Fine scrate with smooth bound-

slickensides. a. The str;ations, grooves, and lines or markings formed by or on fracture of pottery. Standard, 1964.

slickensides. a. The striations, grooves, and lines or markings formed by or on fracture of pottery. Standard, 1964.


sliding blockwork. A method of break water construction using sloping nearly vertical courses of concrete blocks, which can be lowered into position much more easily than in coursed blockwork. Ham.


slice bar. A thin, wide iron tool for cleaning clinkers from the grate bars of a furnace. Fay.

sliced blockwork. A method of break water construction using sloping nearly vertical courses of concrete blocks, which can be lowered into position much more easily than in coursed blockwork. Ham.

slicing. In continuous mining, slicing consists of driving up some 4 to 6 places the set ordesired distance, which may be 1,000 feet or more, and then pulling the pillars on retreat. After completion of one slice, the unit moves over and mines another along the gob. Coal Age, 71, No. 8, August 1966, p. 185. See also top slic-

sliceknives. a. Ore in a state of fine subdivision; synonymous with slime. Also called stick-

slicks. a. Ore in a state of fine subdivision; synonymous with slime. Also called stick-

slicer. A leg of wood or other material toed as a support: as (1) a horizontal strip of wood that is driven between every other slice from 18 to 36 feet apart. Long.

slice under ore with back caving in rooms. See top slicing and cover caving. Fay.

slice under ore with back caving in rooms. See top slicing and cover caving. Fay.

slickensides. a. The striations, grooves, and lines or markings formed by or on fracture of pottery. Standard, 1964.

slickensides. a. The striations, grooves, and lines or markings formed by or on fracture of pottery. Standard, 1964.

slickness. Cal. A word sometimes used to designate the debris (tailings) discharged from hydraulics. Fay.

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slickness. Cal. A word sometimes used to designate the debris (tailings) discharged from hydraulics. Fay.
slicker. A small implement used in a foundry for smoothing the surface of a mold. 


slicek. A term used in western part of the United States for boulders of specular iron ore found in gold placers. Bureau of Mines Staff.

slicek hole. A hole column loaded with explosive, without sprinking. Nichols.

slicek top. A device for mechanically performing arithmetic operations, such as multiplication and division of the numbers engraved on it. G.T.D.

slide. A series of nine classes of running and sliding minerals. S.D. 2.

a. A narrow vein of ore. Standard, 1964. b. The effect on plastic clay of moving over its surface a smooth metal blade; the combined action of pressure and movement tends to bring water, soluble salts, and fine clay particles to the surface. If sliding occurs as a result of movement of the knife or scoop in a plug, it causes lamination as the affected clay surfaces do not readily knit together again. Direct.


slide sheet. a. Steel sheet laid at rail intersections, on which tracks are skidded around, thus avoiding need for switching points. Worker who handles these tracks is called a slider. Also called flat sheet. Prior, 3, p. 172. b. Thin steel plate spread on a trenched floor before a blast, to make hand mucking easier. Nichols.

slide stone; slick stone. A smooth stone used for smoothing and polishing. Arkell.

slide top. In coal mining, a term used to describe the roof of the coal vein when it is very smooth. Kentucky, p. 179.

slide. a. An upright rail fixed in a shaft with corresponding grooves for steadying the cages. See also guide. Fay, b. A trough used to guide and to support rods in a tripod when drilling an angle hole. Also called rod slide. Long, c. As used by churn drillers, a fault plane or opening encountered in a hole that deflects the bit and/or drill hole. Long, d. The bottom of a gold-washing cradle. Standard, 1964. e. Corn. A vein of clay intersecting and dislocating a vein vertically; or, the vertical dislocation itself. Fay. f. The descent of a mass (as of earth, rock, or snow) down a hill or mountain side. Webster 3d. g. The track left by a slide. Webster 3d, b. An accumulation of loose gravel and detached boulders washed down from the mountains. Fay. i. A small dislocation in a rock mass. Standard, 1964. j. Sudden movement of earth and rocks down a steep slope; a landslide. A.C.I. Supp. k. Slides are considered by some to have large lateral displacement in contrast to slumps which are local or restricted displacements. See also slump, d. Pettijohn. 1. Main reciprocating member of a mechanical press, guided in a press frame, to move the press frame within it, to give length without altering the adjustment of the whole column of the press. Also called sliding suction. Fay.

sliding angle. Angle at or above which rock in movement will continue to slide, but less than the angle needed to initiate movement from rest. Some angles on clean steel are:

<table>
<thead>
<tr>
<th>Material</th>
<th>Starting</th>
<th>Continuing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal</td>
<td>16° - 25°</td>
<td>14° - 22°</td>
</tr>
<tr>
<td>Limestone</td>
<td>20°</td>
<td>18°</td>
</tr>
<tr>
<td>Sandstone</td>
<td>23°</td>
<td>20°</td>
</tr>
<tr>
<td>Hematite</td>
<td>23°</td>
<td>21°</td>
</tr>
</tbody>
</table>

fory, 2.

sliding-bit kiln. See pushed-bit kiln. Dodd.

sliding caisson. See ship caisson. Ham.

sliding fits. A series of nine classes of running and sliding minerals. S.D. 2.


sliding friction. Sliding friction is the resistance offered when one body slides over another body. The amount of friction or resistance is dependent on the laws of friction. Morris and Cooper, p. 180.

sliding gate. A crest gate which has a high frictional resistance to opening and is therefore suitable only for small gates. See also roller gate. Ham.

sliding iron. See lowering iron. Long.

sliding jaws. A sliding joint used in rope drilling to apply a match to the bit at each upward stroke. B.S. 3618, 1965, sec. 2.

sliding panel weir. A frame weir which has wooden rails sliding between pairs of grooved uprights. Fay.


sliding scale system. A system which regulates the cost of coal by a system of price. Was in existence in some district agreements from 1870 to about 1910. It had many critics. Nelson.

sliding shoe. A metal plate which slides partially or totally for devices used in connection with the device must move or slide on the bottom. The shovel trough of a buckel and certain types of swivels or angle troughs use this device. Jones.


sliding rail. Said of a driver when he places one foot on the rail in front of the car, and the other foot on the bumper, and with his right hand holds on to the car and allows his foot to slide on the rail. Fay.

sliding wedge method. The wedge theory by which the passive or active side pressures acting on a retaining wall may be determined either graphically or by calculation. Standard, 1964.

slime. a. A material of extremely fine particle size encountered in ore treatment. ASM, p. b. A mixture of minerals and some insoluble compounds that forms on the anode in electrowinning. A.M. c. A product of wet grinding containing valuable ore in particles so fine, as to be carried in suspension by water; chiefly used in the flotation. Fay. A. M. A mudlike substance formed of ore in an almost impalpable powder, mixed with water; usually plant. Standard, 1964. d. Primary slime are: extremely fine particles derived from ore, associated rock, clay, or altered rock. They are usually found in old dumps and in ore deposits which have been exposed to climatic action; they include clay, alumina, hydrated iron, near colloidal common earths, and weathered feldspars. Secondary slimes are very finely ground products from the true ore. Pryor, 3.

slime box. See slime pit. Fay.

slime coating. In mineral processing, adherence of an impalpably fine layer of particles of another (for example, calcite on galena), therefore hindering or preventing true surface reaction in leaching or flotation. Pryor, 3.

slime delivery. In ore dressing, smelting, and refining, a laborer who washes slime from cloth strainers, electrolysis tanks, and collection barrels into a settling tank, using a water spray preparation to recover of precious metals from slime. Becoming obsolete. D.O.T. 1.

slime leaching. A leaching method in which the slime and the leach solution are agitated in one or more agitators until the ore minerals have been dissolved. Some agitators have mechanically-driven paddles or elevators inside an agitation tank which serve to keep the pulp in circulation until dissolution is complete. The tanks must be either continuous or intermittent. Newton, p. 420.

slime pit. A tank or large reservoir of any kind into which the slimes are conducted in order that they may have time to settle,
slime, sludge. A pulp of fine mud from slinging. Another name for over-grinding in slim-bole *Mimi sod as*. Use of the slime water: Water defiled in washing ore.

b. A lifting hold consisting of two or more heavy weights for raising them. Zern. block of rock in the roof, as the b. The principal cleat in coal.

required to reach depths of more than a graphic test hole; structure test hole. strat tests. stratigraphic test. Standard, 1964.

ity. A ropelilie device used to give additional support in the drill derrick without sagging. a. A joint in the coal upon which a particle of rock will slide or present with larger particles. B.S. 3552, 1966.

slime, sludge. A. The pulp of fine mud from a drill hole. *See slime, c and d.*

table. a. A table for the treatment of slime; a baffle. Fay. b. A shaking table used in gravity concentration. *See also strata.*

slime table. Characterized by special ridges and shallow pools in which stratification is gently produced. *See also strata.*

slime. A Casiterite too finely ground to be readily concentrated by the use of gravity treatment. Usually associated with hydrated iron. *See also strata.*

slime washer. A vanner, concentrator, or similar machine, used in the separation of fine slimes. *See also strata.*

slime water. Water defiled in washing ore. *See also strata.*

slight. a. Oil driller's term for diamond-drill borehole 5 inches or less in diameter. Long. b. Oil-production drill holes begun about 7 inches in diameter at the surface andbottomed in the oil zone with a 4-1/2-inch-size bit. Long. c. Drill hole of the smallest practicable size, often boren for stratigraphic test. A.G.I. §49. h. A hole drilled with less-than-normal diameter tools. Used primarily for seismicショーカーズ, and structure tests, and more rarely for strat tests. *See also seismic shotheole; stratigraphic test hole; structure test hole. Wilkins.*

slime-hole drilling and casing. Use of the smallest feasible drill hole and casing size. *See also strata.*

slime-hole systems. Name applied to lighter-type boring rigs used where holes are not required to reach depths of more than a few thousand feet. The Rigsky system is of this type. Sinclair, II, p. 235. A Wyoming. Another name for over-grinding in a b-adamite ore. *See also strata.*


slimeback. A joint or crevice that bounds a block of rock in the roof, as the upper surface of a pothole or kettle bottom. Fay.

slip, slippage. a. A rope or chain put around stones or other objects to raise them. Zern. b. A lifting hold consisting of two or more strands of chain or cable. Nichols. c. A. A joint or crevice that bounds a block of rock in the roof, as the upper surface of a pothole or kettle bottom. Fay.

slip, slippage. a. A rope or chain put around stones or other objects to raise them. *See also strata.*

slippery. a. Ark. A joint in the coal upon which a particle of rock will slide or present with larger particles. *See also strata.*

slip, slippage. a. That variety of foliation which takes place along planes having a very low air-shrinkage coefficient. Según the assumption that it is liable to fail along a circular arc. Long. A type of clay containing such a high percentage of fluxing impurities and of such a texture that it melts at a relatively low temperature to a greenish or brownish glass, thus forming a natural glass-croscrope. *See also slip line. A.G.I. Gloss. c-w. of the parallel lines on the crystal and in which the load is suspended by a chain attached to the side of a drill. See also strata.*

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slip, enamel

**Dip.** From the mill after wet grinding operation. *Bauxite Dict.*

**Slips.** S. Ref. Sled runners, upon which a slip is dragged from the working breast to the tramway. *Pay.*

**Slip.** The layer or face of a sand wave. The foreset laminations of a cross-bedded layer are slip-face accumulations. Also referred to as slip slope. *Petitjean.*

**Slip fiber.** One of the three recognized *fams* in which asbestos fiber is found in rock deposits. In this, the fibers are found lying flat between the enclosing rock walls of the cracks. The fibers lie in a direction parallel to the scan and in this way it is virtually matted together between the rock walls irrespective of fiber length. Normally, slip-fiber occurrences are found in fractures, cracks and slips in chrysotile or anthophyllite asbestos rock formations, sometimes associated with stockwork chlorite mineralization around arsenic oxide deposits. *Sixtair, W. E.*, *p. 39.*

**Slip fiber sample hole.** Another name for anthophyllite *fim* in Sixtair, W. E., *p. 25.*

**Slip fit.** A loosely defined clearance fit between parts assembled by hand without tooling, and which can be readily disassembled by separating the parts. The parts have a considerable amount of movement in relation to one of the other. *Nam.*

**Slipfold.** Synonym for shear fold. *AGI.*

**Slip forming.** Forming parts with both stretch flanges and shrink flanges in two operations. *ASMA Gloss.*

**Slip glaze.** a. Glaze consisting primarily of a readily fusible clay or silts. *ASTM C242-60.* b. A glaze produced with slip clay. See also slip clay. *Fay.*

**Slip grip.** A hold or grip on a drill rod, casing, or pipe by means of serrated-face steel wedges or slips. *Long.*

**Sliphead.** A hook, generally on a hinge, which can be readily disconnected by withdrawing a cotter bolt that holds it in position. *Fay.*

**Sliphouse.** The department of a pottery factory where the clays and other constituents are dispersed in water and blended to produce the slip. *Dodd.*

**Slipping.** Elongating an excavation by breaking one or more walls. *Higham, p. 86.*

**Slipping cut.** In blasting underground, a cut used in a wide tunnel or cavern in which each successive vertical line of shots (round) breaks to the face made by the previous round, so that the relieving cut moves across the end being blasted. Also known as slabling cut; swing cut. *Pryor, 3.*

**Slip-lens reference gallery.** Theory involving the resistance to deformation offered by a hard phase dispersed in a ductile matrix. *ASMA Gloss.*

**Slip joist.** a. A contraction joint between two adjoining sections of wall, or at the horizontal bearing of beams, concrete slabs, and mattress concrete slabs to allow slight movement in relation to one of the other. *Ham.* b. A split connection loose enough to allow its two parts to slide on each other to change shaft length. *Nicholls.*

**Slip lens.** A heat-resistant trough placed over a fire. It is evaporated from slip placed on the trough. This method of dewatering has been replaced by filter presses. *Douglas.*

**Slip lines.** Lined streets. Lines which appear on the polished surface of a crystal or crystalline body which has been stressed beyond the elastic limit. They represent the intersection of the surface by planes on which shear stress has produced plastic deformation. *Douglas.*

**Slip maker.** See clay maker. *D.O.T. 1.*

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**Slip ondulé.** A fibrous material often noted as a translucent pale green coating along fault planes in serpentine deposits. *Sixtair, W. E.*, *p. 16.*

**Slip slope.** See slip face. *Petitjean.*

**Slip smear.** A tool for extracting tubing from a borehole. *Fay.*

**Slip stabs.** See pottery body stains. *CCP 61, Paper No. 51.*

**Slipstone.** A small wedge-shaped silicified rock, with rounded edges. It is held in the hand and used for whetting gouges. *Crispin.*

**Slip stains.** See pottery body stains. *CCP 64, 1961.*

**Slip streamer.** A streamer through which pottery slip is passed. *Fay.*

**Slip surface.** The surface along which an earth bank is liable to fail under load. *Ham.*

**Slip surface of failure.** In a bank of homogeneous earth or clay, the slip surface of failure closely follows the arc of a circle which usually intersects the toe of the bank. Stability depends upon fixing the position of the center of rotation of the slip surface along which the greatest shearing resistance would be required for equilibrium. *D.O.T. 1.*

**Slip things.** S. Staff. The more or less vertical planes of clearance in coal. See also clearing plane. *Fay.*

**Slip trailer.** A device for squeezing out or flowing lines of slip on a clay surface. Sometimes known as bull trailer. *ASCG, 60.*

**Slip trailing.** See trailing. *Dodd.*

**Slip trouble.** Scot. Difficulties encountered in clearing due to slips. *Fay.*

**Slip-type core lifter.** A device used like a core spring, consisting of a series of tapered wedges contained in slotted recesses in the sides of a core. As the cutters in slitting; a slicer. *Standard, 1964.*

**Slip-waist.** a. Closely spaced surfaces along which differential movement takes place in ASA B41.1953. *ASMA Gloss.*

**Slip plane.** a. Closely spaced surfaces along which differential movement takes place. *Billings, 1954.* b. Synonym for glide plane; gliding plane. *AGI.*

**Slip process.** See wet process, b. *ASTM C242-60.*

**Slip-pump man.** One who pumps slip (semi-fluid clay) from mixing machine directly to caster, turning valves to start slip flowing and observing gage to determine if pressure is correct. *D.O.T. 1.*


**Slip-rock mass.** One who pumps slip (semi-fluid clay) from mixing machine directly to caster, turning valves to start slip flowing and observing gage to determine if pressure is correct. *D.O.T. 1.*

**Slipware.** Pottery decorated by the application of slips. *ASCG, 1963.*

**Slipway.** A concrete or masonry slip sloping down to the water's edge, which supports a vessel under construction or repair. See also traversing slipway. *Ham.*

**Slit.** a. A communication between two levels. *Fay.* b. A short heading put through to connect two other headings. *Zern.*

**Slit-side solid sampler.** A solid-tube sampler with a slight worm twist on the bottom and an offset slit in the side. When rotated, the lip of the slit scrapes a sample from the side of a borehole. *Long.*

**Slitter.** A thin strip of chip of wood or other material which is fed through a single roller. *Ham.*

**Slitting.** A term used for the sawing of colored stones. Usually accomplished with a thin, hard metal blade, similar to which revolves vertically. The operation proceeds grinding. *Shipley.*

**Slit-pouch.** A circular saw used in preparing rock specimens. The cutting edge incorporates a diamond dust and the thin steel disk revolves at high speed. *Pryor, 3.* A gemmater's slitting mill. *Fay.*

**Slitting.** A rotating disk used by gemmatters in slitting; a slicer. *Standard, 1964.*

**Slitting mill.** A shot put into a large mass of coal detached by a previous blast. *Fay,* p. 612.

**Silver.** A defect consisting of a very thin, elongated piece of metal attached by only one end to the parent metal into whose surface it has been rolled. *ASMA Gloss.*

**Sliver.** a. A defect consisting of a very thin, elongated piece of metal attached by only one end to the parent metal into whose surface it has been rolled. *ASMA Gloss.*

**Sliver pump mass.** One who pumps slip (semi-fluid clay) from mixing machine directly to caster, turning valves to start slip flowing and observing gage to determine if pressure is correct. *D.O.T. 1.*
**Slashing loss**

Any horizontal movements in the soil. It consists of a tiller house in a water-tight, brick cylinder about 2.5 inches outside diameter and 3 inches thick. When it the tip of a pendulum contacts a precision-wound resistance coil forming one half of a Wheatstone bridge. The other half of the bridge, together with a potentiometer, resistors, switches, and batteries is contained in a control box. The tiller, which is lowered into an observation well, is connected by cable to the control box. Carson, p. 30.

**Slope level.** A batter level. Standard, 1964.

**Slope man.** A worker who grades slopes of excavations with hand tools. Webster, 3d.

**Slope mine.** A mine opened by a slope or incline. Fay. B. A mine with an inclined opening used for the same purpose as a shaft or a drift mine. It resembles a tunnel or a drift, or a shaft, depending on its inclination. Kentucky, p. 330.

**Slope roul.** Scot. A road driven at an angle less than a right angle with level course. See also slope derrick.

**Slope stability.** The resistance of any inclined surface, as the angle of repose, to cut, or to failure by sliding or collapsing. Bureau of Mines Staff.

**Slope stake.** A stake set at the point where the finished side slope of an excavation or embankment cuts the surface of the ground. It is usually placed on a line at right angles to the center line and passing through the station point. Selye, 2. B. A stake marking the line where a cut or fill meets the original grade. Nichols.

**Slope staking.** Marking the ground surface by pegs at points where proposed new slopes in cut or fill coincide with the original surface. Ham.

**Slope tender.** See slope engineer. D.O.T. I.

**Slope test.** A test to determine whether, and to what extent, the course of a well deviates from vertical. Williams.

**Slope wash.** Soil and rock material that is being or has been moved down a slope predominantly by the action of gravity assisted by running water, that is not concentrated into channels. The term may also designate the process by which such material is moved. Stokes and Varnes, 1955.

**Slipping.** A loss occurring when there is a fluid in the pores of the rock. This loss

**Sludge.** A deposit that is formed by the settling of suspended material from waste water. Dawson.

**Slurry.** A mixture of liquid and solids that is pumped through a pipeline. It is used as a transfer conveyor from a lower age conveyor to the outside. NEMA MD1-1961.
arises from the relative movement of the fluid and solid as the elastic waves pass through it. Fay, p. 171.

slot. a. A narrow, vertical opening generally too small to permit traverse by a man. A.C.I. b. A notch. To hole; to undercut or channel. Fay.

slot-and-wedge bolt. A special rod designed for use in roof bolting. It consists of a mild steel rod, threaded at one end, the other end being split into halves for a length of about 3 inches. When the bolt is driven into the hole, a wedge opens the split end thus forming the anchorage. See also wedge-and-sleeve bolt. Nelson.

slotted. A method of moving large quantities of material with a bulldozer. Each trip is made in the same path and thus the spoilage from the sides of the blade builds up along each side and afterwards all material pushed into the slot is retained in front of the blade and bigger loads are handled. Nelson.

slotted duct sampler. A new instrument for sampling airborne dust and developed by the National Coal Board, Great Britain. It consists of a wide horizontal duct through which the mine air enters and on that duct plates will be deposited on the duct floor according to their falling speeds derived from Stokes' law. The instrument combines the duties of monitoring and measuring airborne dust concentrations in mine roadways. See also pipeline. Nelson.


slotteding. a. York. Coal cut away in the process of bolting. Often used in the plural. Sometimes called bug dust in the United States. Fay. b. Cutting a narrow aperture or groove with a reciprocating tool in a vertical shape or with a cutter, broach, or grinding wheel. ASM Gloss.

slotted wheel. A thin grinding wheel, usually organic bonded, used for cutting slots or grooves in the workpiece. ACSG, p. 7.

slot weld. Similar to plug weld, the difference being that the hole is elongated and may extend to the edge of a member without closing. Fay.

slough. Fragments of rocky material from the wall of a borehole which either fall into and entrap the core or are washed out of the hole with the return; fragments of material resulting from the enlargement of a borehole. Lang.


sloughing-off cone. Large cone (for example, Callow) in pulp flow-line designed to remove fine slimes as overflow while delivering a thickened spigot product containing the coarser particles. Pryor, J. A.

slow. a. Corn. The outcrop or back of a lode. This generally applies to the appearance of a lode in a marly place. Crop- ping out is a Welsh, also East and North of England term; but it is never used in Cornwall. Fay. b. A gallery in a mine; a mine level; especially applied to dump places. Standard, 1964.

slow burning device. An appliance for use in conjunction with the Lilly controller for controlling the landing speed of less than 5 feet per second when men are being unloaded. One such dial of the Lilly controller, an auxiliary dial is bolted to carry a slow-banking cam engaging near the end of the wind with a roller arm. The action of the appliance depends on the relative movement of this roller and that of the piston in an oil dashpot-cylinder. Sinclair, V., pp. 209-210.

slow feed. See slow gear. Lang.

slow-feed gear. See slow gear. Lang.

slow gear. a. When applied to a screwfeed-type drill, the pair of feed gears in the feed mechanism that advances the bit the least amount for each revolution of drill drive rod and/or the coupled drill stem; for example, 400-feed gear is slower than a 100-feed gear. Compare feed ratio. Lang. b. When applied to speed at which the drill motor rotates the drill stem, the transmission gear position giving the lowest instant number of bit revolutions per minute; thus, slow gear corresponds to low gear in an automatic transmission. Lang.

slow igniter cord. It consists of a plastic incendium composition extruded around a central coppery or lead rod, the core designed to give greater strength, and the whole is then enclosed in a thin extruded plastic sheath. Lang.

slow-reading thermometer. Consists of a thick-wall glass test tube containing a thermometer, the bulb of which is embedded in cork or paraffin wax. The open end of the tube is corked and the whole is protected by rubber rings. When employed in the measurement of strata temperature, this is inserted to the back of a 30-foot borehole and allowed to remain there for 24 hours. The thermometer is read, without removing it from the tube, immediately after withdrawal. Roberts, i. p. 138.

slow test. See consolidated-drained test. ASCE P1286.

slow wheel (archaic). The surface perfecting equipment d...
sludge sample

sometimes used for sampling purposes. Little reliance can be placed on the assay of the sludge itself. It is not regularly saved for assay, except occasionally when drilling in weathered or friable ore zones. Sludge samples are then used to collect sludge samples. Nelson.

sludge sampler. a. An individual responsible for collecting and preparing drill cuttings for the purpose of examining, assaying, chemical analysis, or storage. Also called sampler. Long. b. A device used to collect and to split drill cuttings. See also riffle. Long.

sludge samples. Samples of mud from a rotary drill, or sand from a churn drill, or fine materials from diamond drilling used to obtain information about the formation being drilled. Long.

sludge sampling. Process of collecting and preparing drill cuttings as samples. Long.


sludge splitter. See riffle, a. Long.

sludge spinning. The act of or process of becoming sludgebound. Compare, mud up; a. Long.

sludging. The act of or process of becoming sludgebound. Compare, mud up; a. Long.

sludge water. See return water. Long.

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slumping

Slumping. When the soil and earthy material on a steep slope become charged with water, the angle of repose is greatly increased. At the same time the water makes them more mobile. Under these circumstances the material slides down the slope. Such movements are known as slumping or sliding. If the movement is on a large scale it is a landslide.

slump. Marks and structures made by dry or wet sand avalanching down the lee side of a sand dune. Pettijohn.


slump cones. Cones formed by the slumping of a large mass of material such as earth, clay, or sand. Pettijohn.


slump test (laboratory). A test for the consistency of a fluid material in terms of the amount of material subsided in a standard beaker when it is carefully filled to a given level and allowed to settle. Pettijohn.

slump test (laboratory). A test for the consistency of a fluid material in terms of the amount of material subsided in a standard beaker when it is carefully filled to a given level and allowed to settle. Pettijohn.

slurry. A mixture of finely divided solid and water, such as a suspension of clay, cement, or ore, capable of being pumped to a desired location. Pettijohn.


slurry pond. Any natural or artificial pond or lagoon for settling and draining the solids from washery slurry. B.S. 3552, 1962.

slurry screen. A screen to recover a granular product from the circulating water in a washer, usually after a preliminary concentration of the solids and with or without the use of water sprays. B.S. 3552, 1962.

slurry slump. A slump in which the moving mass disintegrates into a quasi-liquid slurry. Pettijohn.

slush. a. To fill mine workings with sand, culm, etc., by hydraulic methods. See also hydraulic mine filling. Fay. b. Sand or silt. Kortum. c. To move or waste filling with a scraper. (slusher) hoist. Bureau of Mines Staff. d. The term "slusher" is also applied to gravity settling of sludge and slurry. See also sludge.

sluice box. Container about the polishing wheel in which the materials are immersed in the polishing agent. Slipher.

slush-fitted pump. A pump equipped with a sliding sleeve or with other means that permit the sleeve to operate within the pump cylinders. Pettijohn.

slurrying. The process of filling in joints with slurry. Oboob.


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small mine

not more than 30 persons below ground.

small ore. Eng. Copper, lead, and zinc ore
dressed to a small size; also called smalls.

small punch. Same as washer mica. Skow.

b. Small particles of mixed ore and

small ore. Eng. Copper, lead, and zinc ore
dressed to a small size; also called smalls.

small stone. a. In mineral exploration
drilling, a diamond bit set with 100-per-
carat size or smaller diamonds. Long.
b. In petroleum drilling, a diamond bit set
with 10-per-carat size or smaller diamonds. Long.

small thi. Eng. Tin recovered from slimes.

small. a. Potash-cobalt glass made by fusing
pure sand and potash with cobalt oxide,
grinding, and powdering; a blue powder.
Used in ceramics as a pigment and for
coloring glass. CCD 64, 1961.

small flint. An arsine of cobalt, often con-
taining nickel and iron. Also called smal-
tite; gray cobalt; tin-white cobalt. Fay.

smallite. Probably skutterudite; the
small flint. An arsine of cobalt, often con-
taining nickel and iron. Also called smal-
tite; gray cobalt; tin-white cobalt. Fay.

small. a. A volatile flux for glazing ware.

smalt. a. Smart fire. N. of Eng. A severe,
though small, fire.

smaltite. b. Smaltine. An arsenide of cobalt,
often containing nickel and iron. Also called
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often containing nickel and iron. Also called
smaltite; gray cobalt; tin-white cobalt. Fay.
smithite 1034  smooth shoreline

changes to orange red. A sulfarsenite of silver. Monoclinic; tabular, flattened pyramidal. From Binnenthal, Switzerland. Eng.

Smith-McAlary mud sampler. With this device the digging and hoisting mechanisms are separated. This fact improves overall performance even under bad working conditions. The sampler consists of a spring-loaded bucket arranged so that only after the device rests squarely on the bottom. The bucket is carried on a heavy metalbride which slides on a gooseneck, and it is heavy springs on the frame bear on the movable bridle. In the set position the springs are held by two catchers which fit into a pair of holders and these are triggered when the device strikes bottom. On release, the springs on the bridle and push the bucket down into the sediment. At the same time as these are triggered, a release bar moves so that hoisting the weight goes on the wire and the two halves of the bucket are drawn together taking a sample of the sediment. 

Smith process. a. A variation of the series system of copper refining in which the plant is melted horizontally, the top surface of each one acting as cathode, the lower as anode. Linen diaphragms must be placed between the plates to catch the slime. When these diaphragms break and allow the slime to drop on the cathode, it is caught by the bottom of the tank and short circuits without dismutating the tank. Liddell 2d, p. 496. b. A process for the production of sponge iron, which is carried out in vertical shafts, similar to coke ovens in design. The crushed ore or iron oxide material is mixed with carbonaceous material and charged into the bottom of the shaft. The material is heated and cooled by means of horizontal flues. It is preheated in the upper part of the oven by the waste gases, which leave the bucket and which have a heavy spring at the bottom. The device rests squarely on the bottom. The bucket is carried on a heavy metalbride which slides on a gooseneck, and it is heavy springs on the frame bear on the movable bridle. In the set position the springs are held by two catchers which fit into a pair of holders and these are triggered when the device strikes bottom. On release, the springs on the bridle and push the bucket down into the sediment. At the same time as these are triggered, a release bar moves so that hoisting the weight goes on the wire and the two halves of the bucket are drawn together taking a sample of the sediment.

Smith refractometer. A very small gemmological instrument. See also Rayner refractometer; Tully refractometer. Shipley.

shelter smokestack. D.O.T.

smooth drilling. a. A rock formation in which a high recovery of core can be attained at a high rate of penetration. Long. b. A rock formation in which fast rotation of the drill stem, a fast rate of penetration, and a high recovery of core is achieved with vibration-free rotation of the drill stem. Lang. 

clearing smoke. The agriculturist whose chief business is clearing off the crop is a suit for damages. Hoot), p. 257.


smoke. The exhalation, visible vapor, or material that escapes or is expelled from a burning substance during combustion; applied especially to the volatile matter expelled from wood, coal, peat, etc., together with the solid matter which is carried off in suspension with it. That which is expelled from metallic substances is generally
called fume or fumes. See also fume and metallurgical smoke. Fay.

smooth faced. a. A rock formation in which fast rotation of the drill stem, a fast rate of penetration, and a high recovery of core is achieved with vibration-free rotation of the drill stem. Lang.

smoke blender. A helmet which encloses the head and to which is attached an air hose through which air is pumped to the wearer's b. bellows placed at the fresh air base. A smoke helmet is not normally used by a rescue team, but for building fire seals and for firefighting operations. See also breathing apparatus. Nelson.

smokeless coal. For the first time in steam coal, otherwise a low volatile bituminous coal. Tomkelli, 1954.

smokeless powder. A powder used as a propellant in guns which makes very little smoke when exploded. Standard, 1964. See also smokeless powder. Fay.

smokeless powder. Nitrocellulose containing 13.1 percent nitrogen. Produced by blending materials of lower (12.0 percent) and slightly higher (13.2 percent) nitrogen content; converting to a dough with an alcohol-ether mixture; extruding; cutting; and drying to a hard, horny product. Small amounts of stabilizers (amines) and plasticizers are usually present, as well as apparatus modifying agents (nitrotoluene and nitroglycerin salts). CCD 6d, 1961.

smokeoven. a. An air entry adsorbed driven room window. Fay. b. A room especially constructed in which noxious gases may be generated and confined for the purpose of testing breathing apparatus. Fay.

smoke shade. A scale of tints, ranging from 0 to 10, used for comparison of the smoke of different varieties of coal, which are graded according to the amount of unconsumed carbon in their smoke, the lightest color indicating the most valuable. Standard, 1964.

smoke stick. A means of making a smoke cloud to measure the velocity of air. Fuming sulfuric acid or anhydrous tin tetrachloride are favorite smoke producers. Zern.

smokestone. Cairngorm. Webster 2d.

smoke technique. A technique used to measure only very low-speed air velocity. The release of smoke enables the fluid motion to be observed with the eye. If the smoke is timed over a measured distance along an airway of constant cross section then the velocity of flow can be determined. Usually a spot reading, that of maximum velocity, is obtained. Roberts, 1, p. 53.

smoke test. A test for the efficiency of drains carried out with smoke. Ham.

smoke tester. One who tests efficiency of Cotterill plant and is skilled in the method by determining rate of discharge of gases and solids from smelter stacktop. D.O.T. 457. p. 11.

smoke tube. To determine the presence of moving air, the direction of flow, and the approximate velocity of flow, the smoke
tube method is commonly used, particularly in metal mines. The device consists of an aspirator bulb which discharges air through a glass tube containing a smoke-generating reagent. Usually pumice stone saturated with anhydrous tin or titanium tetrachloride is employed. The dense white cloud of smoke released when the bulb is squeezed travels with the air current; the approximate air velocity in a mine airway is determined by timing how long the cloud takes to travel between two points.

smoke washer. A device in which smoke is forced upward against a downward spray of water in order to remove the solid particles in the smoke. Webster 3d.

smoke zone. The area surrounding a smelting plant in which the smoke or fumes damage vegetation, or in which it may be classified as a public menace or nuisance. Fay.

smoking. The first stage of biscuit firing during which all water is expelled from the greenware. ACGS See also watering-coal.


smoky pit. Mid. An upcast shaft with a furnace at the bottom of it. Fay.

smoke quartz. A smoky, two-colored crystal variety of quartz; from the Cairnsmore Mountain in Scotland. Fay.

smoky topaz. A smoky quartz used for jewelry.

smooth. a. Wales. The line of face, as of a stall cr. Fay. b. Wales. A plane of cleavage more or less vertical. Fay. c. The vibration-free rotation of a drill stem. Long. d. A dull diamond bit. Long. e. Finely ground, as applied to a flat glass surface, prior to polishing. ASTM C13-2-66.

smokeless gunpowder. A powder used as a propellant in guns which makes very little smoke when exploded. Standard, 1964. See also smokeless powder. Fay.

smooth drilling. a. A rock formation in which a high recovery of core can be attained at a high rate of penetration. Long. b. A rock formation in which fast rotation of the drill stem, a fast rate of penetration, and a high recovery of core is achieved with vibration-free rotation of the drill stem. Lang.

smokey is a glazing machine operator. D.O.T. 1.

smoother bar. A drag that breaks up lumps behind a leveling machine. Nichols.


smoke finn file. Tile whose surfaces are not altered or marked in manufacture but left as a plane surface as formed by the die. ASTM C493-65T.

smokey head. York. A flat iron tool, heated to the appropriate temperature for smoothing asphalt surfaces and sealing points. Ham.

smokey mill. A flat iron tool, heated to the appropriate temperature for smoothing asphalt surfaces and sealing points. Ham.

smoothing iron. A flat iron tool, heated to the appropriate temperature for smoothing asphalt surfaces and sealing points. Ham.

smoothness. A glass tube containing a smoke-generating reagent. Usually pumice stone saturated with anhydrous tin or titanium tetrachloride is employed. The dense white cloud of smoke released when the bulb is squeezed travels with the air current; the approximate air velocity in a mine airway is determined by timing how long the cloud takes to travel between two points.

smokey is a glazing machine operator. D.O.T. 1.

smooth shoreline. See graded shoreline. Schieferdecker.
smooth wheel roller


smudge. Obscured with, rubbish, mud, or silt, as the suction pipe of a pump. Fay. 

smother kiln. A kiln in which the smoke is smothered to blacken the pottery within. Standard, 1964.


S.M.R.E. bar. Primarily a roadhead support consisting of two special rolled steel joists welded together longitudinally to form one composite bar. The finished weight of the bar is 16 1/2 pounds/feet and after heat treatment, quenching, and tempering, the tensile strength is raised to 47 tons per square inch with the steel remaining ductile. Fay. 

S.M.R.E. firedamp recorder. This methane recorder is a combination of the principles used in the Kingrose and McLuckie detectors. Two combustion chambers are used, each of which operates every 6 minutes, the operation being staggered so that 20 determinations are made per hour. Samples are drawn into the instrument by means of a vacuum pump. After the operation of the pump and the combustion filaments being controlled by cans on a shaft driven by the motor. Pressures are measured by an aneroid cell and recorded on a clockwork driven drum. Roberts, I. P. 1954.

smudge. See smudge coal, b. Tomkeieff, 1954.

smudge coal. a. Coal partly deprived of its bitumen, and consisting of such coal as is the same for all angles of incidence and the ratio of the sine of the angle of incidence to the sine of the angle of refraction is the same for all angles of incidence and is equal to the index of refraction. Hy. 

S-N diagram. A plot showing the relationship of stress, S, and the number of cycles, N, before failure in fatigue testing. ASTM. 

smock. a. Scot. A sprang or drag for hutches, or waggons, from the main line into a siding. Fay. b. The latch or catch of a car coupler; trip rider. Fay. c. A hole driven into a toe hole prior to its next rolling process. A.S.M.G. b. Any crooked surface defect in a plate, resembling a snake. A.S.M.G. c. A flexible mandrel used in the inside of a shape to prevent flattening or collapse during a bending operation. A.S.M.G. d. Progressive longitudinal cracking in continuous flat glass operation. ASTM C162-66. b. Variation in width of sheet during the sheet-glass drawing process. Also called making. ASTM C162-66. e. See building, d. Long. snake fashion. A method of boxing core. Beginning in the upper-right-hand corner of the core box the core is run from right to left in the first row, from left to right in the second row, etc., until the box is filled. Long.

snakeholes. a. A borehole driven horizontally or nearly so, and for the purpose of a level with the quarry floor. Fay. b. A borehole driven under a boulder for containing a charge of explosives. Lewis, p. 159. 

d. A hole driven into a toe hole prior to its next rolling process. A.S.M.G. 

snatching. a. A method of blasting boulders to break them up, by boring a hole under a boulder and firing a charge in it; this is more efficient but slower than using plater shots. See also plater shooting. Ham. b. Drilling under a rock or face in order to blast it. Nichols. c. A horizontal hole on the quarry floor. Pryor, 3.


snatch block. a. A single-rope sheave set in a housing provided with a latch link, which may be opened for admission for a rope or line without the necessity of threading the end of the rope through the block. Long. b. A block or sheave with an eye through which lashing can be passed for fastening to a scaffold or pole. Ham. c. In a case where holes are bored in a piece of metal to be tentered to lines or objects by means of a hook, ring, or shackle. Nichols. d. A sheave in a case having a pull hook or ring. Nichols.

snatch plate. A thick steel plate through which a hole about one-eighth of an inch larger than the outside diameter of the drill rod on which it is to be used is drilled. The holes are not quite horizontal but are inclined slightly downward so that the bottoms will be a few tenths below grade. Lewis. e. A horizontal plate through the core box the core is run from right to left in the upper-right-hand corner so that it can be opened and re-sealed to the closure of the borehole. Fay. f. See bulldog, d. Long.

snag grinder. In the iron and steel industry, a laborer who cleans and rough finishes the surface of castings and large metal objects with a flexible abrasive wheel mounted in a counterbalanced frame. Also called casting finisher, snagger, snag, frame finisher, operator, and swing grinder. D.O.T. 1.

snag. a. The product formed by the twisting and breaking of a hole prior to its next rolling process. A.S.M.G. b. Any crooked surface defect in a plate, resembling a snake. A.S.M.G. c. A flexible mandrel used in the inside of a shape to prevent flattening or collapse during a bending operation. A.S.M.G. d. Progressive longitudinal cracking in continuous flat glass operation. ASTM C162-66. e. See building, d. Long. snake fashion. A method of boxing core. Beginning in the upper-right-hand corner of the core box the core is run from right to left in the first row, from left to right in the second row, etc., until the box is filled. Long.

snakeholing. a. A method of blasting boulders to break them up, by boring a hole under a boulder and firing a charge in it; this is more efficient but slower than using plater shots. See also plater shooting. Ham. b. Drilling under a rock or face in order to blast it. Nichols. c. A horizontal hole on the quarry floor. Pryor, 3.

snaking glaze. A decorative effect obtainable on pottery ware by the application of a glaze of high surface tension. Dodd.

snag statement. A monthly statement by a coal company on which a crooked line may thus be removed from the borehole a short distance out of the hole and may thus be removed from the borehole and the collar of the borehole, and one edge is fastened to a securely anchored chain. Nichols.


snapping time. Mid. A short period of rest during a shift in which a miner takes his lunch. Fay.

snatch block. A single-rope sheave set in a housing provided with a latch link, which may be opened for admission for a rope or line without the necessity of threading the end of the rope through the block. Long. b. A block or sheave with an eye through which lashing can be passed for fastening to a scaffold or pole. Ham. c. In a case where holes are bored in a piece of metal to be tentered to lines or objects by means of a hook, ring, or shackle. Nichols. d. A sheave in a case having a pull hook or ring. Nichols.

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snake line. A line used to skid a drill rig from place to place using a block and tackle. Pryor, 3.

snapping time. Mid. A short period of rest during a shift in which a miner takes his lunch. Fay.

snag. a. The product formed by the twisting and breaking of a hole prior to its next rolling process. A.S.M.G. b. Any crooked surface defect in a plate, resembling a snake. A.S.M.G. c. A flexible mandrel used in the inside of a shape to prevent flattening or collapse during a bending operation. A.S.M.G. d. Progressive longitudinal cracking in continuous flat glass operation. ASTM C162-66. e. See building, d. Long. snake fashion. A method of boxing core. Beginning in the upper-right-hand corner of the core box the core is run from right to left in the first row, from left to right in the second row, etc., until the box is filled. Long.

smothered to blacken the pottery within. Standard, 1964.

smother kiln. A kiln in which the smoke is smothered to blacken the pottery within. Standard, 1964.

smudge. See smudge coal, b. Tomkeieff, 1954.

smudge coal. a. Coal partly deprived of its bitumen, and consisting of such coal as is the same for all angles of incidence and the ratio of the sine of the angle of incidence to the sine of the angle of refraction is the same for all angles of incidence and is equal to the index of refraction. Hy. 

S-N diagram. A plot showing the relationship of stress, S, and the number of cycles, N, before failure in fatigue testing. ASTM. 

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snag statement. A monthly statement by a coal company on which a crooked line may thus be removed from the borehole a short distance out of the hole and may thus be removed from the borehole and the collar of the borehole, and one edge is fastened to a securely anchored chain. Nichols.


smooch. a. A small chimney used for ventilation. Fay.

smokey block. A single-rope sheave set in a housing provided with a latch link, which may be opened for admission for a rope or line without the necessity of threading the end of the rope through the block. Long. b. A block or sheave with an eye through which lashing can be passed for fastening to a scaffold or pole. Ham. c. In a case where holes are bored in a piece of metal to be tentered to lines or objects by means of a hook, ring, or shackle. Nichols. d. A sheave in a case having a pull hook or ring. Nichols.

smog. See smudge coal, b. Tomkeieff, 1954.


snore; windbore

snore; windbore. A cylinder of cast iron, terminating in an egg-shaped or flat-bottom strainer which is submergged in the punch, and is opened by the force of the包容. The water drawn up into the punch is that relatively free from straw, dirt, and debris, No. 8 of Fig. 1.

snorehole. The hole in the lower part of windbore of a mining pump, to admit the water, Fay.

snout. The suction end of a mine pump fitted with a strainer. Ham. b. An intake; a suction pipe. Fay. c. A filter fitted to the inlet of a suction pipe. Also called strum; strainer. See also on more; on air. B.S. 3016, 1963, sec. 4. d. The lower part of the pipe which admits the water to a mine pump; the nose or wind bore. C.T.D.

snowdrift. A term used in Missouri for a snow sampler. A set of light jointed tubes fitted to the inlet of a suction pipe. Also called strum; strainer. See also on more; on air. B.S. 3016, 1963, sec. 4. d. The lower part of the pipe which admits the water to a mine pump; the nose or wind bore. C.T.D.

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soil. The part of a crownfed glass tank furnace between the gauge wall and the first pair of ports; also known as the refining zone. See also galble wall. Dodd.

soil plow. In the steel industry, a refractory lined furnace for the reheating of ingots. Dodd. b. In the glass industry, a furnace for bringing pots of glass to a uniform temperature. Dodd.

soil. A pit in which wet clay is allowed to soak preparatory to molding. Fay.

soil. N. of Eng. A pair of about 3 feet in length, by which boys pull tugs along the roads. A draft rope or chain. Fay.

soap. a. A salt of higher fatty acids (stearic, palmitic, oleic mainly) with an alkali or metallic hydroxide. It is a milky colloidal suspension. In water soaps hydrolyze slightly and become weakly alkaline to red ink. COO" + H₂O = ROOH + OH". If water is acid, the fatty acid is precipitated, making soap unsuitable for conditions in which weathered detritus are used. Ions of calcium and heavy metals precipitate sodium and potassium soaps and limit their use in hard or mineralized water. Pryor, 3. b. A brick approximating a standard straight cut longitudinally so that its cross section is approximately square. AISI No. 24. See also pum, c.

soap. b. To hold the kiln at one temperature serving water drained off rocky mounds. Eng. Smooth sandstone or shale. Arkell.

soapstone. a. As used loosely by miners, well defined by the terms used by soapstone, soap, and soapstone. b. A soft unctuous rock, containing soapstone. b. A phase of a heating operation consisting of a cast-iron plate revolving in a vertical plane on a horizontal axis, and having an inclined sample spot surpassing the flange. The ore to be sampled comes to the sampler by way of an inclined chute and impinges upon the flange of the sample. whenever the sample spot comes in line with the ore stream, the ore passes through the plate, and into the sample; at all other times the ore is deflected from the plate and drops into the reject. Generally, the sampler makes from 10 to 30 revolutions per minute, and the size of the cut (generally one-fifth) depends upon the width of the sample spot. Newton, Joseph. Introduction to Metallurgy, 1935, pp. 466-467.

soak. a. Aust. A natural receptacle for conserving water drained off rocky mounds. Fay. b. To hold up at one temperature for a standard straight cut longitudinally so that its cross section is approximately square. AISI No. 24. See also pum, c.

soak. a. A New York and Pennsylvania term applied by blast-furnace quenchers to the process of forcing a break in the absence of an open seam. Fay. b. Increasing the height of an undercut by picking or blasting down the coal, just above the undercut. Inferior Oilite, Burton Bradstock, Dorsetshire. Arkell.

soak-drive conveyor. A conveyor in which a snub pulley is used. NEMA MBI-1956.

snub pulley. An idler pulley so mounted as to increase the arc of contact between a belt and a drive pulley. When used in a wrap drive, it has the added function of changing the direction of the return belt travel. NEMA MBI-1961.

snubrock. b. In the glass industry, a process in which soaps are used as collectors for the flotation of those minerals that do not have a metallic luster and appearance. Oleic acid and sodium oleate are most commonly used. Some metallic minerals that are recovered by soap flotation are oxidized copper minerals, iron oxides, manganese oxides, rhodochrosite, magnesite, and scheelite. Newton, pp. 103-104.

soak. b. The joints of stones, which are filled with saponaceous or talcaceous mineral. Fay.

soak. a. A device fastened to the end of a rope by means of which the rope may be fastened to a structure, or opened or closed. Zern. b. In blasting, the hole left after firing. This may
sodium carbonate

be due to incomplete explosion in which case any attempt to drill into the socket is highly dangerous. Such a socket should be about 20% bore diameter by its length, but this relation, by means of a wooden stick and not drilling should be done in its close vicinity. Prior to, and during boring and lifting tools that have been dropped in well boring. Standard, 1964.

drill bedrock, at which the bottom end of a string of casing or drivepipe is set. Long, e. To lower eating or dig into, and seat it in, a borehole. Long, f. An over-shot. Long, g. A fishing tool designed to entangle and grasp a cylindrical object. Long, i. To spring a borehole. See also camouflet. Long, i. See cappel; bootleg. Nelson, j. The female portion of a plug-and-socket connection in an electrical circuit. C.T.D.

sodium

sodium. a. The normal carbonate of sodium, \( \text{Na}_2\text{CO}_3 \); usually blue. Isometric. Dana 17.
b. Augite containing \( \text{Na}_2\text{CO}_3 \) up to 1.7 percent by weight. Called, sulfur, and aegirine-augite, as zoned crystals and single crystals. Spencer 20, M.M., 1955.
d. Soda blasting powder. See B Blasting Powder.
e. Soda boil. A feldspar containing more than 10% soda, or sodium hydroxide. Shell Oil Co.
f. Sodaclase. Proposed by Johannsen for the sodic plagioclases from Ano to Anm, commonly called albite. The latter term would be reserved for the pure end-member. Oberle, A.G.I.
g. Soda feldspar. A sodium-aluminum silicate occasionally used as a refractory raw material in the manufacture of porcelain enamels, giving a softer enamel when used to replace potash feldspar in equal weights. Enam. Dict. See also albite; barbierte. C.T.D.
h. Soda-granite. See natron-granite. Fay.
j. Soda limestone. The water of which contains a high content of soda salts (chiefly chloride, sulfate, and acid carbonate). These salts also occur as an efflorescence around the lakes. C.M.D.
k. Soda lime. A granular mixture of calcium hydroxide, with soda, with potassium hydroxide, or with both, and sometimes with other substances (as kieselguhr). Used to throb moisture and acid gases, especially carbon dioxide, as in gas masks. Webster 3d.
l. Soda line-sinter process. Discovered by the Aluminum Company of America for recovering alumina from red mud. The red mud is mixed with soda ash (\( \text{Na}_2\text{CO}_3 \)), and ground limestone, and sintered in a rotary kiln at temperatures of 1,600° to 2,000° F. This breaks up the sodium aluminum silicate and forms an insoluble calcium silicate and sodium aluminate. This is leached with water to recover the sodium silicate, which is then treated in the same way as in the Standard Bayer process. Newton, p. 443.
m. Soda lifter. See crown glass, a. C.T.D.

sodium acetate


sodium aluminate

White powder, \( \text{NaAl(OH)}_4 \); molecular weight, 81.97; atomic weight, 22.9898; specific gravity, 2.892° C; boiling point, 883° C or 929° C; ordinarily does not ignite in air below 115° C; floats on water; may or may not ignite spontaneously on water; decomposes water liberating hydrogen and forming sodium hydroxide; decomposes alcohol, and insoluble in ether and in benzene. It is the sixth most abundant element on earth, and it constitutes 2.6 percent by weight of the earth crust by weight. It is the most abundant alkali; sodium chloride or salt is the most common natural compound, and sodium is produced commercially by electrolysis of fused anhydrous sodium chloride. C.T.D.; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-139, B-219.

sodium acetate

Sodium salt of acetic acid. \( \text{NaC}_2\text{H}_3\text{O}_2 \); used in analytical chemistry, as a fluxing agent. Also used as a setting-up agent for acid-resistant enamel slips. When used in this capacity, it allows easier control of the slip than can be obtained by the use of alum or sulfuric acid, because of its tendency to stabilize the mobility and yield values. Sodium aluminate may also be used as a substitute for sodium silicate and sodium carbonate in whiteware slips. Its use gives increased dry strength, superior drying and finishing characteristics, and increases the stability of the slip condition as to mobility and casting behavior. Lee.

sodium-alumina fluoride

See cryolite. C.M.D.

sodium aluminate


sodalite


soda ash

Sodium carbonate used as a flux in assaying. Statistical Research Bureau.

soda feldspar

A silicate of sodium and aluminum with some chlorine, \( \text{Na}_2\text{AlSi}_3\text{O}_8\); usually blue. Isometric. Dana 17.

soda pyra.

A feldspar containing more than 10% soda, or sodium hydroxide. Shell Oil Co.

sodium nitrate

See sodium nitrate. CCD 6d, 1961.

sodium nitrate

Sodium nitrate. \( \text{NaNO}_3 \); widely used as a fluxing raw material in enamels, usually in conjunction with soda ash. A small percentage is beneficial in oxidizing any organic impurities. Enam. Dict. Also called chile nitre; chile salt-peter.

sodium orthoclase

Those apparently monoclinic feldspars with notable amount of soda may be called soda orthoclase. When the soda equals or exceeds the potash, the crystals exhibit triclinic symmetry and a soda microcline. Spencer 20, M.M., 1955.

sodium pragite


sodium richterite

To replace the name asto-

sodium spar

A feldspar containing more than 10% soda, or sodium hydroxide. Shell Oil Co.

sodium syenite

A syenitic igneous rock containing an excess of soda feldspar or feldspathoid. Compare potash syenite. C.M.D.

sodium tate.

A very strong, strongly radioactive, oxygen-containing alkali earth cation. Commonly found in pegmatites associated with potassium feldspars. Also found as fissure fillings with curite and sklodowska.

soda

See green sand, b. D.O.T. 1.

sodium

A soft, bright, silvery metallic element in group 1 of the periodic system. One of the alkali metals. Sodium does not occur in the free state in nature, because of its high reactivity, but it is widely distributed as the chloride, nitrate, etc. Symbol, Na (from the Latin natium); valence, 1; isometric system, number, 11; atomic weight, 22.9898; specific gravity, 0.971 (at 20° C); melting point, 97.8° C; boiling point, 883° C or 929° C; ordinarily does not ignite in air below 115° C; floats on water; may or may not ignite spontaneously on water; decomposes water liberating hydrogen and forming sodium hydroxide; decomposes alcohol, and insoluble in ether and in benzene. It is the sixth most abundant element on earth, and it constitutes 2.6 percent by weight of the earth crust by weight. It is the most abundant alkali; sodium chloride or salt is the most common natural compound, and sodium is produced commercially by electrolysis of fused anhydrous sodium chloride. C.T.D.; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-139, B-219.

sodium carbonate

Sodium salt of carbonic acid. \( \text{Na}_2\text{CO}_3 \); molecular weight, 84.01; specific gravity, 2.25986; decomposition point, 970° C; melting point, 851° C; boiling point, 1,220° C or 1,272° C; ordinarily does not ignite in air below 115° C; floats on water; may or may not ignite spontaneously on water; decomposes water liberating hydrogen and forming sodium hydroxide; decomposes alcohol, and insoluble in ether and in benzene. It is the sixth most abundant element on earth, and it constitutes 2.6 percent by weight of the earth crust by weight. It is the most abundant alkali; sodium chloride or salt is the most common natural compound, and sodium is produced commercially by electrolysis of fused anhydrous sodium chloride. C.T.D.; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-139, B-219.

sodium acetate

White powder, \( \text{NaC}_2\text{H}_3\text{O}_2 \); molecular weight, 62.02; specific gravity, 1.216; boiling point, 112° C; melting point, 170° C. C.T.D.; molecular weight, 62.02; specific gravity, 1.216; boiling point, 112° C; melting point, 170° C.

sodium carbonate

White powder, \( \text{NaC}_2\text{H}_3\text{O}_2 \); molecular weight, 62.02; specific gravity, 1.216; boiling point, 112° C; melting point, 170° C.

sodium carbonate

White powder, \( \text{NaC}_2\text{H}_3\text{O}_2 \); molecular weight, 62.02; specific gravity, 1.216; boiling point, 112° C; melting point, 170° C.
sodium antimonate

192.74; slightly soluble in hot water and in alcohol; insoluble in dilute alkalies and in mineral acids; and soluble in tartrate acid and in dilute hydrochloric acid. Used as an opacifier in enamels for glass and as an ingredient of acid-resisting, sheen, and metallic enamels. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-220. Melting point, 1,427° C.

sodium bisulfate; sodium-hydrogen sulfate. Colored; triclinic; NaHSO3; molecular weight, 120.06; aqueous solution is strongly acid; melting point, 2,443° C (at 15° C); decomposes above 315° C; soluble in water; slightly soluble in alcohol; and insoluble in ammonia. Used in the preparation of inorganic salts. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-224.

sodium chlorate. Colorless; orthorhombic; NaClO3; molecular weight, 126.51; water of crystallization, 3H2O; melting point, 400° C; soluble in water and in alcohol; and soluble in dilute acids. Used in ceramics to produce colored glazes and in the manufacture of fluorescent uranium glass. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-224.

sodium chloride; sodium chloride. White; hexagonal; NaCl; molecular weight, 58.44; NaCl; occurs in nature as the mineral halite; somewhat hygroscopic; Mohs' hardness, 2.5; soluble in water and in glycerol; very slightly soluble in alcohol; specific gravity, 1.695 (at 15° C); boiling point, 1,413° C or 1,490° C. Used in ceramics and in the manufacture of fluorescent glass. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-222. Sodium chloride is commonly used as a flux in acid-resistant enamels, as a flux in enamels for glass, and in vitreous enamel frits. Handbook of Chemistry and Physics, 45th ed., 1964, pp. B-241, B-222.

sodium chloroaurate; sodium-gold chloride. Sodium-gold chloride, Colorless or white; deliquescent; isomeric; NaCN; molecular weight, 49.01; poisonous; soluble in water and in ammonia but insoluble in alcohol. Used in the process of pickling sheet iron for enameling. The cyanide forms complex iron salts which are removed in the neutralizing bath. Lee. Sodium dichromate; sodium dichromate. Colorless; orthorhombic; Na2CrO7; molecular weight, 120.06; water of crystallization, 1H2O; melting point, 1,427° C. Used as an opacifier in enamels for glass and in mineral acids; and soluble in dilute acids. Used in ceramics to produce colored glazes and in the manufacture of fluorescent uranium glass. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-224.

sodium diuranate; uranium yellow. A. Yellow-orange; Na2U2O7; molecular weight, 311.03; slightly soluble in water; and soluble in dilute acids. Used in ceramics to produce colored glazes and in the manufacture of fluorescent uranium glass. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-224.

sodium fluoride; sodium g licine. Colorless or white; isometric. NaF; molecular weight, 25.38; odorless; soluble in water and in alcohol; and insoluble in alcohol. Can be used in the treatment of dental caries. Lee. Sodium glycinate; sodium glycine. Colorless or white; isometric. Na2C4H6O7; molecular weight, 144.19; is used as a flux in enamels for glass and in vitreous enamel frits. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-222.

sodium nitrate; sodium nitrate. White; monoclinic; NaNO3; molecular weight, 84.00; cooling, slightly alkaline taste; soluble in water; insoluble or slightly soluble in ethyl alcohol; stable in dry air; decomposes in moist air; specific gravity, 2.159 or 2.20; and loses CO2 at 270° C. C.C.C. 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-222. Used in ceramics and as a baking powder. Bennett, p. 311; CCD 6d, 1961. Also used as a deflocculant in special castings slips, in preparing cobalt body stais, as a body wash to increase body gloss, and in impregnating solutions for enameler's steel. Sodium carbonate (Na2CO3) has more general use as a flux in enamels for glass and in vitreous enamel compositions. Lee. Sodium nitrite; sodium nitrite. Colorless or white; monoclinic; NaNO2; molecular weight, 61.99; specific gravity, 2.08; soluble in water; and decomposes on heating. Used in etching glass. C.C.C. 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-221. Sodium nitroprusside; sodium nitroprusside. Colorless; cubic; Na2[Fe(CN)5(NO)]Cl; molecular weight, 281.70; water of crystallization, 3H2O; melting point, 138.07 (at 15° C); decomposes at 150° C with evolution of nitrogen; and decomposes in water and in alcohol. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-222.

sodium oxalate; sodium oxalate. Colorless; monoclinic; Na2C2O4; molecular weight, 88.04; water of crystallization, 1H2O; melting point, 208° C; insoluble in water; and soluble in dilute acids. Used in the preparation of single crystals. Osborn.
sodium-graphite reactor

A nuclear reactor that uses liquid sodium as coolant and graphite as moderator. LBL.

sodium metasilicate nonahydrate; sodium phosphosphate glass; Graham's salt. Colorless; glass; (NaPO₄); molecular weight, 611.17; very soluble in water; and insoluble in organic solvents. A sequestering agent, a dispersing agent, and a deflocculating agent. Used to sequester alkaline-earth ions and heavy metal ions, to disperse clays and pigments, to soften water, and to prevent scaling and corrosion of pipes. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-223.


sodium oleate. White or yellow; Na₂C₁₂H₂₄O₂₃; molecular weight, 337.37; soluble in water; and insoluble in alcohol; and slightly soluble in ether. Used as a dispersing agent and a deflocculating agent. Used to disperse clays and pigments, to soften water, and to prevent scaling and corrosion of pipes. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-224. Also used in enameling stock to prevent rust while drying and also as a settling-up agent. Lee.

sodium nitrate. Sodium nitrate and combustible material to give a range of gelatinous explosives of varying strengths. The nitroglycerin content may be from about 30 to 80 percent. Vander. There are two conflicting temperature and pressure processes for lead ores and copper ores. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-223. Also used in flotation for the same purpose. Hansen.

sodium nitrite. Colorless to yellow; NaNO₂; molecular weight, 69.00; hygroscopic; specific gravity, 2.168 (at 0° C); melting point, 271° C; decomposes at 320° C; soluble in water, in ethyl alcohol, in methyl alcohol, and in ammonia. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-222. Used as a milling aid, or as an addition after milling, to enamel ground coats to prevent rust while drying and also as a settling-up agent. Lee.

sodium nitrate. Sodium nitrate and combustible material to give a range of gelatinous explosives of varying strengths. The nitroglycerin content may be from about 30 to 80 percent. Vander. There are two conflicting temperature and pressure processes for lead ores and copper ores. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-223. Also used in flotation for the same purpose. Hansen.

sodium oxide; sodium monoxide. Na₂O; molecular weight, 511.58; slightly bitter taste; water; and slightly soluble in alcohol. Used as an opacifier in glass and porcelain. Lee. Specific gravity, 1.815; melting point, 240° C; decomposes at 220° C; insoluble in water; and slightly soluble in alcohol; and slightly soluble in ether. Used in ore flotation. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-224. A solution of high alkali content. Used in water as a cleaning compound or it is compounded with other cleaning agents for the same purpose. Hansen.

sodium perchlorate; Orvite. Colorless; hexagonal; NaClO₄ or 2Na₂O·SO₃; molecular weight, 243.14; completely transparent; odorless; hexagonal; Na₂O₂; molecular weight, 64.01; specific gravity, 1.937. Used in electric fuses to prevent the formation of any easily reducible ingredients, such as lead oxide. The function of sodium nitrate, when used in glass batches, is to oxidize organic matter and to prevent the reduction of some of the batch constituents. Lee.

sodium silicate. Sodium silicate is used as a plasticizer for glasses, as a fluxing agent for enamels, and in cement manufacture. McClelland.

sodium silicate. Sodium silicate is used as a plasticizer for glasses, as a fluxing agent for enamels, and in cement manufacture. McClelland.

sodium citrate. Sodium citrate is used as a fluxing agent for enamels, as a cleaning agent, and in cement manufacture. McClelland.

sodium silicate. Sodium silicate is used as a plasticizer for glasses, as a fluxing agent for enamels, and in cement manufacture. McClelland.
temperature of the inspired air exceeds this the heat is extracted by these sodium phosphate recrystallizes on cooling. Used as a cooling agent in the cooling of the Proto self-contained breathing apparatus. Caldwell, C.D., 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-224.

sodium pyrophosphate; tetrasodium pyrophosphate. White or colorless; Na₄P₂O₇; colorless; molecular weight, 144.19; specific gravity, 2.112; melting point, 275° C; and soluble in water. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-224. Added to glass batches as a source of soda and to prevent scumming. It is necessary to use a reducing agent with it. Lees.

sodium sesquicarbonate; natrona; trona; urao. Clinic; Na₂CO₃.NaHCO₃.2H₂O; molecular weight, 302.23; colorless; amorphous; deliquescent; and soluble in water. Handbook of Chemistry and Physics, 45th ed., 1964, pp. B-222, B-246. Added to glass batches as a source of soda and to prevent scumming. It is necessary to use a reducing agent with it. Lees.

sodium sulfate; sodium sulfate, anhydrous; sodium sulfate pentahydrate; sodium hyposulfite. Colorless or white; translucent; monoclinal; molecular weight, 142.04; odorless; bitter saline taste; specific gravity, 2.175; cloudy or clear liquids; range of solubility, or cloudy or clear liquids; range of freezing point, slightly below that of water and cold alcohol; insoluble in many organic solvents. Used in medicine: water-proofing and gelling agent; as stabilizer in plastics. C.D. 6d, 1961.

sodium stannate; sodium hydroxostannate. Sodium with fatty odor; NaOOCSnH₂; soluble in hot water and alcohol; slowly soluble in cold water and cold alcohol; insoluble in many organic solvents. Used in medicine: water-proofing and gelling agent; as stabilizer in plastics. C.D. 6d, 1961.

sodium stearate. White powder with fatty odor; NaOOC(CH₂)₁₇CO₂H; soluble in hot water and alcohol; slowly soluble in cold water and cold alcohol; insoluble in many organic solvents. Used in medicine: water-proofing and gelling agent; as stabilizer in plastics. C.D. 6d, 1961.
soft-burned lime

cined at relatively low temperature. It is characterized by high porosity and chemical reactivity. Boynton.

soil clay can be easily molded in the hand and dug with a spade. Hem.

soft coal. a. Bituminous coal as opposed to anthracite. Hem., p. 531. b. Term in use among British miners for (1) bright bituminous coal which breaks easily and (2) vitrain or clairain. Tomkiewicz, 1954.

soften. To heat ore so that the minerals are softened or melted. Miner.

softening point. a. Certain materials do not soften. To heat ore so that the minerals are softened or melted. Miner.

softening temperature. The temperature, un-

soft-fired ware. Clay products fired at low temperatures, resulting in undesirable characteristics. Miner.


soft inclusion. A. Part that of a mineral de-

softing point. a. Certain materials do not have a definite melting point but soften over a range of temperatures. Certain refractory substances, the softening point is measured as the pyrometric cone equivalent (P.C.E.) which is the number of the standard pyrometric cone whose tip would touch the supporting surface simulta-

softing. a. Treatment in which metal is heated below critical point and then slowly cooled. Prior, 3. b. Of lead, the removal of antimony and other impurities. Fay.

softening point. a. Certain materials do not have a definite melting point but soften over a range of temperatures. Certain refractory substances, the softening point is measured as the pyrometric cone equivalent (P.C.E.) which is the number of the standard pyrometric cone whose tip would touch the supporting surface simulta-


soft ore. A. Soft or incoherent hematite, as opposed to the hard specular variety. From English. J. Am. Ceram. Soc.

soft pitch. fritted porcelain. A type of porce-

soft pitch. Pitch showing a penetration of more than 10. Fay.

soft pottery. brick made by a process of forming relatively wet clay (20 to 50 percent water content) in molds. When the inside of the molds are sanded, the product is called sand-strock brick. When molds are wetted with water to prevent stickling of the clay, the bricks are called water struck. ACSG, 1983.

softening. a. Treatment in which metal is heated below critical point and then slowly cooled. Prior, 3. b. Of lead, the removal of antimony and other impurities. Fay.

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soft porcelain. A. Porcelain which is applied arbitrarily to anything phosphatic that is not distinctly hard rock. Fay.

soft rock. a. Soft inclusion. A. Part that of a mineral de-

soft rock. Rock that can be removed by air-operated hammers, but cannot be handled economically by a pick. A.G.I. Loosely used to describe diabase, and diabase rock, a variety of diabase that is especially hard and resistant to chemical weathering. Fay.


soft shale. Soft and poorly consolidated shale, and shaly strata which are either laminated or distorted with thumb pressure, generally shows a tendency to delamination. Such shales are generally given a dull sound when tapped or dropped on a hard surface. Skow.

soft solders. Alloys of lead and tin used in soldering. Tin content varies from 63 to 31 percent. The remainder is mainly lead, but some type contain about 2 percent antimony and others contain cadmium. The best-known types are tinman's solder and plumber's solder. C.T.D.

soft structure. Development of joints and cleats is most pronounced in low volatile bituminous coals. Such coals are very friable. The type rock is composed of finely divided rock debris, of whatever origin, mixed with decomposing vegetal and animal material, which nearly everywhere forms the surface of the ground in which plants grow or may grow. Fay. c. In agriculture, loose surface material capable of supporting plant growth, and having properties resulting from the integrated effect of climate and living matter. Hawker, 5. d. In geology, any loose surface material o'er-laying solid rock. Hawker, 5. e. To the pedolo-

soil category

soft soil. A general term applied to soils of low carbon content which do not tend to stick. Grinnell.

soft structure coal. Development of joints and cleats is most pronounced in low volatile bituminous coals. Such coals are very friable. The type rock is composed of finely divided rock debris, of whatever origin, mixed with decomposing vegetal and animal material, which nearly everywhere forms the surface of the ground in which plants grow or may grow. Fay. c. In agriculture, loose surface material capable of supporting plant growth, and having properties resulting from the integrated effect of climate and living matter. Hawker, 5. d. In geology, any loose surface material o'er-laying solid rock. Hawker, 5. e. To the pedolo-

soil analytical methods. The method of newsgeo-

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soil analytical methods. The method of newsgeo-

soil analysis. The method of geochemical prospecting which consists of taking soil samples and analyzing them for the various hydroxides and other gases and waters, minerals, or other rare components which they may contain. Fay.

soil cap. The earthy material that often covers naturally the rock surfaces of the crust. Standard, 1964.

soil catena. A related sequence of profile types created by changes from one drainage condition to another. These changes are usually transitional. Hawker, 2, p. 101.
soil cement. The addition of cement to a soil, as a binding agent, and converting it into a weak form of concrete. See also cement stabilization. Nelson.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Dominant grain size</th>
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<tbody>
<tr>
<td>Grade</td>
<td>2 mm and over</td>
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<tr>
<td>coarse sand</td>
<td>2 mm to 1 mm</td>
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<tr>
<td>medium sand</td>
<td>1 mm to 0.5 mm</td>
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<tr>
<td>silt</td>
<td>0.5 mm to 0.25 mm</td>
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<tr>
<td>fine sand</td>
<td>0.25 mm to 0.1 mm</td>
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<tr>
<td>mud or clay</td>
<td>0.1 mm to 0.01 mm</td>
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<tr>
<td>less than 0.01 mm</td>
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Nelson.

soil classification. The tests are of two main types, namely: (1) mechanical analysis, performed by sieving or sedimentation, to determine the size-distribution of the constituent particles; and (2) index property tests, for soils passing a 30-mesh B.S. sirve, by means of which the type is deduced from the moisture content at standard consistencies. See also index properties. Nelson.

soil climate. The nature of the air between the soil particles, water content and condition, etc. Chaldfine.

soil core. A cylindrical sample of soil for the study of soil structure. Undisturbed cores may be obtained by the use of special appliances, which allow soil cores of usual 1 1/4 inch or 4 inch diameter being extracted. The core barrel, forming part of the coring tool, is detachable and is connected to a core hermetically sealed for delivery to the laboratory. The natural moisture content and other properties are preserved for examination. Individual soil cores, up to 3 feet in length, may be obtained and continuous coring if necessary. See also soil sample. Nelson.

soil creep. A very slow movement of rock fragments down even, gentle slopes. It is this that makes some streams muddy even during periods of dry weather. A.G.I.

soil density. Normally expressed as pounds per cubic foot. Although soil density is measured initially on moist soil, the result is always converted in terms of dry density. Nelson.

soil drainage. A discharge of ground water through evaporation directly from the soil or rocks. A.G.I.


soil formation. The process whereby fragmented material resulting from rock weathering is transformed into a medium that can support plant growth. Hawkes.

soil-forming factors. Factors, such as parent material, climate, vegetation, topography, organisms, and time involved in the transformation of an original geologic deposit into a soil profile. ASCE P1826.

soil horizon. A layer of soil, approximately parallel to the surface, which differs from adjacent layers in chemical and physical properties; the principal horizons from the surface downward are (1) the topsoil, A horizon, or leached horizon; (2) the subsoil, B horizon, or horizon of accumulation; and (3) the parent material, C horizon, from which the upper horizons were formed. Hawkes.

soil mechanics. The subject embracing the study of soil properties, soil classification, consolidation, and strength; the flow of water through various soils, and the effects of load and pressure upon them. The father of soil mechanics is Dr. Karl von Terzaghi, and this new branch of science was initiated in 1936 by the First International Conference on Soil Mechanics and Foundation Engineering at Cambridge, Mass. See also earth pressure; site exploration. Ham. b. The science of the mechanical properties of mass of loose or unbound particles, particularly of their composition, shear resistance, and effects of water. Applied in highway and foundation engineering and other problems depending on support by stability of and variances in loose surface materials. A.G.I.

soil-moisture relations. Any method used to determine the soil in the process of soil stabilization. See also plant mix; travel mixer. Ham.

soil moisture. The water content of the soil zone. It is divided by the soil scientist into available and unavailable moisture. Available moisture is water readily abstracted by root action and limited by field capacity and the wilting coefficient. Unavailable moisture is water held so firmly by adhesion or other forces that it cannot usually be absorbed by plants rapidly enough to produce growth. It is commonly limited by the wilting coefficient. Stokes and Varne, 1955.

soil physics. The organized body of knowledge concerned with the physical characteristics of soil and with the methods employed in their determination. ASCE P1826.

soil preliminary classification. A classification made at the site to recognize the main types, such as gravels, sands, silts, clays, and peat. The clays may be described as soft, stiff, or firm, but the same clay can change into other groups by change in its water content. See also soil classification. Nelson.

soil profile. The vertical section of a soil, showing the nature and sequence of the various layers, as developed by deposition, weathering, or both. ASCE P1826. b. Succession of zones or horizons beginning at the surface that have been altered by normal soil-forming processes of which leaching and oxidation have been particularly important. A.G.I. Supp. See also soil horizon. A.G.I. c. A section, at a spot or along a centerline, indicating the various strata as disclosed by boreholes, trial pits, or geophysical surveys. The section shows all deposits likely to have a bearing on the stability of surface works. Quarries, cutting, and excavations often provide a ready-made soil profile. Nelson.

soil sample. a. A small sample of the soil, representing the area from which it was removed. Long. b. Any sample which is reasonably representative of a soil deposit. Undisturbed soil samples are preferred. Where the strata are to change laterally, the sampling positions are spaced so as to indicate the change. See also soil core. Nelson.

soil-sample barrel. A tubular device designed for taking samples of soil. Long.

soil sampler. a. A tube driven into the ground so as to obtain an undisturbed soil sample. In sands, such tubes would be fitted with a core catcher of mon- nomad standard test. Ham. b. One of a number of different mechanical devices used for taking samples of undisturbed soil or at certain locations. See also Shelby tube; sand-barrel sampler; split-tube barrel; soil sampling tube; sampling tool. A tool for obtaining an undisturbed sample of the soil. It consists of a cylindrical mild steel tube with a fitting at the top for boring rods and a hardened steel cutting nose. It provides for a sample 4 1/4 inch diameter, while a length of 15 inches is usually sufficient. The tube is forced into the ground without rotation until it is full. Then the soil is cut at the bottom either by a blade or by rotating the tool to shear the soil at the base. See also sampling area ratio.

soil science. The science which treats of soils. Synonym for pedology. Schiererdecker.

soil series. A group of soils having horizons similar as to differentiating characteristics and arrangements in the soil profile and developed from a particular type of parent material. Except for texture, especially of the A-horizon, the morphological features of the soil profile, as exhibited in the physical characteristics and thicknesses of the soil horizons, do not vary significantly with a series. These characteristics include especially structure, color, and texture (except the texture of the A-horizon or surface soil) but not these alone. The content of carbonates and other salts, the reaction (or degree of acidity or alkalinity), and the content of humus are included with the characteristics which determine series. The soil series must not only have definite soil profile features, but also occupy an area on the landscape. Stokes and Varne, 1955.

soil shredder. A machine employed in soil treatment completely touching half drums which rotate in opposite directions, and break up the soil. Ham.

soil stabilization. Chemical or mechanical treatment designed to increase or maintain the stability of a mass of soil or otherwise to improve its engineering properties. ASCE P1826. See also bituminous stabilization; cement stabilization; pulverization.

soil stabilizer. A chemical which can alter an engineering property of a natural soil to suit an intended use of the soil. Refers to chemicals which convert clayey soils or sandy soils to satisfactory traffic-bearing materials. CCD 6d, 1961.

soil structure. The arrangement and state of aggregation of soil particles in a soil mass. See also flocculent structure; honeycomb structure; single-grained structure. ASCE P1826.

soil survey. A detailed investigation of the soils at a site, including boreholes and tests to determine their nature, thickness, strength, and depth to bedrock. See also site investigation; site exploration. Ham. b. Geophysical prospecting term for the chemical analysis of systematically collected samples of soil and weathered rock. Hawkes, 2, p. 3.

soil suspension. A highly diffused mixture of soil in water. ASCE P1826.

soil test. a. Synonym for soil sampling. Long. b. The laboratory procedure followed in...
soil test

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In the glass industry the term is particularly applied to blocks that extend more than the depth of the glass in a furnace.


solar. a. A platform in a Cornish mine shaft usually of soft rock or soil. Webster 3d. b. A colloquialism among surveyors to mean an observation on the sun. Fay.

solar salt. Salt obtained by solar evaporation artificially. Applied to a dormant or decaying volcanic vent from which steam and vapors are emitted; also, a district or area in which volcanic emanations are given off from fissures and small vents. Compare fumarole; mofette; solfata.

solarian. Applied to a dormant or decaying stage of volcanic activity characterized by the emission at the surface of gases and vapors of volatile substances. Holmes, 1928.

solid. a. Coal that has not been undermined, weathered out, or otherwise prepared for blasting. Used in the expression, "shooting off the solid." Fay. b. That part of the coal which cannot be blown out by a single shot, or the coal beyond the loose end. Used in expressions describing holes drilled for blasting, such as "10 feet into the solid," or "on the solid." Fay. c. Unmined; ungot. Mason. d. A rock having few open pores, cracks, or joints and relatively unaffected by the weakening effects of weathering. Long. e. Diamond from cracks disarranged with large open cavities. The rock near underground openings that stands well without artificial support. Long. f. Anything which can be measured in three dimensions. That is, a solid has length, breadth, and thickness. Jones, 2, p. 116. h. State of matter in which the constituent molecules or atoms are sufficiently restricted in their relative movement to result in a definite shape and volume. Compare liquid. g. A solid cast to form between the surface of the mold and the tree. Petrijohn.

soil casting. Forming ceramic ware by inverting a body slip into a porous mold, usually with a permanent joint and usually are used to connect two shafts to make a permanent joint and usually are designed to be capable of transmitting the full load capacity of the shaft. They couple has no flexibility, either torsional, angular or axial, hence it is limited to those installations where rigid connections...
solid cutters. Cutters made of a single piece of material rather than a composite of two or more materials. ASM Gloss.

solid deposits. Rocks other than drift deposits. Rocks underlying superficial deposits, specifically occurring solid fuels, and (2) manu factured solid fuels. Webster 3d. Solid fuels are any fuel that is a solid; such as wood, peat, lignite, bituminous, and anthracite coals of the natural variety and the prepared varieties as, pulverized coal, briquettes, charcoal, and coke. These are divided into two broad classes: (1) naturally occurring solid fuels, and (2) manufactured solid fuels. Newton, p. 247.

solid geology. The geological features of the rocks underlying superficial deposits, specifically excluding these latter. A solid geological map, as opposed to a drift map, shows the whole outcrops as they would appear if all the superficial deposits were removed (though the larger tracts of alluvium are often shown even on solid maps). Chaldiner.

dilution. The process of changing from a liquid or gas to a solid, as, for instance, the solidification of molten alumina to solid in the synthesis of corundum. Shipley.

dilution range. Temperature range over which mixtures (alloys, fluxes, etc.) in constitution solidify between two solidus and liquidus temperatures. Fay, p. 112.

dilution shrinkage. The decrease in volume of a metal during solidification. ASM Gloss.

solid loading. Filling a drill hole with all the explosive which can be crammed into it, except for stemming space at top. Nichols.

solid man. A British Geological Survey map which shows the solid or stratified hard rocks, the plan view being on the assumption that all superficial deposits are removed; the deposits of alluvium along river courses are, however, shown. See also drift map. Nelson.

solid masonry wall. A wall built of solid masonry units in which the joints between units completely filled with mortar. ASCII.

solid masonry unit. A unit whose net cross sectional area in every plane parallel to the bearing surface is 75 percent or more of the total cross sectional area measured in the same plane. ASTM C83-5ST.

dil ultrasound. A wave consisting of a single elevation and neither followed nor preceded by another elevation or depression of the water surface. Schierederke.

solubility. The extent to which one solute is capable of forming solid solutions with another. This varies widely between different types of solutes, some of which are mutually soluble in all proportions, while others are practically insoluble in each other. ASM Gloss. The concentration of a solid solute in a saturated solution is called the solubility of the solute. B.S. 3618, 1964, sec. 5.

soltanochah soil. A soil occurring most commonly under arid conditions, but may also be found in semiarid and subhumid regions. Usually found in depressions where it has originated by evaporation under shallow ground-water conditions. The typical salts of solonchaks are sulfates and chlorides of sodium, calcium, and magnesium. These often appear as a white efflorescence at the surface which is liable to be dissolved and temporarily washed downward when it rains. Hawkes, 2, p. 1050.

solonetz soil. A soil occurring most commonly under arid conditions, but may also be found in semiarid and subhumid regions. Usually found in depressions where it has originated by evaporation under shallow ground-water conditions. Characterized by sodium carbonate as the predominant salt and a dark-colored B horizon which is strongly alkaline in character. Hawkes, 2, p. 1050.

sollum. The complete filling of the waste area behind a longwall face with stone and dirt. The packing operation may be by hand or by mechanical means, for example, pneumatic stowing. See also double packing; strip packing. Nelson.

solidus. In a constitution or equilibrium diagram, the locus of points representing the temperatures at which various compositions finish freezing on cooling or begin to melt on heating. ASM Gloss.

solid water. Scot. Water sufficient to fill the pump barrel at each stroke. Fay.

solid web. The web of a steel beam consisting of a rolled section or a plate as distinct from a lattice. Ham.

solid workings. Scot. In stopp-and-room workings, the first working or room driven into the solid coal. Distinguished from pillar work or pillar drawing. Fay.

solid wove conveyor belt. A construction of conveyor belt consisting of multiple plies of fabrics woven into one piece, which is done on looms designed for this purpose. Hips are placed on the belt to show the number of plies, which range from two to ten. Impregnating and coating treatments are frequently employed. ASM M161-1958.

solid woven fabric belts. A rubber belt in which the plies are interwoven and thus have no voids. Adhesive compounds may be used to improve the properties of the covering material. The belt is claimed to give greater strength for less thickness and weight. See also conveyors. Nelson.

solidification. a. The process of slow flowage from higher to lower ground of masses of waste saturated with water. See also mud stream. A.G.I. b. The movement of explosives and rock waste chiefly by frost action. Mather.

solidified peat. Peat whose character is determined by soil horizon rather than amount of rainfall. Tomkietzky, 1954.

soldering. Large stones used in pitched work. Hans.

solidification wave. A wave consisting of a single elevation and neither followed nor preceded by another elevation or depression of the water surface.

soluble products of weathering. Consist of those constituents that are released by the decomposition of primary minerals and that are not required in the formation of insoluble secondary minerals. Haukari, 2, p. 88.

soluble salts. Salts, particularly sulfates of calcium, magnesium, and sodium, present in some clays. When the clay is dired these salts migrate to the surface. In the pottery clay this gives trouble during glazing; in the wet process of body preparation, however, these salts are mostly removed by filtering. If present in clay building materials, soluble salts can cause efflorescence and scumming.

solum. The upper part of the soil profile, above the parent material, in which the processes of soil formation are taking place. In mature soils, this includes the A- and B-horizons. Stokes and Barnes, 1953.

soil. a. The substance dissolved in a solution, as distinguished from the solvent. solubility. ASM STP No. 148-D.

solution. a. The change of matter from the solid state or the gaseous state into the liquid state by its combination with a liquid. When unaccompanied by chemical change, it is called a physical solution; otherwise, a chemical solution. Standard, 1964. b. The result of such change; a liquid combination of liquid and a non-liquid. Standard, 1964.

solution breccia. Breccias formed, for example, where the lime carbonate of a cherty limestone is removed by solution, the chert fragments gathering together as the mass settles. Stokes and Barnes, 1953.

solution cavities. A mode of mineral formation in which percolating solutions have filled cavities in rocks with valuable minerals; cavities formed in certain rocks, such as limestones, where portions have been dissolved by percolating waters. See also mineralisation. Nelson.

solution ceramics. A type of ceramic coating. In the original process, metal salt is sprayed on the hot surface that is to be coated. A subsequent development refers to the application of a coating of vitreous enamel or thermoplastic resin to the surface that has been flame-onged with the solution; this is claimed to result in a vitreous enamelled surface having improved resistance to thermal shock. Crispin.

solution grooves. More or less parallel furrows that sometimes develop on inclined and base confined ore bodies, and are believed to be homogeneous rocks like limestone and marble. They always tend down the slope, for they are made along the direction of ground water, so as to make a fall line in the upper part of the weathering zone. Stokes and Barnes, 1953.

solution heat treatment. Heating a metal to a suitable temperature, holding at that temperature long enough to allow one or more constituents to enter into solid solution, and then cooling rapidly enough to hold the constituents in solution. The alloy is left in a metastable, unstable state and may subsequently exhibit quench cracking. ASM Gloss.

solution injection. Artificial cementing of loose soils or strata to increase their load-bearing capacity. Ham.

solution pipe. One who regulates, by opening and closing pipe valves, the amount of cyanide solution flowing from solution tanks into leaching tanks or vats in which finely ground, gold-bearing ore is treated with cyanide to dissolve the particles of free gold. The resulting gold-bearing solution is later run through boxes containing zinc shavings to precipitate the gold thereon. C.O.T. 1. b. See leacher. D.O.T. Supp.

solution potential. The potential of the anode during a process; otherwise, a chemical solution. Standard, 1964.

solution plane. A direction in a crystal of relatively easy solubility (as when the substance is tetrahedrite; see also solution potential). Chemical action along solution planes in minerals is often observed in schillaction. Webster 3d.

solution potential. Electrode potential where the half-cell reaction involves only the metal electrode. Webster 3d.

solution pressure. The pressure by which the particles of a dissolved substance are driven out of the solution; and which when equal to the osmotic pressure establishes equilibrium to that the concentration of the solution becomes constant. Webster 3d.

solution subside. The subsidence of parts of a formation into hollows or pockets of an iron or subaqueous solution. The solution is caused by water percolating through the upper formation. Chaline.


solve. A chemical compound consisting of a dissolved substance and its solvent. Crispin.

solve. A. The chemical union of a dissolved substance and its solution. A.G.I. Supp. b. Association or combination of molecules of solvent with ions of solute. In the case of micelles, adsorption of dispersion medium by lyophilic sol in such wise as to form sheeted groups which do not readily coalesce. Crispin.

solve process: ammonia-soda process. Manufacture of sodium carbonate (or soda ash, Na2CO3) from salt (sodium chloride), ammonia, carbon dioxide, and limestone by an ingenius sequence of reactions involving recovery and reuse of practically all the ammonia and part of the carbon dioxide. Limestone is calcined to quicklime and carbon dioxide. The carbon dioxide is dissolved in water containing the ammonia and salt, with resulting precipitation of sodium bicarbonate. This is separated by filtration, dried, and heated to form normal sodium carbonate. The liquid from the bicarbonate filtration is heated and treated with lime to regenerate the ammonia. Calcium chloride is a major byproduct, along with sodium carbonate. C.D. 6d, 1961.

solution. b. A substance used to dissolve another substance; for example, the water in a solution of salt in water. Crispin.

solution extraction. a. A method of separating one or more substances from a mixture, by treating a solution of the mixture with a solvent that will dissolve the required substances, leaving the others. It is used in purifying certain fuels. Ham. b. In uranium technology, selective transfer of metal salts from aqueous solutions or pulp, to immiscible organic liquid. Pruyr, 3. c. See liquid-liquid extraction, a. CCD 6d, 1961.


solubility. In a phase or equilibrium diagram, the locus of points representing the temperatures at which the various compositions of the solid phase coexist with other solid phases, that is, the limits of solid solubility. ASM Gloss.

sonar. The method of testing by underwater sound, the presence, location, or nature of objects in the sea. The word sonar is an acronym derived from the expression SOnAr NAvigation and Ranging, HBQ.

sonar background noise. The total noise which interferes with the reception of the desired signal. This noise is then transmitted to the final receiving element, such as a recorder or the ear of a listener. Hy.

sonar device. Numerical groups which define sonar conditions for echo ranging in certain areas. Hy.

sonar thumper device. A complete continuous seismic profiling system consists of the sonar thumper unit, sonar recorder, transducer fish, receiving hydrophone, preamplifier if necessary and variable filter. Sonar thumper units are available from 100 watt-second models up to 13,000 watt-second (experimental models). The standard thumper consists of a storage or bank and a transducer. Thumpers are used for marine geological studies and dredging surveys. The power supply output is fed to the capacitor bank which is discharged into the transducer producing a precisely repeatable pressure pulse in the water. HBQ.

sondelle. A metamorphic rock composed of cordierite, quartz, garnet, tourmaline, biotite, etc. Holmes, 1928.

sonde. A circular container in which electrodes are set. The sonde is supported during logging in a suitable center of the borehole. Wyllie, p. 98.

sonic. a. Pertains to phenomena involving
sonic frequency in the audio range—from about 20 to 15,000 cycles per second. ASM Glo.
sonic b. Of, pertaining to sonic sounding waves, as in sonic depth finding. Hy.
sonic depth finder. An instrument which measures time interval between the transmission of a signal within the instrument and its reflected return from the bottom. This time interval is then expressed as a function of water depth. Hy.
sonic frequencies. Range of underwater sound, generally taken as from 0.02 kilo-
sonic gage. See acoustic strain gage. Nelson.
sonic log. An acoustic log continuously recording travel time of sound from surface to an instrument lowered down a bore-
sonic microscope. Species of fishes, marine mammals and Crustacea which may produce noise of sufficient intensity and frequency to interfere with sound trans-
sonic strain gage. An inspection instrument, which
sonicgauge. An ultrasonic testing instrument
sonogage. A type of echosounder that generates sound waves and records their re-
flections from inhomogeneities beneath a sedi-
sonority. See musical loudness. Hy.
sonorous. Property of emitting sound on percusion or deformation. This is usually mainly in alloys of tin and copper. Aluminum emits a clear sound on percusion, and bar tin gives rise to a peculiar crackling sound, known as tin cry, when it is bent. This phenomenon is con-
sidered to be caused by the sliding of the tin crystals. Is.
sonoroscope. A type of echosounder that generates sound waves and records their re-
flections from inhomogeneities beneath a sedi-
sorbed. A black substance, consisting essen-
tially of carbon from the smoke of wood or coal, especially that which adheres to the inside of the chimney, containing also ammonia salts. Fay.
sorbed asphalt. See asphaltic sorbent. Sonstadt.
sorbed asphalt. See asphaltic sorbent. Sonstadt.
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sorbed asphalt. See asphaltic sorbent. Sonstadt.
to size or specific gravity by natural processes, mainly by the action of running water. Stoker and Varnes, 1955. e. The separation of coal or ore or minerals into a material of economic value and dirt, particularly by hand. Nelson. 1. Removal by hand of selected pieces of material and/or particles that have become detached from the kiln furniture; sorting is usually done with a small pneumatic tool.

**sorting**

**sorting coefficient.** a. A coefficient used in describing the distribution of grain sizes in a sample of unconsolidated material. It is defined as $S_0 = \frac{VQ_1}{Q_3}$ where $Q_i$ is the diameter which has $i$ percent larger than itself. H&G. b. Diameter having 25 percent smaller and 75 percent larger than itself, and $Q_2$ is that diameter smaller than itself and 25 percent larger than itself, and $Q_2$ is that diameter having 25 percent smaller and 75 percent larger than itself. H&G. c. Dimensionless measure for degree of sorting. Schlesfederhocker.


**sorting table.** a. Any horizontal conveyor where operators, along its sides, sort bulk materials, impurities, and/or products by a conveyor. ASA MH4.1-1958. b. Tables on which rough diamonds are sorted. H&G. c. A table having a series of grooves parallel to the length of the table, with vitirol; also, vitirols. Webster 3d.

**sos.** Staff. To sink into the floor under sorting table. sorting hammer. A hammer for breaking up ores in sorting. Standard, 1964.

**sorting particle.** See particle sorting. Benham.

**sorting table.** Any horizontal conveyor where operators, along its sides, sort bulk materials, impurities, and/or products by a conveyor. ASA MH4.1-1958. b. Tables on which rough diamonds are sorted. H&G. c. A table having a series of grooves parallel to the length of the table, with vitirol; also, vitirols. Webster 3d.

**source.** a. Having an acid or tart taste; applied to minerals having the taste of sulfuric acid. Fay. b. In ceramics to macerate and render fit for plaster or mortar; wave of lime. Webster 3d.

**source.** a. In seismic prospecting either (1) the point of origin or shot from which elastic waves are propagated; (2) the formation, horizon, interface, or boundary at which the seismc wave is refracted and/or reflected and returned to the surface. In earthquake seismology, the point of origin of an earthquake. In neutron logging, the source of neutrons at one end of the logging tool. A.G.I. b. A radioactive material packaged to produce radiation for experimental or industrial use. L.O.L.

**source area.** The area from which the sedimentary material is derived. Schlesfederhocker.

**source container.** The container housing a sealed source in a radiation process, and providing radiation shielding and security devices. NCB.

**source holder.** The holder which provides the immediate mounting and shielding of a sealed source and is fitted within the source container. NCB.

**source material.** In atomic energy law, any material, except special nuclear material, which contains 0.05 percent or more of uranium, thorium, or any combination of the two. L.O.L.

**source-receiver product.** In seismic prospecting, the product of the number of detectors per foot of line times the number of shots fired simultaneously. A.G.I.

**source rock.** The geological formation in which oil, gas, and/or other minerals originate. A.G.I.

**sourdough.** a. Old-fashioned and seasoned prospector. Pryor, 3. b. A miner who has

**sourdough**

acoustic frequencies to travel great distances. $H_y$

**sound energy density.** At any point in a sound field the sound energy contained in a given infinitesimal part of the medium divided by the volume of that part of the medium. $H_y$

**sound field.** A field region containing sound waves. HOG.

**sound hammer.** a. Knocking on a roof to see whether it is sound or safe to work under. Fay. See also roof testing. b. Rapping on a pillar to signal a person on the other side of it, or to enable him to estimate its width. Fay. c. See sounding the roof. Nelson. d. A rough method of judging by sound the direction and distance apart of two roadways diverging in road to meet each other. The sounding is made by giving two slow and three sharp knocks on the solid coal which is answered in similar manner from the opposite roadway. The method is sometimes called chap. Nelson. e. Subsurface investigation by observing the particle displacement of the solid coal which is answered in similar manner from the opposite roadway. F. The measurement of the distance between a given point on the surface of the water and the bottom directly beneath. This may be accomplished by a weight attached to a line or by sonic means. $H_y$

**sound in test.** The hand lead used in sounding. Ham.

**sound rod.** A closed pipe, 1 inch in diameter, with a flush joint and a driving tip, used in sounding. See also sounding. Long.

**sound sounding.** a. Tapping the rock roof with a metal testing bar to ascertain whether or not it is strong and safe. Hudson. b. A dam or barrier in a stream in which the frictional resistance to the passage of water is high. Such a dam permits little water to pass through it and is said to be "sound." Sinclair, 14, p. 2. c. Syonym for solid, as applied to diamonds and rocks. Long. d. An oscillation in pressure, particle displacement, particle velocity, etc., in a medium having internal forces; that is, elastic viscous, or the superposition of such propagated oscillation. $H_y$

**sound absorption.** Sound absorption is the change of sound energy into some other form, usually heat, as it passes through a medium or strikes a surface. $H_y$

**sound channel.** Sound waves in the surface layers of the ocean tend to be refracted downward due to decrease of temperature with depth. In deep waters the sound wave is refracted toward the bottom directly beneath. This may be accomplished by a weight attached to a line or by sonic means. $H_y$

**sound intensity.** In a specified direction at any point, the average rate of sound energy transmitted in the specified direction through a unit area normal to this direction at the point considered. $H_y$

**soundness.** a. The freedom of a solid from cracks, flaws, fissures, or variations from an accepted standard. It is a measure of the freedom of cement from expansion on setting as measured by the LeChatelier test. Taylor. b. A hydrated lime is sound when it contains no particles of unhydrated lime, water-burnt lime, or any other similar type liable to decompose in subsequent processes, causing either expansion or localized high temperature. Stowell. c. As applied to portland cement, refers to its volume stability after it has set. Compare unsoundness. c. Dodd.

**sound pressure.** At any point in a medium, the instantaneous pressure that is present in the presence of a sound wave, minus the static pressure at that point. $H_y$

**sound pressure level.** In decibels, of a sound is 20 times the logarithm to the base of the ratio of the pressure of this sound to the reference pressure. The reference pressure must be explicitly stated. $H_y$

**sound transmission quality.** Water is excellent medium for sound transmission. Sound travels faster with greater energy loss in water than in air. Acoustic methods thus are best known for transmission of intelligence through live water man. Sound velocity in seawater is dependent on wavelength. $H_y$

**sound velocity.** The rate at which the sound travels through the medium. Velocity is equal to the square root of the quantity elasticity divided by density. $H_y$

**sound wave.** a. Sometimes used incorrectly, ably with shock wave; technically, a wave motion in the air which affects the human ear. Sound as a wave of compression it heats the water as it passes through the water man. Density and compressibility of the medium influence the velocity of sound; increasing density due to temperature, salinity, and pressure changes increases the velocity. High frequency waves above 10,000 cycles per second have very short range because absorption is high. Low frequency waves have greater range. $H_y$

**sound wave.** c. Same as longitudinal wave. Lewis. p. 313.

**source.** Having an acid or tart taste; applied to minerals having the taste of sulfuric acid. Fay. b. In ceramics to macerate and render fit for plaster or mortar; wave of lime. Webster 3d.

**source.** a. In seismic prospecting either (1) the point of origin or shot from which elastic waves are propagated; (2) the formation, horizon, interface, or boundary at which the seismic wave is refracted and/or reflected and returned to the surface. In earthquake seismology, the point of origin of an earthquake. In neutron logging, the source of neutrons at one end of the logging tool. A.G.I. b. A radioactive material packaged to produce radiation for experimental or industrial use. L.O.L.

**source area.** The area from which the sedimentary material is derived. Schlesfederhocker.

**source beds.** Rocks in which oil or gas has been generated. A.G.I.

**source container.** The container housing a sealed source in a radiation process, and providing radiation shielding and security devices. NCB.

**source holder.** The holder which provides the immediate mounting and shielding of a sealed source and is fitted within the source container. NCB.

**source material.** In atomic energy law, any material, except special nuclear material, which contains 0.05 percent or more of uranium, thorium, or any combination of the two. L.O.L.

**source-receiver product.** In seismic prospecting, the product of the number of detectors per foot of line times the number of shots fired simultaneously. A.G.I.

**source rock.** The geological formation in which oil, gas, and/or other minerals originate. A.G.I.

**sourdough.** a. Old-fashioned and seasoned prospector. Pryor, 3. b. A miner who has
sour dough

lived in Alaska more than one season.

sour gas. Slang for either natural gas or a gasoline contaminated with odor-causing sulfur compounds. In natural gas the contaminant is usually hydrogen sulfide, which can be removed by passing the gas mixture through carbonate solutions containing special metal or organic activators. In gasoline, the contaminant is usually mercaptans, which are removed in the doctor treatment by ethylene oxide with a phobic catalyst. The improved sour gas or gasoline is known as sweet gas.

souring.

southing. A distance measured southwards.

Southerndown beds. A local series of massive Southead; used in South Wales and forming part of the English. Also called salamander, bear, or shad-rach. Fay.

sowback. The same as hogback or horseback; a kum or drumlin. Fay.

sow block. In forging, a removable block set into the hammer anvil to lessen the wear of the anvil. ASM Gloss.

Sowthistle thimble. A dust-sampling instrument. In this apparatus, a paper thimble, after being dried at 105° C and weighed, is fastened to the tapered end of a ground glass tube, which, in turn, is fitted into a copper holder. When the thimble has been rejected, the sample is retained, and the process is then repeated. Fay.

sour oil; sour gas. Crude oil containing an odor-causing contaminant, usually mercaptans or hydrogen sulfide in varying proportions, which give it an unpleasant smell. Fay.

souring. A process by which the gas or gasoline is denatured by the addition of certain chemicals, which do not have a noticeable odor, to the odor-deadening agent. Fay.

South African. Whole-stone diamonds having outside faces that are smooth, as contrasted with outside faces of a Congo diamond; also applied to diamonds produced in South African mines not having to those found in the Sierra Leone, Congo, Brazil, etc. Long. South African jade. Same as garnet jade.

Southern Down beds. A series of massive and in part conglomeratic limestones found in South Wales and forming part of the Lower Carboniferous. It is composed of coal and lenses of Carboniferous limestone lying through the Liasic sea; C.T.D. southerly. The direction in which the wind blows. Fay. southerly drift. See drift. Fay.

southerlandite. A hydrous phosphate, (Mg,Fe)O(SiO3)2OH, a green, fibrous monoclinic, (7) a, an alteration product of sericellite from Divino, Brazil. Spencer, 18. M.M. soviet. A standard 22 carat gold, containing 91.7 percent gold and 8.3 percent copper. Osborn.


sow. a. Mold of larger size than a pig.
spall

thus broken are called spalls. Also spelled spallier. Eng. A pickman; a workman. M. An instrument for breaking off small flat pieces of rock, formerly by means of fire setting. Rock under excessive tension may also spall, that is, throw off its surface slabs.

Sandston. b. Breaking off of rock, mineral, or metal from its surface. Hard breaking of ore values away from gangue. Chipming to shape of masonry. Pp. 344, 346. c. The cracking of a refractory product or in severed cases, the breaking away of individuals or faces. The principal causes are: thermal shock, crystalline inversion, a steep temperature gradient, slag adhesion at the working face with a consequent change in properties, or pinching due to inadequate expansion allowance. See also holpate spalling test; patent spalling test. Dudd. d. The chipping of vitreous enamelware in consequence of internal stress. Dudd.

spalling of refractories. The cracking or rupturing of a refractory unit, which usually results in the detachment of a portion of the unit. A. See also structural spalling; thermal spalling.


spall. A slaty, whitish mineral, used as a flux for metals.

spall. a. The horizontal distance between the sides supports or solid abutments along sides of a roadway. See also abutment; chipming to shape of masonry. Pp. 344, 346. b. The horizontal distance between the supports of a bridge, arch, beam, or similar structural member. See also effective span. Har.

spandrel. A wedge-shaped segment of a segment. Pp. 80, 82. See also segmental arch, beam, or similar structural member.


spangle. A slaty, whitish mineral, used as a flux for metals.


spange. A term formerly used for fine purple amethyst of unknown origin, marketed through Spain.

spangle. a. A tube of tale or soapstone from Aragon, Spain. Fay.

spangle. See from Spain, especially that of the Basque tops. Har.

spangle. Emerald, Emerald of the finest quality (presumably from South America).

spangle. See from Spain, especially that of the Basque tops. Har.


spangle. A lath; a chip. Fay.


spangle. a. Fired clay roof tile that, in section, is a segment of a circle; the tile tapers along its length so that the lower end of one tile will fit over the upper end of the tile below. Compare Italian tiles. Dudd.

Spanish topaz. A trade name for orange-brown quartz, the color resembling that of the topazin topaz. It is often an amethyst which has been heat-treated. C.T.D. Also called false topaz. See also sintered spars.

span. a. Expressed almost, almost any transparent or translucent, readily cleavable, crystalline mineral having a vitreous lustre, as calcaspars, fluoraspars, feldspar, heavy spar, etc. Fay. b. A Cornish name for quartz. Fay. c. Applied locally by miners to small clay veins found in coal teams. A.G.I.

spare. a. A nonmetallic tin ore occurring in small granules. Osb.

spare. a. Tin ore in granges. Osb.

spark plug. A rich mix of port, and cement. Webster 3d.

spark plug. A rich mix of port, and cement. Webster 3d.

sparker. A geological research device which usually consists of numerous electrically charged metal plates mounted in a parallel array, the spaces between the plates being occupied by inert gas. Ionizing radiation causes sparks to jump between the plates along its path through the bubble chamber; cloud chamber, LBL.

spark. A method of rendering a block of stone by holding a sample on a grinding wheel and producing sparks. An experienced opera-

tor can detect differences in carbon content of steel of 0.05 percent in the range up to 0.35 percent and 0.10 percent in the range from 0.35 to 0.60 percent. Har. standoff. A. Uniform upper Paleocene. A.G.I.

spare-ground. Pecked, See stippled. Dudd.

sparry. Resembling, consisting of, of boundstone. Fay.

sparry coal. Scotch. Coal, the backs or joints of which are filled with calcite. Fay.

sparry iron. Siderite or chalcopyrite. Webster 3d.

sparry iron ore. Siderite. Har.

sparry iron ore. A lode filled with spar, for example, fluoraspars, calcspar, or heavy spar. Fay.

sparry vitrain. A field term to denote, in accordance with an arbitrary scale established for use in describing banded coal, a frequency of occurrence of vitrain bands comprising less than 15 percent of the total coal layer. Compare abundant vitrain; dominant vitrain; modern vitrain. Fay.

sparry vitrain. A field term to denote, in accordance with an arbitrary scale established for use in describing banded coal, a frequency of occurrence of vitrain bands comprising less than 15 percent of the total coal layer. Compare abundant vitrain; dominant vitrain; modern vitrain. Fay.

spassite. A Cornish name for garnets. Fay. b. See also struc-

ture. Fay.

spastic. A. An old name for zincite. C.M.D.

spatial. Applied to notionally deformed ooliths. Pettijohn, 2d, 1957, p. 97. C.M.D.

spatial. A variety of calcite containing some manganese. Fay.

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spatial. A variety of calcite containing some manganese. Fay. See also spatial iron. A. Name given to zincite. C.M.D.
spatula. A long, narrow instrument of metal.

spatting machine. A machine for spattling.


special. See speL;1a1 rounds. Long.

spear wedge. Aust. A long wooden wedge used for entering iron tubbing and which helps to pack up the space between the tubbing and the rock. Also called spare.

spear plates. Eng. Wrought-iron plates bolted to the sides of spears where joined together.

spear points. A marcasite in twin crystals resembling the head of a spear. Webster 3d.

speard. Aust. A long wooden wedge used for entering iron tubbing and which helps to pack up the space between the tubbing and the rock. Also called spare.

spear. See special rounds. Long.


special dynamite. Brand name applied to a series of ammonia-type dynamites. They are more economical, less flammable, and relatively safer than nitroglycerin dynamites. Used in open-pit mining, in quarrying, in construction projects, and in general blasting. CCD 6d, 1961.

special flexible rope. A wire rope composed of 6 strands of 37 wires each. Lewis, p. 40.

special gelatin. Brand name applied to a series of an ammonia-gelatin-type dynamites. Used in open-pit mining, in underground mining, in quarrying, and in construction projects. CCD 6d, 1961.

special hydrated lime. See Type 8 hydrated lime.

special improved plow. Wire with a tensile strength of 110 to 120 tons per square inch (175 to 190 kilograms per square millimeter). Ham.

special improved plow. Steel with a tensile strength of 90 to 100 tons per square inch (130 to 145 kilograms per square millimeter). A.G.T.

special nuclear material. In atomic energy, it includes plutonium, uranium 233, uranium containing more than the natural proportion of uranium 235 (or more than 0.72 percent of uranium 235), or any material artificially enriched by any of these substances. I.S.F.: Handbook of Chemistry and Physics, 45th ed., 1964, p. B-143.

special oxides. See oxide ceramics. Dodd.

special place. Aust. A place where coal cannot be won so easily as in ordinary working places; for example, development work, headings, etc. Fay.

special purpose sampling. The American Society for Testing and Materials divides coal sampling into "commercial sampling" and "special purpose sampling." Special purpose sampling procedures apply when special accuracies are required, and four to nine times the number of increments required in the commercial procedures reduce the expected limits of error of the gross sample by one-half to one-third. Compare commercial sampling. Mitchell, p. 81.

special purpose tile. A tile, either glazed or unglazed, made to meet or to have specific physical or ornamental characteristics, such as size, thickness, shape, color, or decoration; keys or lugs on backs or sides; special resistance to staining, frost, alkalies, acids, thermal shock, physical impact, high coefficient of friction, or electrical properties. ASTM C242-60T.

special rounds. Spears used to designate a very high quality or grade of drill diamonds. Long.

special shapes. Refractories molded into shapes, the size and contour of which differ from the series of standard shapes. ASTM C242-60T.


special steel. A steel containing alloys which provide special properties such as resistance to corrosion or to heavy load. Also called alloy steel. Hartman, p. 8.

special species. All organisms, of either animal or vegetable kingdom, which possess in common, a set of constant characteristics and the whole of which form a distinct and well-defined type would constitute a species. See also genus. Nelson.

specific adsorption. Selective adsorbing action. Pryor, 3d.

specific absorption. A detailed study: ment of particular. Crispin.

specific demagnetization. A measure of the vibrational energy absorbed by the rock and may be considered to be a measure of the internal friction. It is determined by the sharpness of resonance which is evident when a specimen is vibrated through a range of frequencies centered on the fundamental longitudinal resonant frequency. Damping of the dry type (coulomb damping) is commonly assumed to be independent of the velocity, and this is independent of the frequency, and is some- what insensitive to moisture content. Lewis, pp. 516-570.

specific energy. In cutting or grinding, the energy expended or work done in solidifying a unit volume of work material, usually expressed as inch-pound per cubic inch or horsepower per minute per cubic inch. ASM Gloss.

specific extraction of rock broken. Quantity of broken rock (ore) in volume or weight per foot drilled or fired per pound of explosive (cubic yard per pound, ton per pound; or, cubic yard per foot drilled, ton per foot drilled. Frantell.

specific gravity. The weight of a substance compared with the weight of an equal volume of pure water at 4° C. Anderson. b. The ratio between the weight of a unit volume of a substance and that of some other substance which is considered as the standard conditions of temperature and pressure. For solids and liquids, the specific gravity is based upon the volume at the standard, the true specific gravity of a body is based on the volume of solid material, excluding all pores. The bulk or volume specific gravity is based upon the volume of a whole, that is, the solid material with all included pores. The apparent specific gravity, bulk specific gravity (specific mass gravity), c. Ratio of densities of a gas and air. Measured on dry air = 1. Hartman, p. 8. In oceanography, the specific gravity is considered numerically equal to the density. Hartman.

specific gravity hydraulic meter. A hydrometer indicating the specific gravity or relation of the weight of a given liquid per unit volume to the weight of the same volume of water. Compare hydrometer; Marsh funnel; Twaddell hydrometer. Long.

specific gravity of solid. This is measured in a calibrated glass bottle with special precautions against the inclusion of air. Such test is applied in many soil problem computations. See also pyrometer. Hart.

specific gravity of solids. The ratio of the weight in air of a given volume of soil solids at a stated temperature to the weight in air of an equal volume of distilled water at a stated temperature. ASCE P1826.

specific heat. a. Heat required to raise the temperature of a unit weight of air 1° F. Usually, the specific heat at constant pressure is used in air conditioning. Measured in British thermal units per pound per degree F. Hartman, p. 8. For ordinary concrete and steel it is 0.22 and 0.12 British thermal unit per pound per degree F., respectively. Taylor. b. The ratio of the amount of heat required to raise a unit weight of a material 1 degree to the amount of heat required to raise a unit weight of water 1 degree. Brantlly, 2d, c. The heat in calories required to raise the temperature of 1 gram of a substance 1° C., Webster 3d.

specific humidity. The mass of moisture per unit mass of dry air, expressed in gram per liter. Lewis, p. 127. Absolute humidity, or weight of water vapor contained per unit weight of
specific humidity
c'ry air. Measured in grams, or pound per pound. Hartman, p. 8.
specific permeability. The permeability measured by the ratio of the flow of a fluid through a porous medium to the force by which it is opposed. Institute of Petroleum, 1961, p. 20.
specific population. Number of particles in unit volume of pulp. Pryor, 4.
specific power. a. The power generated in a nuclear reactor per unit mass of fuel. Expressed in kilowatts of heat per kilogram of fuel, LBL. b. The same as unit power. ASM Gloss.
specific resistance. Same as resistivity. Wyllie, p. 2.
specific retention. As applied to a rock or soil, the ratio of the volume of water which, after being saturated, it will retain against the pull of gravity to its own volume. It is stated as a percentage. AGI.
specific speed. a. A factor by which the performance of any particular design of impeller for a centrifugal pump or water turbine can be computed. It is the speed in revolutions per minute at which a geometrically similar impeller of suitable diameter will be able to deliver one gallon per minute at one foot head in the case of a pump. In a water turbine, the specific speed is that at which a geometrically similar runner of suitable diameter will turn to develop one horsepower under a head of one foot. Ham. b. The speed in revolutions per minute at which a geometrically similar pump would deliver one gallon of water per minute against a head of one foot. Steven, 4, p. 67.

specific surface. a. The surface area per unit of volume of soil particles. ASCE P1626.

b. The ratio of the total surface of a substance (as an adsorbent) to its volume; surface area (as of a finely divided powder) per unit mass. Webster 3d.
specific surface area. The ratio between the total surface area of a number of particles and their total weight, usually expressed in square centimeters per gram. Taylor.
specific-volume anomaly. The difference in specific volumes of the sample under the conditions which prevailed in situ and the conditions if at salinity 35°/00 and temperature 0° C. Hy.
specific weight of sediment. The dry weight per unit volume of the sediment in place. See also dry density. Nelson.
specific yield. As applied to a rock or soil, the ratio of the volume of water which, after being saturated, will yield by gravity to its own volume. This ratio is stated as a percentage. Nash.
spezifische Dimensionen. Die Dimensionen zu dem denen die masonry units or constructions are required to conform. Actual (measured) dimensions may differ from the specified dimensions by permissible variations. ASM Gloss.
spezimen. a. A small mass of coal, rock, ore, mineral, or soil, which, given, roughly, an ideal shape, is used to determine density. L & L. b. The same as specimen hunting. Another name for high grading (the theft or handsome minerals, particularly the specimen, which masonry units or constructions are required to conform. Actual (measured) dimensions may differ from the specified dimensions by permissible variations. ASM Gloss.

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case of ore in particular, the specimen should admit of the identification of the various minerals present. A specimen cannot be virtually identical with the sample. Nelson, b.

Properly speaking, a sample of anything; but among miners it is often restricted to selected fragments, as fine pieces of ore, crystals, or pieces of quartz containing visible gold. Fay, c. A lump of gold intermixed with quartz or very rich in gold. Gard. c.
speclmen boss. An employee whose duty is to watch carefully, in all parts of the mine, for the appearance of high-grade mineral, and when it is likely that such spots will be opened up he should be the first man at the face after the blast. His job is to prevent high grading (the theft of valuable samples). Hoo, pp. 494-495.
specimen hunting. Another name for high grading. Hoo, p. 490.
specimen. In mineral dressing, unusually rich pieces of ore or characteristic constituents thereof in coarsely crystalline form—not representative samples. Pryor, 4.
speck. A small piece all of a different color weighing up to 1 or 2 ounces. Gordon.
speckling. a. Walking over the ground on the chance of picking up a lump of gold on the surface. Gordon. b. The discoloration of an enamel surface due to foreign particles of dirt or scale imbedded themselves in the enamel. This trouble may often be avoided by the use of burning equipment in good condition and proper care in the painting operation. Enam. Dict.
speckled ware. A decorative finish with particles of one color appearing in a uniform background of another color or shade. ASM Gloss.
specks, black. In the enameled surface, may be caused by the accidental introduction of foreign particles or by minute bubbling formations in the sheet-iron ground coat during the early stages of firing the first firing. Steven, IV, p. 67.
speckstone. Adapted from speckstein, "bacon stone"; an early name for talc, because it feels greasy. Fay.
speckstone. A two-handled frame for carrying the surface. Gordon. b. The discoloration of an enamel surface due to foreign particles of dirt or scale imbedded themselves in the enamel. This trouble may often be avoided by the use of burning equipment in good condition and proper care in the painting operation. Enam. Dict.
spectrograph. An instrument to detect very small amount of light, such as light of different colors of different chemicals and thus measure the quantity of the chemical present. It consists of a light source, an optical prism for providing monochromatic light, that is, light of a single wavelength only, and a device for measuring the intensity of the light beam after it has passed through the solution. Traces of aluminum in steel may be determined in this way. See also X-ray spectrometer. Newport.
spectrographer. A person who constructs or uses a spectrograph. Webster 3d.
spectroscopy. Instrument in which collimated light is directed through a narrow slit onto either an optical prism or a diffraction grating, exhibiting its spectrum. The elements from which light emanates have characteristic patterns which aid in their identification. Pryor, 3.
spectrum. A band of light showing in order of succession the rainbow colors or isolated bands or colors corresponding to different wavelengths, as seen through a spectrograph or photographed in a spectrograph. Spectroscopy as a science is the study of the visible spectrum or of measuring wavelengths of rays of a spectrum. Webster 3d.
spectrophotometer. An instrument to detect very small amount of light, such as light of different colors of different chemicals and thus measure the quantity of the chemical present. It consists of a light source, an optical prism for providing monochromatic light, that is, light of a single wavelength only, and a device for measuring the intensity of the light beam after it has passed through the solution. Traces of aluminum in steel may be determined in this way. See also X-ray spectrometer. Newport. Also called spectrophotograph. Webster 3d.
spectroscope. Instrument in which collimated light is directed through a narrow slit onto either an optical prism or a diffraction grating, exhibiting its spectrum. The elements from which light emanates have characteristic patterns which aid in their identification. Pryor, 3.
spectrometer. A device for measuring the intensity of the light of a single wavelength only, and a device for providing monochromatic light, that is, light of a single wavelength only, and a device for measuring the intensity of the light beam after it has passed through the solution. Traces of aluminum in steel may be determined in this way. See also X-ray spectrometer. Newport. Also called spectroscope. Webster 3d.
spectroscopic analysis. Analysis by obtaining the spectrum of a substance and matching the lines in the spectrum with known wavelengths of lines in the spectra of the elements. The analyst can be made quantitative by comparing intensities of the spectral lines. AGI.
spectroscopy. a. Qualitative or quantitative analysis by visual or photographic assessment of a spectrum of the substance. In emission spectroscopy, the material is made incandescent in an electric arc; in X-ray work it is bombarded by X-rays and the interference is recorded by a camera, or Geiger-Muller tube. Transmission spectroscopy in sorption spectroscopy the substance is dissolved and the effect on a beam of visible or ultraviolet light is measured by use of a photodiode cell. Pryor, 3. b. The art or technique of using the spectrograph. Webster 3d.
spectrometer. An optical instrument similar to, but more versatile than, the simple spectroscope. Scales are provided for reading angles. A wavelength spectrometer is one designed or equipped in a manner to measure the wavelengths at which absorption bands occur in an absorption spectrum. Shipley.
spectrometry. The art or process of using the spectrometer or of measuring wavelengths of rays of a spectrum. Webster 3d.
spectrum density

unity gain responding to the oscillation, per unit bandwidth; that is, the limit for vanishingly small bandwidth of the quotient of the mean-square amplitude divided by the bandwidth. Hy.

spectrum intervals. Sometimes used to designate frequency bands separated by intervals either linear or a logarithmic frequency scale. Hy.

spectrum level. With a specified signal at a particular frequency, the level of that part of the signal contained with a band one octave second wide, centered at the particular frequency. Ordinarily this has significance only for a signal having a continuous distribution of components within the frequency range under consideration. The phrase spectrum level cannot be used, but must appear in combination with a modifier, as, for example, pressure, velocity, voltage, etc. Hy.

spectrum pattern. A graph showing the relative response of a sonar transducer as a function of frequency for various specified bearings. Hy.

specular, as, specular iron ore, which is a hard variety of hematite. See also specularite. Fay.

specular coal. Same as pitch coal. Fay.

specular gloss (45°). An operational definition of this property, relevant in the surface evaluation of glazed or enamelled surfaces, is as follows: the ratio of reflected to incident light, times 1,000, for specified apertures of illumination and reception with which the surface of an object in contact with a five percent white card. See also specular; hematite.

specular iron ore. A variety of hematite with brilliant black color and metallic lustre. Fay. 1964.

specular hematite; specular iron; gray hematite. An iron oxide, Fe3O4, occurring in tabular or disseminated crystals of gray color and splendid metallic lustre. Contains 70 percent iron. Also called micaceous hematite if occurring in foliated or micaceous masses. See also hematite. Spergerite.

specular reflection. Reflection of light from the surface only, as distinguished from reflection of light from positions below the surface. Shipley.

specular schist. See iritibrite. Fay.


speculation. The outlay of money in an enterprise offering the hope of high reward in return for the incurring of high risk. Hoop, p. 322.

speculum alloy. Copper and tin alloyed in a 2:1 proportion, forming a hard, silvery metal capable of being highly polished; used in manufacture of mirrors, optical instruments, etc. C.T.D.; Sprag.

specular metal. A hard brittle alloy of two parts copper and one part tin. It takes and retains a high polish and is therefore much used for reflectors. Sprag.

Spedding's flint mill. A means of illumination invented about 1750 in which a steel wheel, in diameter and driven through a gearwheel and pinion pressed on a flint and generated an abundance of sparks and emitted considerable light. The mill was carried and operated by a boy accompanying each miner. Mason, u. i. p. 231.

sped. a. Corn. A quick, but wasteful way of dressing, or other coarse cleaning of copper ore, by an iron grate in a swift current of water. Fay. b. The length of belt, chain, cable, or other linkage which passes a fixed point within a given time. It is usually expressed in terms of feet per minute. In the case of the rolling chain conveyor, the load is moved at a rate double the chain speed. In screw conveyors, the speed is expressed in terms of revolutions per minute and the speed at which the material is conveyed is dependent upon speed, pitch of the screw, type of flight, angle of inclination, nature of material, etc. ASA MH4!-1958.

speed of travel. In welding, the speed with which a weld is made along its longitudinal axis; is usually measured in inches per minute or spots per minute. ASM Gloss.

speed reducer. A device for gears, totally enclosed by a motor and the machinery which it will drive, to reduce the speed of the shaft, with which power is transmitted. Belt and chain conveyors are typical examples of machinery employing speed reducers. Spence automatic desulfurizer. An improved type of de-sulfurizing equipment for removing sulfur without burning copper and one part tin. It takes and retains a high polish and is therefore much used for reflectors. C.T.D.

speedy moisture tester. A calcium carbonate method for the quick determination of moisture. A moisture gage calibrated to give direct values of moisture content percent of soil samples. Nelson.

spell. a. A rest period for crews at furnace, reverberatory type, or a period of work in stock house, etc. Fay. b. The length of belt, chain, cable, or other linkage which passes a fixed point within a given time. It is usually expressed in terms of feet per minute. In the case of the rolling chain conveyor, the load is moved at a rate double the chain speed. In screw conveyors, the speed is expressed in terms of revolutions per minute and the speed at which the material is conveyed is dependent upon speed, pitch of the screw, type of flight, angle of inclination, nature of material, etc. ASA MH4i-1958.

spence. a. A white basic hydrous phosphate of zinc, ZnO(2OH)2Zn(OH)2.3H2O. Radiating masses of compact lamellar monoclinic crystals. From Salmo, British Columbia, Canada. English. b. Carbide and sill-idge of Fe and Ni; FeNi. OCT. Arti- ficially produced in 1955.

Spence shale. A subdivision of the Middle Cambrian at Mount Stephen in the Canadian Rockies, famous for its remarkable fossils. C.T.D.


spend. a. To break ground; to continue working. Fay. b. To exhaust by mining; to dig out; used in the phrase, to spend ground. Standard, 1964.


spent fuel; depleted fuel. Nuclear-reactor fuel that has been irradiated to the extent that it can no longer effectively sustain a chain reaction. Fuel becomes spent when its fissionable isotopes have been partially consumed and fissile and fission products have accumulated in it. LBL.

spent shot. A blasthole that has been fired, but has not done its work. Fay.


Spergen limestone. See Salem limestone. C.T.D.

sperrylite. A porous variety of leucitite containing small crystals of melanite. Holmer, 1929.

Sperrylite. A tin-white mineral, PtAs, black streak; metallic lustre. Of very rare occurrence but of interest as the only native compound of platinum. Contains 32.57 percent platinum; 43.5 percent arsenic, with some replacement of platinum by rhodium and palladium. Specific gravity, 10; Mohs' hardness, 6 to 7. Found in Wyoming, North Carolina, Nebraska; Canada. C.D.; 6d, 1961.

sperrylite. A process for manufacturing white lead which begins with softened and desolvized lead, preferably containing some bismuth, cast in the form of anodes. These anodes are placed in the Sperry white-lead cells. Direct current is used to dissolve the lead from the anodes, with diaphragms separating the anolyte and the catholyte. Carbon dioxide is passed into the solution, white lead (basic lead carbonate) is produced, and no cathode deposit is formed. The impurities in the anodes remain on the anodes as a slime blanket. If the slime blanket falls off, the impurities will contaminate the white lead; on the other hand, if the slime blanket is allowed to become too thick, the electromagnetic force across the blanket will increase to a magnitude other than lead from the face of the blanket. The Sperry process slimes is washed, dried, and milled to the bismuth refinery. BuMines Bull. 556, 1956, p. 106.

sperrylite. See sperrerlite. Fay.


specular. a. Manganite, garnet, MnAl2(SiO4)2.C.T.D.; Dana 17. b. A diorite or gabbro; a gabbro. Some gabbroic min-erals are hornblende or augite or both, with plagioclase (usually anodesine) field-
sphalerite; zinc blende; blende; black jack.

sphagnum peat. Peat composed mainly of

sp gr Abbreviation for specific gravity. BuMin

spew. The cauliflowerlike blowout or outcrop

of a lode that extends beyond the limits of the defined vein deeper down. Fay.

spewing. An exudation of soft material through gravelly or broken stuff bedded on

mud, soft wet clay, or the like. Webster 2d.


sphagnum peat. Peat composed mainly of


sphalnite. Zinc blende; blende; black jack.

Zinc sulfide, ZnS, cubic crystal, black to brown in color, resinous. Mohs' hardness 3.5 to 4.0, streak white to mid-brown, specific gravity 3.9 to 4.2. Pryor, 3.

sphene. CaSiO₃TiO; melting point 2,425°C. This mineral usually has been found in the ceramic color known as chrome-tie pink. See also chrome-tie pink.


sphenoïd. a. In crystallography, an open form in the monoclinic system, consisting of two modified paralleloids with interaxial angle of 90° and one other only by a twofold symmetry axis perpendicular to their line of inter-

section and bisecting the spherical angles between them. Compare dome. A.G.I. b.

A diaphenoid. A.G.I.

sphenoïlite. A term invented to distinguish the special form and relations of intrusion at Las Parroquias, Mex. A rock mass of the injected class, partly concordant with a thick sill, and partly discordant. The country rocks have been displaced and even overturned. Fay.

Sphenoëtes. A fernlike tree of the coal for-

mating at a point, source, such as a shot

of a semicircle about its diameter. Pryor, 3.

spherite. a. The preferred spelling for sphaer-

ite. b. Derived from the Greek spherikos, spherical.

sphered. a. A spindle-shaped crystallite be-

longing to the sphalerite group. B. A.G.I. Supp.

spheredal. a. A descriptive term applied to igneous rocks that break up on cooling into spherical masses analogous to basaltic columns; also, used as a synonym for orbicular, as applied to certain gran-

ites. Fay. b. A weathered mass of any rock which are mounted felt polishing pads. ASTM C286-65. 1. Sometimes used as a trademark for rocks used exclusively for rock polishing. Fay. 2. See also spider and slips. Long. d. A contrivance consisting of a frame or skeleton having radiating arms or members, as a casting forming the hub and spoke to which the rim of a wheel or pulley is secured. See also spider web. Fay. e. A wheelless casting consisting of a rim and radial spokes on which are mounted felt polishing pads. ASTM C162-66. g. Assembly of radiating tie rods on the top of a furnace. ASTM C162-66. h. A defect characterized by a star-shaped fracture pattern that eman-

ates from a central area, usually on the surface of the pipes. ASTM C286-65. i. Sometimes used as an alternative to center brick. See also center brick. Fay. j. See also spider web. Long. k. A pipe which rotates on its shaft in a rotat-

ing case. Nichols.

spheroidal. a. A spindle-shaped crystallite be-

longing to the sphalerite group. B. A.G.I. Supp.

spheron. a. In geology, a term applied to sphalerite rock in the form of smooth, compact masses that are long and more or less cylindrical in shape. B. B. A.G.I.

spheronic. a. A term derived from the Greek for spherical, as applied to various minerals and rock masses that have a spherical form. B. A.G.I.

spheroïd. A homogeneous sphalerite formed of minute crystals branching outward from a center. Standard, 1964, see also sphalerite. Fay.

spheroïd. A homogeneous sphalerite formed of minute crystals branching outward from a center. Standard, 1964, see also sphalerite. Fay.

spheroid. In geology, a term applied to a mass of spheroidal particles. In general, any figure differinu but not much from a sphere. In geodesy, a mathematical figure

spheroid. In general, any figure differing but

little from a sphere. In geodesy, a mathemat-

ical figure closely approximating the geoid in form and size, and used as a surface of reference for geodetic surveys. A.G.I.

spheroidal. a. A descriptive term applied to igneous rocks that break up on cooling into spherical masses analogous to basaltic columns; also, used as a synonym for orbicular, as applied to certain gran-

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spheroid. A homogeneous sphalerite formed of minute crystals branching outward from a center. Standard, 1964, see also sphalerite. Fay.
sandstone beds that show crossbedding on a small scale, which is complicated by intricate interfacing of fine-bedding planes. Frequently seen in sawed stone, especially where the cross-bedding is slightly oblique or irregular. It is very like the grain of wood that shows in a planed board. Fay.

spigot. a. A large timber driven into the ground to support the roof or sides in advancing a tunnel. L&L. b. A bye channel. C.T.D. c. Release over a dam or similar obstruction. Webster 3d.

dspline. a. An isometric crystal, typically magnesium aluminate, MgAlO$_3$. The magnesium is usually replaced by ferrous iron, or manganese, and the aluminum by ferric iron and chromium. Spinell is red, yellow, or grey, with a mixture of these colors, and is used as a gem. Fay; Dana 17 b. A mineral group of general formula, AB$_2$O$_3$. They occur typically as products of contact metamorphism of impure dolomite limestones, and less commonly, as accessory minerals in impure rocks of basic composition. A.G.I.

spinning. To rotate the bit or drill stem or to make a turn to advance the attached drill string. Long. b. The number of times the drive rod of a gear-feed drill head must turn to advance the attached drill string 1 inch. Long.

spiral. A mass of igneous rock solidified in the vent of a volcanic vent. Fay.

spinel. a. An isometric mineral, typically magnesium aluminate, MgAl$_2$O$_4$. The magnesium is usually replaced by ferrous iron, or manganese, and the aluminum by ferric iron and chromium. Spinell is red, yellow, or grey, with a mixture of these colors, and is used as a gem. Fay; Dana 17 b. A mineral group of general formula, AB$_2$O$_3$. They occur typically as products of contact metamorphism of impure dolomite limestones, and less commonly, as accessory minerals in impure rocks of basic composition. A.G.I.

spindle emery. A mixture of spinel (pleonaste hycrite), corundum, and magnetite, the corundum being present in variable proportions and sometimes entirely lacking. It is usually a heavy, black, fine-grained aggregate with dark grey crystals of corundum appearing in the best varieties. A.I.M.E., p. 7.

splinter. In the asbestos products industry, a chain-end conveyor in which the chains pins are extended in a vertical plane, usually of enlarged diameter in that portion above the chain on which special revolvable fixtures can be rotated, for the purpose of spraying or cementing road boards or sliding shoes to support the chain and product. A.S. of MIH4-1938.

spindle breaker. Old name for gyration crusher. Fryer, 3.

spindle speed. a. Same as bit rotational speed. Long. b. The number of times the drive rod of a gear-feed drill head must turn to advance the attached drill string 1 inch. Long.


spillway. a. A passage, as a paved apron or channel, for surplus water over or around a dam or similar obstruction. Webster 3d. b. A bye channel. C.T.D. c. Release overflow for water impounded in a dam. Pryor, 3.

dispel. a. A large timber driven through weak, loose beds. See also dispel. Pryor, 3. b. Any of the thick laths or poles driven ahead of the main timbering to support the roof or sides in advancing a level in loose ground, or to support the sides of a shaft when sinking through a stratum of loose ground. Fay. c. The tapered male part of an inlet joint. Fay. d. The tapered male part of an inlet joint. Fay. e. The tapered male part of an inlet joint. Fay.

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spill. a. Any of the thick laths or poles driven ahead of the main timbering to support the roof or sides in advancing a level in loose ground, or to support the sides of a shaft when sinking through a stratum of loose ground. Fay. c. The tapered male part of an inlet joint. Fay. d. The tapered male part of an inlet joint. Fay. e. The tapered male part of an inlet joint. Fay.

spin. To rotate the bit or drill stem or to make a turn to advance the attached drill string. Long.
spinning

spinning. An operation by which round hollow wire-ware is formed by pressing metal sheets or light plates to molds or forms rectangular in shape. The process is also being called a spinning lathe. See also metal-working. Henderson.

spinning cable. A flexible wire or planter fiber cable or rope used as a spinning chain. See also spinning chain. Long.

spinning fiber. Abbein suits suitable for the spinning of abetos fabrics. A.G.I.

spinning line. a. A chain or rope used as a wrench in attaching and detaching drill pipe sections. Nichols. b. A line wound around a threaded pipe, so that a pull will rotate the pipe to fasten or unfasten it. Long.

spinning rope. A plant-fiber rope used for the same purpose as a spinning chain. See also spinning chain. Long.

spin out. To unscrew lengths of drill rod, casing, or pipe in attaching and detaching drill sections. Nichols.

spin up. To screw lengths of drill rod, casing, or pipe by mechanical means, using a spinning chain, cable, or rope in conjunction with power derived from the cathead or other rotating device. Long.

S-P interval. In earthquake seismology, the time interval between the first arrivals of longitudinal and transverse waves, which is a measure of the distance from the earthquake source. A.G.I.

spinahtarposcope. Screen coated with zinc sulfide or other fluorescent substance, on which scintillations are observable when exposed to the sun, burns; and that the same purpose as a spinning chain. See also spinning chain. Long.

spin out. To unscrew lengths of drill rod, casing, or pipe by mechanical means, using a spinning chain, cable, or rope in conjunction with power derived from the cathead or other rotating device. Long.

spin out. To unscrew lengths of drill rod, casing, or pipe by mechanical means, using a spinning chain, cable, or rope in conjunction with power derived from the cathead or other rotating device. Long.

spiral. a. A spiral coal chute that mechanically crushes ores. Also used in concentrating crushed ores. From chrome sands, rutile, ilmenite, chrome mica, and lepidolite from crushed ores. Also used in concentrating such ores. A.G.I.

spiral. One of the minute cones formed on the surface of a liquid lava stream by the action of the current. Tomkeieff, 1954.

spiral balls. A device to withdraw broken coal from small-size coal by centrifugal force aids the separating effect of sluice action. See also Humphreys spiral. Pryor, 3.

spiral breaker. Spiral chutes, built into large steel pipes, are used widely in staple shafts in horizon mining. They are kept filled with coal and therefore, breakage is reduced considerably. See also telegraph. Nelson. b. A continuous curved trough over which bulk material or objects are guided while being lowered by gravity in a substantially helical path. A.S.A.

spiral classifier. See Akins classifier. Pryor, 3.


spiral coal cleaner. A spiral chute in which the plate is inclined towards the center of the spiral. The stone tends to flow down centrally, the coal tends to slide off to the side. The spiral are seldom used as coal cleaners. Nelson.

spiral concentrator. A classifier, consisting of five or six tight spirals, in which centrifugal force aids the separating effect of sluice action. See also Humphreys spiral. Pryor, 3.

spiral conveyor. See roller spiral; screw conveyor, a. Also called bocca. Long.

spiral core. A piece of core the outside surface of which is rifled. See also rifle, a. Long.

spiral curve. A grade of gradually increasing radius which allows an easy transition between a circular arc and a straight on a road or railway. Ham. b. In railroad or highway surveying, a curve of progressively decreasing (or increasing) radius used in joining a tangent with a simple circular curve or in joining two circular curves of different radius. Also called transition curve. Seeley, 2.

spiral drum. A kind of conical winding drum. Fay.

spiral groove. See rifling, c and d. Long.

spiral gunner. A screw device, attached to a long escalator, for removing the bolting and deposit there either in the track of the machine or at the side clear of the face. It is designed in two types, that is, end discharge and side discharge. See also gun stower. Nelson.

spiral hole. A borehole that follows a cork-screw like course. Compare rifle, a. Long.


spiral magma. One who operates a battery of spirals (mechanical devices that separate slate from small-size coal by centrifugal force); and regulates spirals so that they too much small lack (fine coal) does not go in refuse. D.T.

spiral structure. Probably same as snow-ball structure. Term also applied to organic burrows. See also snow-ball structure.

spiral tunnel. A method of gaining grades in a tunnel by driving the tunnel on a constant and circular line. Stauffer.

spiral Vane Disk Cutter. Trade name for a cutter loader incorporating a new type of striker head. The first model consists of section plates welded together to form a composite whole spiral. The disk is made in different sizes to give a cist diameter of from 31 to 72 inches with a maximum web depth of 30 inches. A single spiral is used for the softer coals and a double spiral for hard coals. A plough attached to the machine throws the coal onto the conveyor. Nelson.

spiral worm. A device to withdraw broken rods from a borehole. It is lowered down the hole and the screw turned round until it grips the broken rod below the joint. See also crow's foot; screw ball. Nelson.

spirals. a. The tube carrying the train to the charge in a blasthole. Also called bell or rush, because the train is formed slowly as spires of charge are used for the purpose. A kind of fuse. Fay. b. Leic. Coal of a hard, dull, starchy nature, and difficult to break. Fay. Spherolite smoke helmet. A helmet in which the crown and frontpiece are blocked out of rawhide, and the front shield is fitted with two mica windows in hinged aluminum frames. It has a twin-tubed air feed on each side of the helmet and a valve for the escape of carbonic acid. Air is supplied through armored hose from a double-acting bellows or blower worked by a lever. The hose, which contains fluid and an air bubble. When level the air bubble centers itself on an etched line, on the tube. Bureau of Mines Staff.

spirit of copper. Acetic acid obtain by distilling copper acetate. Fay.

spirits of heart's blood. An aqueous solution of ammonia, the name being derived from the old method of obtaining ammonia by heating the hoofs and horns of animals. Osborne.


spirits of verdigris. Acetic acid. Osborne.

spirits of vinegar. Dilute acetic acid. Osborne.


spirits of wood. Methyl alcohol. Osborne.


spirogyna. A genus of freshwater green algae (family Zygnemataceae) which manes in still waters and slow streams. Sonoran, Mexico; monoscopic. Hey, M.M., 1964; Fleischer.

spiroklysm. A genus of fresh water green algae (family Zygnemataceae) which manes in still waters and slow streams. Sonoran, Mexico; monoscopic. Hey, M.M., 1964; Fleischer.

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**spit**


**spitfouf.** A glaze defect of the pinhole type developed in the decorating kiln, due to evolution of minute gas bubbles from body or glaze. *A.S.T.M. C242-60T.* b. A defect in the surface of a piece of ceramic ware caused either by the breaking of a blister in the glaze or by the breaking out of a part of the surface of the clay. *A.G.I.*

**spitted fuse; lighted fuse.** Slow-burning fuse which has been cut open at the lighting end for easier ignition. A small quantity of the plastic explosive used in the hole is sometimes inserted in the cut. *Fytor, 3.*

**spitting.** a. Lighting the fuse for a blast. *Fay.* b. An action or appearance on the surface of slowly cooled, large masses of melted silver or platinum, in which the crust is forcibly perforated by jets of oxygen, often carrying with them drops of molten metal. *Standard, 1964.* Also called spitting rock. *A.G.I.*


**splitzasten.** A series of hopper-shaped or peaked boxes for separating mineral-bearing slimes according to fineness, in which the width of each box is double that of its predecessor, while the lengths increase by arithmetical progression. *As used in flotation, it is the froth-separating compartment of mechanical-agitation-type flotation machines.* Also called spits. See also funnel box. *Fay.*

**splitzisten.** Hydraulic classifiers shaped like the splitzasten, but having provision for pressure water to flow upward from near the apex, thus improving efficiency of separation. *Fytor, 3.*


**splash cup.** A cup at the top of some stalagmite or splate hanging from the ceiling. *BuMines Bull. 587, 1960, p. 2.*

**splitzkaften.** A series of hopper-shaped or peaked boxes for separating mineral-bearing slimes according to fineness, in which the width of each box is double that of its predecessor, while the lengths increase by arithmetical progression. *As used in flotation, it is the froth-separating compartment of mechanical-agitation-type flotation machines.* Also called spits. See also funnel box. *Fay.*

**splashletten.** Hydraulic classifiers shaped like the splitzasten, but having provision for pressure water to flow upward from near the apex, thus improving efficiency of separation. *Fytor, 3.*

**splashman.** A laborer who shovels charcoal over the surface of molten copper being poured from a reverberatory furnace into a tilting ladle to prevent excess oxidation of metal. *D.O.T.1.*

**splash stalagmite.** A stalagmite having whorls of upstanding petaline protruberances in many stories. *Schaferdecker.*

**splash zone.** The area which undergoes the splashing effect of the breakers. *Schaferdecker.*

**spray.** a. Spread; said of arches whose straight or bent apex, thus improving efficiency of separation. *Fytor, 3.*

**spay.** a. Spread; said of arches whose straight or bent apex, thus improving efficiency of separation. *Fytor, 3.*

**splay, splay.** a. Spread; said of arches whose straight or bent apex, thus improving efficiency of separation. *Fytor, 3.*

**splay.** a. Spread; said of arches whose straight or bent apex, thus improving efficiency of separation. *Fytor, 3.*

**spleen-dent.** Applied to the degree of luster of a mineral, reflecting with brilliancy and giving well-defined images, as hematite or some other ore. *A.G.I.*

**spleen.** A variety of bituminous coal that ignites with difficulty owing to its slaty structure, but makes a clear, hot fire. *A.G.I.*

**spleen.** a. A joint made in a broken haulage rope. It is a skilled job and the rope ends are unaided for a length on each side of the break and reformed to a definite pattern. In British coal mines, a splice is not allowed on a winding rope. *Nelson.* b. Generally used to designate an insulated connection of wires of an electric cable after it has been cut. *B.C.I.* c. To unite two ropes by interweaving the strands. *Bureau of Mines Staff.* d. A joint made by splicing. *Bureau of Mines Staff.*

**splice bar.** See fishplate. *Ham.*

**splice box.** An enclosed connector permitting short sections of cable to be connected together to obtain a portable cable of the required length. *A.S.A. C428;1936.*

**spliced.** Applied to sections they punch them out and are overapped at that point by another parallel one. *Fay.*

**splicer.** a. A group of men assigned to a shift or inside a whole pulley which allows axial sliding but not rotation. *Macon.*

**splitz coal.** A miner’s term long used in Eastern United States for certain hard dull coals with a distinctive type of fracture. Splitz coals are irregular and black just like unweathered rough fracture, grayish black in color and of granular texture. Splitz coals are band coals. Coals containing more than 5 percent of anthranxylon and more than 30 percent of opaque attirnute determined by microscopic examination are classed as splitz coal. The content of anthranxylon and opague matter is determined perpendicularly to the bedding. *Bernewitz.*

**spilitery fracture.** Breakage which produces elongated splinterlike fragments. *Shipley.*

**splitz.** a. A divider for an air current. *C.T.D.* b. To divide the air current into separate circuits to ventilate more than one section of the mine. *B.S. 3618, 1963, sec. 2.* c. Any division or branch of the ventilating current. *Fay.* d. The workings ventilated by that branch. *Fay.* e. A current of air which has been separated from the main intake to ventilate a district in a mine. The proportion of air allowed in a split varies directly with the size of the district and the number of men working in it. *Nicol.* f. A breakpage separated by a considerable interval from the other branches of a coal bed. *Fay.* g. To divide a pillar or post by deviating them one or more roads. *Fay.* h. A layer of coal which has separated from its parent seam. Seam splitting is often detrimental as it may develop a new faulting which diverges from a longer dilatation at an acute angle. *Schaferdecker.*

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split seam. A coal seam that has separated into two or more layers which may, or may not, rejoin some distance away. See also multiple splitting. Nelson.

split shovel. A device for sampling a coal seam that is cut with thin fine ore, consisting of a fork in which the prongs are separate scoops, each scoop being the same width as the open spaces between.

split spread. In seismic prospecting, a partition of diffractors symmetrically disposed on two sides of the shot point, A.G.I.

split sprocket. A two-piece sprocket that can be assembled on a shaft without removing the shaft bearings. Nichols.

split switches. Any form of mine switch using switch points or latches. Kiter, 2, p. 36.

split system. Historically, a system of providing warm air heating and radiating heater. Also used for other combinations, such as hot water steam, steam warm air, etc. Strick, 10.

splitter. One employed in the mica industry whose duty is to separate mica into thin sheets. Fay.

split the air. Same as split b.

split timber. Logs split to form two pieces.

splitting. a. Parting of a coalbed into two or more benches separated by other rocks. A.G.I. b. In mine ventilation, the practice of connecting airways in parallel by dividing the total air flow among them. Hartman, p. 127.


splitting limits. Of a parcel of mineral or metal being sold, agreed limits of difference between purchase values between which buyer and seller will adjust and deal without further external arbitration. Fay.

splitting method. A method of mining pillarary seldom followed at present. A room is first driven from which pillars may be split off into smaller blocks. The pockets are turned at right angles and are driven into the blocks. This method is really a kind of pillaring. Lewis, p. 543.

splitting of air. See ventilation, splitting.

Nelson.

splitting samples. To reduce a bulk sample to a representative sample by quartering or by riffle box. Nelson, 2d, 1962.

splitting, a. Laminite of mica with a maximum thickness of 0.0012 inch split from blocks and thin. Skow. b. Lanc. Two horizontal level headings driven through a pillar, in pillar workings, in order to mine the pillar coal detached by a previous blast. Fay.

splitting shot. Ark. A shot put into a large mass of coal detached by a previous blast. See also block hole. Fay.

split-tube barrel. Synonym for split-barrel sampler.

long.

split-tube sampler. Synonym for split-barrel sampler.


split wires in my mine. Provision for strokes per minute. Pit and Quarry, 53rd, sec. E, p. 82.

spodumene. White, pale green, emerald green, pink, or purple mica, LllAI(2SiO3); white streak; vitreous luster. Contains 8.4 percent lithium oxide with some other elements; insoluble in acids. Hiddenite and kunzite are gem varieties.

Specific gravity, 3.13 to 3.20; Mohs' hardness, 6.5 to 7; spodumic. Found in North Carolina, Colorado, Montana, and South Dakota; Brazil, Malagasy Republic. A source of lithium, and used in ceramics and glass with some gold and alumina. Also called triphane. Sanford; Dana 17; CCD 64, 1961.

split-wire a. The overburden or nonore material removed in gaining access to the ore or mineral material in surface mining. Also called waste. Bureau of Mines Staff. b. Debris or rock material from a coal mine. Zern. c. Eng. A stratum of coal and dirt mixed. Fay. d. Dirt or rock which has been removed from its original location. Nichols.

split-bank. a. A term common in surface mining to designate the accumulation of overburden; also, underground refuse piled outside; that part of the mine from which the coal has been worked away and the space more or less filled up with waste. B.C.I. b. To leave coal and other minerals that are marketable in the mine. B.C.I. c. Eng. The place on the surface where spoil is deposited. Also called spoil heap.

spoil dam. An earthen dike forming a depression in which returns from a borehole can be collected and retained. Long.

spoil heap; dump; tip. The pile of waste material from a mine. B.C.I. c. Eng. The place on the surface where spoil is deposited. Also called spoil heap.

spoil-heap fire. The heating and burning of small coal, carbonaceous shale and perpendicular iron pyrites in spoil heaps. Nelson.


spoil pool. The reservoir formed by a spoil dam in which the returns from a borehole are collected and are retained. Compare sludge pit, Long.

spoll a. See cuttings. Long. b. The debris or waste material from a mine. Long.

spolb. a. A form of coal characterized by a porous condition, which is the result of the decomposition or reduction of a compound within the coal. The term is applied to forms of iron, the platinum-group metals, titanium, and zirconium. ASM Gloss, b. Halfway point in the Kroll process. Kroll.

c. The smoothing out, with a moistened sponge, of slight surface blemishes on pottery ware before it is dried. Also called sponging. Dodd.

spoon. a. See ceramic sponge. Kroll.


spoon iron. Either porous or powdered iron produced directly without fusion, as by heating iron ore or an oxide with charcoal, or with a reducing gas. ASM Gloss.

spoon iron powder. Ground and sized spoon iron, which may have been purified or annealed or both. ASTM B243-63.

spooning. One who removes or cleans the surface of a spongy iron or in the operation in which a sponge is used. A.G.I.

spooning. Smoothing the surface of clay ware with a sponge before firing. Rosenwald.

spooning. A sediment or rock in which the remains of sponges are an important constituent. A.G.I. Supp.

spoon. a. In powder metallurgy, a porous mass of metal powder particles, usually existent in reduced oxides. Henderson. b. Applied to a vesicular rock structure of the partitions between the vesicles, and thus resembling a sponge. Schildroth.

spoon enamel. Vitreous enamelware that is famous because of local high concentrations of bubbles. Dodd.

spoon iron. See reduced iron Fay.

spontaneous. a. Self-starting. 1ason. b. Used to describe the driving potential which causes electric current to flow in the boreholes. These currents are not in any way deliberately induced by the well-logging equipment. Also called self-potential; S.P. c. Wyllie, p. 41.

spontaneous chipping. See spalling.

spontaneous combustion. a. The heating and slow oxidizing reaction of coal and other coaly material initiated by the absorbed oxygen of the air. The two main factors involved are: (1) a coal of a suitable chemical and physical nature; and (2) sufficient broken coal and air leaking through it to supply the oxygen needed. The heat generated is retained, with consequent rise in temperature. See also gob fire; gob stink; hydrogen sulfide; open fires. Nelson. b. The outburst of fire in combustible material (such as oily rags or damp hay) that occurs without the direct application of a flame or a spark. It is usually caused by slow oxidation processes (such as atmospheric oxidation or bacterial fermentation) under conditions that do not permit the dissipation of heat. Webster 3d.

spontaneous fission. Fission that occurs without an external stimulus. Several heavy isotopes decay in this manner; for example, curium 242. LBL.

spontaneous ignition. See liquefaction. ASCE P182.66.

spontaneous pneumaticosis. This disease or accident refers to the forced entry of air into the chest cavity. It results from an overexpansion of the lungs. HPG.


spontaneous potential method. An electrical method in which a potential field caused by spontaneous electrochemical phenomena is measured. Synonym for self-potential method; spontaneous polarization. A.G.I.

spontaneous spalling. Spalling. A.G.I.


spool-type roller conveyor. A type of roller conveyor in which the rolls are of conical or tapered shape with a diameter at the ends of roll larger than at the center. ASM MI-14.1-195C.

spoon. a. Tool for cleaning dust or sludge from quarry blasting holes. Also called scraper. See also spalling.

spoon. a. A form of metal characterized by a porous condition, which is the result of the decomposition or reduction of a compound within the coal. The term is applied to forms of iron, the platinum-group metals, titanium, and zirconium. ASM Gloss.

spoon iron powder. Ground and sized spoon iron, which may have been purified or annealed or both. ASTM B243-65.
spoon

or buffalo horn, in which earth or pulp may be delicately tested by washing to detect gold, amalgam, etc. Fay. c. See spotted coal. a. A slender rod with a cup-shaped projection at right angles to the rod, used for scraping drillings out of a borehole. For scraping, or similar instrument, for cleaning the sludge out of shallow drill holes. This spoon is usually made of a 1/4- to 1/2-inch iron rod, with a spoon-shaped end. Steauffer.

spoon end. The edge of a coal basin when the coal seam spoons, that is, rises to the surface after growing thinner as it approaches its termination. Also called spoon. Fay.

spooner. In bituminous coal mining, a laborer who scoops drillings out of boreholes in which explosives are to be charged for blasting down coal, using a slender iron rod with a cup-shaped projection bent at right angles to the handle. D.O.T. 1.

spooning. Many mineral raw materials, such as petroleum, cementation water (water containing dissolved copper or iron sulfates or other metallic compounds), or brine are extracted by pumping through boreholes. In spooning, a long spoon (a hollow cylinder with a bottom equipped with a clap valve, or ball valve, and open above) is attached to a cable which is let down into the boreholes where the cylinder fills with the liquid; this is emptied out after the cylinder is raised. Steeves, v. 1, p. 63.

spoon out. To thin out; said of a coal seam. Kerson.

spoon test. Test ladle specimen taken during various stages of melting and fining. ASTM C162-66.


sporangia. A spore case. A.G.I.

sporangia, or spore cases. A.G.I.

sporangiom. A colloidal form of aluminum hydroxide, Al(OH)₃, occurring as one of the constituents of bauxite. Also called diasporegellite; clachite; aluminog. Engl.


sporogelite. A colloidal form of aluminum hydroxide, Al(OH)₃, occurring as one of the constituents of bauxite. Also called diasporegellite; clachite; aluminog. Engl.

spotty. a. To mark the site at which a borehole is to be drilled, a piece of equipment placed, or a structure built. Long. b. To set a drill or piece of machinery at a preselected site. Long. c. An inclusion in a diamond. Long. d. To direct to the exact loading or dumping place. Nicholls.

spoil-bolting. When one or just a few roof bolts are used at spout locations. Bureau of Mines. Instructions for Disaster, Fatality, Accident, and Miscellaneous Health and Safety Reports, April 1966, Chapter 113, p. 63.

spoon coolers. Low capacity, semiportable refrigeration units of 150,000 to 500,000 BTU/hour cooling capacity that are used in cooling sites of limited extent, such as an underground enginehouse or the face of a development. The refrigerant used is nontoxic, and an electric or compressed-air drive is applied to a reciprocating compressor. Roberts, I, p. 155.

spoon drilling. Making an initial indentation in a work of art prior to casting, to serve as a centering guide in a subsequent machining operation. ASM Gloss.

spoon facing. Making a flat seat for a bolt head, nut, or other similar element at the end of and at right angles to the axis of a previously machined ASM Gloss.

spoon level. The reduced level of any survey point. Ham.

spoon log. A log or marker placed to show a truck driver the spot where he should stop to be loaded. Nicholls.

spooned. a. To mark the site at which a borehole is to be drilled, a piece of equipment placed, or a structure built. Long. b. To set a drill or piece of machinery at a preselected site. Long. c. An inclusion in a diamond. Long. d. To direct to the exact loading or dumping place. Nicholls.

spotty ore. Ore in which the valuable material is concentrated irregularly as small particles; for example, coarse gold in low-grade rocks. Nelrun.

spout. a. To mark the site at which a borehole is to be drilled, a piece of equipment placed, or a structure built. Long. b. To set a drill or piece of machinery at a preselected site. Long. c. An inclusion in a diamond. Long. d. To direct to the exact loading or dumping place. Nicholls.

spout road. Scot. A chute so steep that the material from a spout mineral slides down to the haulage level. Webster 3d.

spout delivery pump. A pump similar to a diaphragm pump which is not capable of delivering water above its own height. See also force pump. Ham.

spout hole. S. Wales. A short sidings or points which trams are loaded in the mine. F.

spoutman. One who directs the pouring of slag from ladle through spout into a reverberatory furnace used for melting. D.O.T. Supp.

spout mouth. Scot. A place on a level road where the material from a spout (or chute) is filled into the cars. Fay.

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sprag

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spoon out. To thin out; said of a coal seam. Kerson.

spoon test. Test ladle specimen taken during various stages of melting and fining. ASTM C162-66.


sporangia. A spore case. A.G.I.

sporangia, or spore cases. A.G.I.

sporangiom. A colloidal form of aluminum hydroxide, Al(OH)₃, occurring as one of the constituents of bauxite. Also called diasporegellite; clachite; aluminog. Engl.


sporogelite. A colloidal form of aluminum hydroxide, Al(OH)₃, occurring as one of the constituents of bauxite. Also called diasporegellite; clachite; aluminog. Engl.

spotty. a. To mark the site at which a borehole is to be drilled, a piece of equipment placed, or a structure built. Long. b. To set a drill or piece of machinery at a preselected site. Long. c. An inclusion in a diamond. Long. d. To direct to the exact loading or dumping place. Nicholls.

spoil-bolting. When one or just a few roof bolts are used at spout locations. Bureau of Mines. Instructions for Disaster, Fatality, Accident, and Miscellaneous Health and Safety Reports, April 1966, Chapter 113, p. 63.

spoon coolers. Low capacity, semiportable refrigeration units of 150,000 to 500,000 BTU/hour cooling capacity that are used in cooling sites of limited extent, such as an underground enginehouse or the face of a development. The refrigerant used is nontoxic, and an electric or compressed-air drive is applied to a reciprocating compressor. Roberts, I, p. 155.

spoon drilling. Making an initial indentation in a work of art prior to casting, to serve as a centering guide in a subsequent machining operation. ASM Gloss.

spoon facing. Making a flat seat for a bolt head, nut, or other similar element at the end of and at right angles to the axis of a previously machined ASM Gloss.

spoon level. The reduced level of any survey point. Ham.

spoon log. A log or marker placed to show a truck driver the spot where he should stop to be loaded. Nicholls.

spooned. a. To mark the site at which a borehole is to be drilled, a piece of equipment placed, or a structure built. Long. b. To set a drill or piece of machinery at a preselected site. Long. c. An inclusion in a diamond. Long. d. To direct to the exact loading or dumping place. Nicholls.

spotty ore. Ore in which the valuable material is concentrated irregularly as small particles; for example, coarse gold in low-grade rocks. Nelrun.

spout. a. To mark the site at which a borehole is to be drilled, a piece of equipment placed, or a structure built. Long. b. To set a drill or piece of machinery at a preselected site. Long. c. An inclusion in a diamond. Long. d. To direct to the exact loading or dumping place. Nicholls.

spout road. Scot. A chute so steep that the material from a spout mineral slides down to the haulage level. Webster 3d.

spout hole. S. Wales. A short sidings or points which trams are loaded in the mine. F.

spoutman. One who directs the pouring of slag from ladle through spout into a reverberatory furnace used for melting. D.O.T. Supp.

spout mouth. Scot. A place on a level road where the material from a spout (or chute) is filled into the cars. Fay.

spout road. Scot. A chute so steep that the mineral slides down to the haulage level. Fay.

sprro
spray

spray lance. The pipe from a hand sprayer carrying the jets through which a road binder is spread. See also spray bar. Ham.
spray lime. A specially milled dry hydrate of lime of very fine particle size of about 98 percent passing a No. 325 mesh screen. Boynton.
sprays. Appliances to damp deposits of dust in dumps and workings before shotfiring and loading operations. Water sprays are also used along dusty roadways. Various types of mist projectors and atomizers are used and effect considerable improvement, but the dust trapped consists chiefly of the coarser particles. In many dump workings, a water pipe system extends throughout the workings and sprays employed at all loading and other dump operations. Sprays are also used to suppress dust at coal and ore processing plants. See also whale-type sprayer, Korson.
spraying screen. A screen used for the re-spraying machine. A machine which applies with a sprag. Korson.
sprag. In foundry work, stiffening length of the sinking sand mold. Pryor, 3.
sprag bar. A pipe with jets spraying binder on to a road from a tank in which the binder is spread under pressure by a pump. Ham.
spray-booth. A spray-booth is generally a galvanized iron chamber with an exhaust system, a means for collecting the waste spray, and the front open for spraying. PC
c. A surface machine which spreads dusted material with its blades. Nelson. g. A machine traveling on railroad tracks and traveling over 100 pounds escapes. Rapid progress has been made in the development of superior types of spray guns during the last few years. Hansen.
spray gun. The primary requirements for an enamel spray gun are light weight, simplicity, good atomization, a constant flow of enamel and resistance to wear. The operation of a spray gun depends upon a flow of enamel slip through a control orifice, called the fluid tip and the air cap through which the air at a pressure of 60 to 100 pounds escapes. Rapid progress has been made in the development of superior types of spray guns during the last few years. Hansen.
spraying. The application of enamel slip or glaze to a surface by means of a spray gun. ACGB, 3.
spraying machine. A machine which applies a spray under pressure on mine timber supports to preserve and fireproof them. It may also be used for linewashing and water spraying of dust. The machine is mounted on wheels and operated by compressed air. Spraying screen. A screen used for the removal of sprays to prevent solids present among or adhering to larger particles. AS. 1952, 1962.
spraying. The act of checking a mine car with a sprag. Karson.
sprag road. A mine road having such a sharp grade that sprags are needed to control the descent of the cars: they are two-, three- or four-sprag road. See also sprag, b. Fay.
sprague and henwood core barrel. A core barrel which is mounted on ball bearings inside a diamond drilling bit and capable of taking rock cores down to 1 inch diameter. Ham.
spragging. In anthracite and bituminous coal mining, a laborer who rides trains of cars and controls their free nose by riding down gently sloping inclines by throwing switches and by poking sprags (short, stout, metal or wooden rods) between the wheel spokes to stop them. D.O.T. 1.
spraying. The act of checking a mine car with a sprag. Karson.
spragging. In foundry work, stiffening length of the sinking sand mold. Pryor, 3.
sprig. In foundry work, stiffening length of the sinking sand mold. Pryor, 3.
sprigged ware. Pottery that is decorated by the application of low-relief clay ornamentation, sometimes formed in molds. ACGB, 1963.
sprigging. The decoration of pottery vases, etc., by affixing clay figures, usually classical, to form a bas-relief; the figures are pressed separately from the vase and are made to adhere to the ware by means of clay slip. DOD.
spills. In metalurgy, metal powder particles of cylindrical form, little longer than their diameters. Henderson.
sprigging. To enlarge the bottom of a drill hole by small charges of a high explosive in order to make room for the flare charge; to chamber. See also rotation recorder. Ham.
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spring auxiliary cylinder

springback. a. The elastic recovery of metal after stressing. ASM Gloss. b. The degree to which metal tends to return to its original shape or contour after undergoing a forming operation. ASM Gloss. c. In flash, upset, or pressure welding, the deflection in the welding machine caused by the upset pressure. ASM Gloss.


giving beams. Eng. Two short parallel timbers built into a flash pumping engine house, one level with the engine house, for catching the beam, etc., and preventing a smash in case of a breakdown. Zern.

giving constant. Force for unit elongation of spring core lifter. Synonym for core spring.

giving deposits. Minor deposits formed by springs of migmatic origin that are of little economic importance but of considerable scientific interest. Silica and the sulfides of arsenic, antimony, lead, copper, and mercury are sometimes deposited in these springs, as are also gold, silver, fluorite, and barite. Lewis, p. 275.

giving dog. Scot. Same as spring hook. Fay.

giving springs. See skewback. Dodd.

springer. See skewback. Dodd.

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giving point. The point at which the intrados of the arch meets the interior face of the sidewalls or abutments. Stauffer. b. The line joining the springings on both sides of an arch.

giving line. a. The horizontal line drawn at the point of origin of an arch; or at the point where the intrados of the arch commences. See also skewback. Dodd.

springing a hole. See springing.

giving drill holes. The operation of enlarging the bottom part of a drill hole by exploding small successive charges. The purpose is to prevent the chamber so that more explosive can be concentrated in the bottom of the hole. Frankel.

springing points. The points at which the undercut of an arch commences. A.R.I. spring latch. The latch or tongue of an automatic switch, operated by a spring at undercurve of an arch commences. A.R.I. spring loaded. Held in contact or engagement by springs. Nichols.

spring loaded roller conveyor. a. A type of roller conveyor where the ends of each roller is supported on a spring. ASA MHI.1-1958. b. A section of roller conveyor supported on springs. ASA MHI.1-1958. b. A section of roller conveyor supported on springs. ASA MHI.1-1958.

spring plug. A plug. Fay.

spring plunger. a. A molder's rod for making sprue holes. Fay.

spring pointed roller. a. A type of roller conveyor where the ends of each roller is supported on a spring. ASA MHI.1-1958. b. A section of roller conveyor supported on springs. ASA MHI.1-1958.

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spring range. The average semidiurnal range of tide at time of syzygy. Hy.

spring rail. a. A horizontal beam to give the reciprocal motion to the rods in hand boring. The pole is from 25 to 30 feet in length and it is made of plant larch. The arrangement is slow and only used for shallow holes and where mechanical power is not available. Nelson.

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spring roll. a. A horizontal beam to give the reciprocal motion to the rods in hand boring. The pole is from 25 to 30 feet in length and it is made of plant larch. The arrangement is slow and only used for shallow holes and where mechanical power is not available. Nelson.

spring roll. b. A horizontal beam to give the reciprocal motion to the rods in hand boring. The pole is from 25 to 30 feet in length and it is made of plant larch. The arrangement is slow and only used for shallow holes and where mechanical power is not available. Nelson.

spring roller. A horizontal beam to give the reciprocal motion to the rods in hand boring. The pole is from 25 to 30 feet in length and it is made of plant larch. The arrangement is slow and only used for shallow holes and where mechanical power is not available. Nelson.

spring roller lever. A horizontal beam to give the reciprocal motion to the rods in hand boring. The pole is from 25 to 30 feet in length and it is made of plant larch. The arrangement is slow and only used for shallow holes and where mechanical power is not available. Nelson.

spring rings. Over springing the hole results in the disadvantage of causing cushioned blasting, and the full force of the explosive is not reached. Lewis, p. 161. Also called bullying; chambering; shanking a hole. See also spring spring. a. Fay. d. In certain types of rock jointing planes, such as are found in most sedimentary and some igneous rocks, particularly granite. The principle of springing is to drill a borehole with a heavy burden and then replace the burden by placing of a large final charge. McAdam II, pp. 148-149.

springing a hole. See springing.

spring drill holes. The operation of enlarging the bottom part of a drill hole by exploding small successive charges. The purpose is to prevent the chamber so that more explosive can be concentrated in the bottom of the hole. Frankel.

springing line. a. The horizontal line drawn at the point of origin of an arch; or at the point where the intrados of the arch commences. See also skewback. Dodd.


springing lifter case. Synonym for core-lifter case. Long.

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spud

ing tool used to clear a space around tools stuck in a borehole. Long, f. A cable-tool drill bit. Long, g. An anchorage during dredging provided by a steel post underneath a dredger which can be lowered by oil operators, denotes the first abrasion which tests and cones are observed. Criss, 1963, p. 989. 4 sq.cm Abbreviation for square centimeter. BuMin Style Guide, p. 62.

spud bit. a. A mud or diamond-point bit used to drill through overburden or soil down to bedrock. Long. b. A broad, dull, chisel-faced drill tool for working in earth down to rock with a churn or cable-tool drill. Long.

spudding-in. A term applied to a borehole that has been started and the hole has reached bedrock and/or the standpipe has been set. Long.

spudding. a. The operation, in rope drilling, of boring through the subsoil at the start of a hole. B.S. 3618, 1963, sec. 3. b. In diamond and/or rotary drilling, a general term applied to drilling through overburden with a fishtail bit, drag bit, or diamond-point bit. Long. c. Sinking a conical hole, or caving with a churn- or cable-type drill rig. Long.

spudding bit. a. A broad dull drilling tool! for working in earth down to the rock. Standard, 1964. b. A heavy chisel bit used in percussion drilling to drill through subsoil. B.S. 3618, 1963, sec. 3. c. See spud bit. Long. d. The bit used to start the hole. When the hole is deep enough, regular drilling tools are substituted. Williams.

spudding boreholes. The working of a cable drill up and down on a short length of what is known as the superfluous deposits down to bedrock. This section of hole is cased. Nelson.

spudding drill, churn drill. A drill that makes a very accurate and dropping a chisel bit. Nichols.

spudding drill. A petroleum production industry, one who uses a lightweight, portable drilling rig (spudder) for the drilling of shallow wells, or a regular cable drilling rig to drill the first few feet of a well. Also called spudder or spud drill. D.O.T. 1.

spudding in. In a churn drill, the winch that controls the drilling line. Nichols.

spudding in. a. As employed and understood by oil operators, denotes the first entry of the soil by the drill or that of first entrance of drill into the ground. Rickett, II. b. See spud, d. Long.

spudding tools. Tools used to begin a borehole in earthy materials with a diamond- or rotary drill; also, the drilling tools used by oil operators to make a churn drill. Long.

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squareman


square measure. Includes the following: 144 square inches (sq in) equal 1 square foot (sq ft); 9 square feet equal 1 square yard (sq yd); 160 square yards equal 1 square rod (sq rd); 160 square rods equal 1 acre (A); 640 acres equal 1 square mile (sq mi); and 36 square miles equal 1 township (town). Crispin.

square-mile-foot. A unit of measure representing the volume of water one foot deep over an area of one square mile. See also acre-foot. Ham.

squareness. Ratio of magnetization at (1H) to magnetization at (H), where H is the field strength of the completed hysteresis loop. Long.


square set. A set of timbers composed of a cap, gir, and post. These members meet so as to form a solid 90° angle. They are so framed at the intersection as to form a compression joint, and join with three other similar sets. The posts are 6 or 7 feet high while the caps and girds are 4 to 6 ft high. Long. This system of framing can be adapted to large or irregular ore bodies. Sills are laid in trenches cut in the floor of the stope if the stope is to be caught up from the level below. If no stoping is to be done immediately below, and if the ground is hard, sills may be omitted and the posts set directly in hitches in the floor or on footboards. Caps and girds are placed on top of the posts, a line of caps being at right angles to a line of girds. Square sets vary in dimensions at different mines, but in general should give a clear opening of at least 5 feet each way between posts to afford sufficient working space in the stope, and a clear height of 6½ feet is about the minimum height desirable. Lewis, pp. 42-44.

square set and fill. See square-set stoping. Fay.

square-set block caving. A method of block caving in which the caved ore is extracted from the ore body in drifts supported by square sets. A retreating system is adopted. Nelson.

square-set slicing. See top slicing and cover caving. Fay.

square-set stopes. A method where square-set timbering is used to support the ground as the ore is extracted. It is often used for mining wide ore bodies particularly where the conditions are irregular and where walls and ore masses are weak. The first tier of timber sets is termed the sill floor and the uppermost the mining floor. Fay.

square-set stoping. A method of stoping in which the walls and back of the excavation are supported by regular framed timbers forming a skeleton enclosing a series of connected, hollow, rectangular prisms in the space thus occupied by the excavated ore and providing continuous lines of support in three directions at right angles to each other. The ore is caved out in rectangular blocks just large enough to provide room for standing a set of timber. The essential timbers comprised 4 by 4 inch, standard square timbers, respectively termed posts, caps, and girds. The posts are the upright members, and the caps and girds are the horizontal mem-

squeer an-out. A special mixture of oils used to suspend enamel color in paste form for silk screen work, etc. This oil will burn off during the firing process. Enam. Dict. b. A liquid mixture of organic materials used as the vehicle in a squeegee paste. ACSG, 1963.

squeegee. A mixture of squeegee oil and finely divided inorganic materials such as color oxides and fluxes. ASTM C286-65.

squeegee process. The term squeegee oil is used, particularly in the United States industry, for the mixture of oils used to suspend a ceramic or enamel color for silk-screen printing. Similarly, the term squeegee paste is used for the mixture of oils, colors, and flux in this process of decoration. See also silk-screen process.

squeeze. a. A crushing of coal with the roof moving nearer to the floor. Lewis, p. 543. b. The settling, without breaking, of the roof over a considerable area of working. Also called creep; crush; pinch; nip. Fay. Webster 3d. c. The gradual upward movement of a broken rock as a result of pressure during folding or other movements. A.G.I. g. A result of pressure during folding or other movements. A.G.I. g. A pinch of the vien in passing through hard bands of rock. Gordon. b. To inject a grout into a borehole under high pressure. Long. i. The plastic movement of a soft rock in the walls of a borehole or mine working that reduced the diameter of the opening. Long. j. Pumping cement back in a borehole. Long. k. Squeeze in diving is due to the effect of increasing external pressure upon the ears and sinuses, the face plate or the swim suit uncompensated by an equal increase in pressure from within. The incidence of squeeze is very low. It is recognized by beginning pain in the ears and sinus areas, or by a feeling of tightness within the nose covering, usually within the first few feet of descent. This pressure differential decreases with increased depth. Face squeeze can easily be prevented by exhaling into the face plate. HBC.

squeegee job. The high-pressure grouting of a borehole. Long.

squeezer. a. A machine for reducing the paddle ball to a compact mass, ready for the hammer or rolls. Also called alligator. Fay. b. The mechanical device for squeezing a part of the oil external pressure from the spray iron ball and thoroughly mixing the remainder among the fibers. Mersenneau, 4th, 6th.

squeeze rivet. A single stroke compressed air cylinder for closing rivets through the medium of a toggle mechanism. See also pneumographic riveter. Ham.

squeezers. A mine tub controller which acts by squeezing the tub or the wheel. Macon.
squeeze time

squeeze time, In resistance welding, the time between the initial applications of pressure and current. ASM Gloss.

squeeze up. A small excrescence of lava on the surface of flow (usually a basaltic flow) produced by the extrusion of viscous lava through an opening in the crust. It may be bulbous, linear, or irregular in shape. Linear squeezeups result from the rise of viscous lava into fissures or cracks, usually they project a few inches to a foot or two above the flow surface. A.C.I.

squeezing. The slow increase in weight on pillars or solid coal eventually resulting in such things as crushing of the coal, heaving of the bottom and the driving of pillars into soft floor or top. The cause normally is leaving pillars or other support which, after considerable area is opened up, prove to be inadequate, permitting the top to settle gradually with transfer of the weight to active planes and solid coal. Coal Age, v. 71, No. 8, August 1966, p. 200.

squeezing-box. A metal cylinder having at its bottom an orifice through which a mass of plastic clay is forced in the shape of a long roll, from which handles may be cut, as for jugs. Standard, 1964.

squib, a. A thin tube filled with black powder, forming a slow-burning fuse to explode a charge of black powder. B.S. 3618, 1964, sec. 6. b. A firing device that will burn with a flash which will ignite black powder. Nichols. c. A small charge of powder exploded in the bottom of a drill hole, to spring the rock, after which a heavy shot is fired. A springing shot. Pay. d. In well boring, a vessel, containing the explosive and fitted with a time fuse, that is lowered into a well to detonate the nitroglycerin charge. Pay.

squib, electric. See electric squib.

squib shot. A blast with a small quantity of high explosives fired at some point in the borehole for the purpose of dislodging some foreign material which has fallen into it. Pay.

squid. A building brick with one end chamfered on both edges so that the brick can be used at an oblique quoin. Dodd.

squibul. s. Steel sheet or thin steel. Vein cut by a dike and thereby thrown out of alignment on the two sides of the dike. Arkell.

squirrel cage fan. A centrifugal blower with forward-curved blades. Strock, 10.

squirrel-cage motor. An alternating current electric motor with many applications. The rotor is made of strong parallel copper or aluminum bars on the perimeter, joined to end rings of the same metal. Ham.

squirt. Forcing lead by hydraulic pressure into the form of rods or pipes. Pay.


squitting. A stage in the heating of clay after considerable area or orifice through which a long roll, from which handles may be cut, as for jugs. Pay. d. In well boring, a vessel, containing the explosive and fitted with a time fuse, that is lowered into a well to detonate the nitroglycerin charge. Pay.

s-surface. One of numerous parallel surfaces of bedding or folding which indicate di- rectional properties in rocks; it may be warped. A.G.I. Supp.

stab. a. To guide a pipe, casing, or drill rod so that the threads will engage properly. Long. b. To recover a drill tool lost in a borehole by using a spear-shaped or pointed fishing tool. Long. c. In adding to a drill string, the action of lining up and catching the threads of the loose piece. Osborne.

staffer. In the working of oil and gas wells, the person whose duty is to guide the joints suspended by a rope from the derrick to connect with other joints, placed in the well. Ricketts, 1.

stag hole. Usually a short hole drilled, charged, and fired to shatter the rock near the collars of the cut holes. Nelson.

stable bitumens. Stabilized bitumen derived from primary bitumens by metamorphism, occurs in coals and kerogen shale. Stabile bitumens are subdivided into two groups, polymerbitumens and kerobitumens. Tomkiew, 1954.

stable protobitumens. Organic material that resists decay, for example, waxes, resins, branching spores, leaf cuticle, that is likely to be preserved as amber or in tarbanite and kerogen. Ham.

stability, a. The resistance of a structure, spoil heap, or a clay bank to sliding, overturning, or collapsing. A structure is only as stable as its foundations and those in turn upon the soil or rock on which they are constructed. Soil stability, such as mountain slopes, spoil heaps, and embankments, depends on the bearing strength of the material and that is a function of internal strength and cohesion. See also angle of repose; differential settlement. Nelson. b. Resistance to deformation under cyclic loading. ASTM C162-66, c. Chemical durability, resistance to weathering. ASTM C162-66, d. Thermodynamic, a phase is said to have stability if a slight perturbation in the variables defining the system, temperature, pressure, or composition does not result in the appearance of a new phase. A.G.I.

stability field (critical level). The temperature and pressure within which a mineral is stable. A.G.I.

stable soil base. A base of soil stabilized by mechanical or chemical stabilization. Ham.

stable soil. A soil base of secondary bitumens, among others, as a result of changes brought about by saprophytic agents. Such products are termed secondary bitumens, and are usually structureless. Stable protobitumens only show marked

stable protobitumens. Stabilized bitumens. Stabilized bitumen derived from primary bitumens by metamorphism, occurs in coals and kerogen shale. Stabile bitumens are subdivided into two groups, polymerbitumens and kerobitumens. Tomkiew, 1954.

stable protobitumens, sometimes freely rotating, slightly larger than the outer diameter of a core barrel and mounted directly above the core barrel back head. Also called ferrule; clustered coupling. Long. b. A minnamon for guide rods. Long. c. Any lightweight closure, additional used as an agent in soil stabilization. See also processing; spotting; soil stabilization. Ham.

stabilizing treatment. Any treatment intended to stabilize the structure of an alloy or the dimensions of a part. ASM Gloss.

stable. a. Not readily decomposed or deformed. Nelson. b. A short drivage, room, or space excavated at the end of a long wall face to accommodate a co. cutter or cutter loader. The stable provides room for turning the machine where this is necessary, and also enables the machine to start its cut across the face. Nelson. c. An elongated recess in a mine roadway, near the pit bottom, and divided into compartments to accommodate horses or pit ponies. Nelson. d. Chemically, in a balanced state, it is not easily upset. Structurally, resistant to overturning. Of emulsion, resistant to breakdown into its component phases.

stable boss. a. A man placed in charge of the stables and of the animals employed at a mine. Pay. b. The same as barn boss. Korson.

stable coast; stationary coast. A coast showing in no time or space any appreciable raise or subsidence. Schierer.,der.

stable equilibrium. Bodies are said to be in stable equilibrium when they tend to return to their original position of equilibrium after being slightly displaced. Morris and Cooper, 67.

stable graviorimeter. A graviorimeter having a simple weight on a spring such that the sensitivity is high so that a small scale can be used. A.G.I.

stable hole conveyor. A short belt or other conveyor for use in stables in advance of the longwall face. The conveyor is usually about 18 inches wide and driven at the tail end by a combined electric motor and drive pulley. The unit can be transported by sliding on steel skids, and is useful where coal or stone has to be moved short distances in confined spaces. See also shortwall. Nelson.

stable isotopic. A nuclide that does not undergo radioactive decay. LBL.

stable lead; nonradioactive lead. Any of the nonradioactive isotopes of lead; Lead 206, 23.6 percent of natural lead, and the stable end-product of the uranium disintegration series; lead 207, 22.6 percent of natural lead, and the stable end-product of the actinium disintegration series; and lead 208, 52.3 percent of natural lead, and the stable end-product of the thorium disintegration series. Glauston, 2, pp. 133, 134, 136, Handbook of Chemistry and Physics, 45th ed., 1964, p. B-77.

stable protobitumens. This term includes waxes, spores, and pollen exines, cuticle, cork tissue, primary resin waxes, and surface waxes of algae. Also included are products derived from nonbituminous matter and unstabilized protobitumens, among others, as a result of changes brought about by saprophytic agents. Such products are termed secondary bitumens, and are usually structureless. Stable protobitumens only show marked

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sur-remplis) and is then heat treated. Dodd.


s-surface. One of numerous parallel surfaces of bedding or folding which indicate directional properties in rocks; it may be warped. A.G.I. Supp.

stage hole. Usually a short hole drilled, charged, and fired to shatter the rock near the collars of the cut holes. Nelson.

stabilization. To make soil firm and to prevent it from moving. Nichols.

stabilized coupling and coupling built up to reaming-shell size by welding on an abrasion-resistant metal, applied in ridges parallel to the long axis of the drill rod. Long.

stabilized soil base. A base of soil stabilized mechanically or chemically, or with a bituminous binder. See also soil stabilization. Nelson.


stabilizer. a. A hardened, splined bushing
stable protobitumens

changes in coals with less than 30 percent volatile matter. I.H.C.P., 1963, part I.

stable relict. A relict that was not only stable under the conditions prevailing while it was formed but also under the newly imposed conditions, a stable protobitumen. See also protobitumen.

stable-type gravimeter. A gravity meter which uses a high order of optical and/or mechanical magnification so that a change in position of a weight or associated property is measured directly. See also gravity meter.

stand. See standard.


stading. H. Two horizontal lines in the reticle of a theodolite arranged symmetrically above and below the line of sight. They are set at such a distance apart that they subtend a particular known angle at the eye of the observer, generally about 0.1 radian. An intercept of L feet on a vertical staff means that the staff is at a distance of 100 L feet plus or minus an additive constant from the instrument. The figure 100 is known as the multiplying constant. See also compensating diaphragm; tachometer; eye piece.

stadias. Mathematical tables from which may be found, without computation, the horizontal and vertical components of a reading made with a transit and stadia rod. Fay, 3.

stage grinding. Repeated on the coarsest grind between grinding stages. Stage addition in sizing sequence. VV.

stage, and then used to calibrate micrometer which the depth of water in a canal, dock, or river can be read. Individual stage measurements are obtained by the following procedure: The mill scale, at a temperature of 1,450°C in a rotary furnace. Though fusion does not occur, the iron oxide penetrates the limestone completely and rapidly, and forms dicalcium ferrite. Osborne, p. 482.

stage 2. A landing, as a bridge pier or similar support. Staffordshire cones. Pyrometric cones. See also pyrometric cone.

Staffordshire kiln. A particular design of traditional kiln used in ironstone workings. Fay.

staff cutter. Oxygen cutting of stacked metal plates arranged so that all are cut over by a single cut. ASM Gloss.

staff effect. The impulse of a heated gas to rise in a vertical passage, as in a chimney, a small enclosure, or building. Stock, 16.

stacker. a. A machine for blending ore that beds the ore. Mason. b. To stand and rack drill rods in a drill tripod or stick. Long, c. In a blast furnace, the cone-shaped section rising from both to throat. Also called shaft; smallwall. Pryor, p. 387. d. A chimney. Fay, e. A shaft furnace. Fay. f. To build up coal, ironstone, etc., into heaps on the surface for winter or other use. Fay. g. In gas works, a row of benches containing retorts. Fay. h. In the old method of making white lead, one of the pillars of best lead in stonepits, or of horse dung or spent tanner's bark. Standard, 1964. i. Eng. A measure of fuel consisting of 108 cubic feet. Standard, 1964. j. Any structure or part thereof that contains a flue or flues for the discharge of gases. ACSG, 1963. k. A lofty columnar rock on the shore or shore face. Also called pillar; needle; chimney rock.

stack cutting. Oxygen cutting of stacked metal plates arranged so that all are cut over by a single cut. ASM Gloss.

stack joins. A joint formed by welding or riveting. Osborne, p. 482.

stacker conveyor. See stacker. ASA MH4-1-1958.


stack height. The height of a convector enclosure measured from the bottom of the enclosure to the top of the outlet. Stock, 16.

stacking fault. A missing plane in a stacking sequence. VV.

stack out. Mid. To dam off or shut up the entrance to a mine; especially by building a wall of stone, coal, and clay in front of it. Fay.

stack welding. Resistance spot welding of stacked plates, all being joined simultaneously. ASM Gloss.


stage grinding repeated on the coarsest grind between grinding stages. Stage addition in sizing sequence. VV.

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stacker. a. One who stacks coal, etc. Fay. b. Leic. A miner who looked after the unloading of the coal on the bank, on behalf of the miners, in the earlier days of mining. Fay. c. A conveyor, mounted on a long steel beam, for carrying tailings beyond the stern of a gold or tin dredge to avoid silting it up. Nelson. d. A machine for blending ore that beds the ore. Mason. e. One who controls conveyor belt moving molts containing molten lead through water spray to stamping and discharge tables. D.O.T. Supp. f. A conveyor adapted to piling or stacking bulk materials, packages, or objects. See also apron conveyor; belt carrier; flight conveyor; portable conveyor; stacker conveyor. g. A fixed or pivotally mounted boom conveyor. ASA MH4-1-1958. h. With a blower or blower fan, used to blow air through the stockin conveyor in a manner similar to a wing tripper to build layered piles or bed coils or to blow to the stack in conveyor. See also boom conveyor; portable conveyor; wing belt tripper. Stock, 16.

stocker conveyor. See stacker. ASA MH4-1-1958.


stack height. The height of a convector enclosure measured from the bottom of the enclosure to the top of the outlet. Stock, 16.

stacking fault. A missing plane in a stacking sequence. VV.

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stage micrometer

ter set in ocular or eyepiece of micro-
scope. Pryor, 3.

stage micrometer. A precise method of orienting underground workings in which plumblines are transferred down a deep shaft in stages, one stage being marked by a stake or a pillar. While shaft sinking is in progress, the lines can also be employed to orient the shaft itself and to keep it plumb. B.S. 3018, 1963, sec. 1.

stage pumping. Draining a mine by means of two or more pumps placed at different levels; each of which raises the water to the next pump above or to the surface. Fay.

stage treatment. In mineral processing, development of the desired condition of the particles by defined states, such as comminuted to successively fine sizes separatedly coupled with staged concentration or gangue elimination, between such stages of communication. Pryor, 3.

stage winding. Winding, usually staggered blastholes. When shot firing a. temporary flooring or scaffold, staged to the central or horizontal idler is placed on one side so that the increments on a line of intermittent fillet welds on each side of a joint so that the increments on one side are not opposite those on the other. Contrast with chain- intermittent fillet welding. ASM Gloss.

staggered holes. To arrange boreholes in a row, in such a manner that those in one row are placed opposite the spaces between the holes in the next row. Long.

staggered idlers. An arrangement where the idler rollers of a belt conveyor is such that the central or horizontal idler is placed between two rows, and is staggered to a triangular pattern to distribute the burden. A similar pattern is often adopted in quarry wellhole blasting. Nelson.

staggered-tooth cutters. Milling cutters with alternate flutes of oppositely directed helices. ASM Gloss.

staging. a. A temporary flooring or scaffold, or platform. Zern. b. One or more working platforms, fixed at defined levels in deep trenches or similar excavations, on which excavated earth is thrown by shovel. Ham.

stagnalite. A general term, to include both stalactite and stalagmite, for formations produced by dropping water. Heiss.

stagnant ice. Glacier ice that has ceased to move and received no accretion from the center of accumulation; it wastes away in place. Stokes and Varney, 1955.

stalactite (steelstone). The German name for some pyromagnesite carbonate of iron, because a kind of steel is readily made from such ores without passing through the blast furnace. Fay.

stalagite (steelstone). The German name for some pure crystalline carbonate of iron, because a kind of steel is readily made from such ores without passing through the blast furnace. Fay.

stalagmite. A pointed piece of a liquid is measured by weighing a number of drops or by counting the number of drops obtained from a given volume of the liquid. Laws.


stall. a. A working place in a coal seam for one miner or one miner and his helper in the longwall stalls method of working. The empty tub or tram is brought into the face and loaded then removed by hand or by horses. The narrow coal drivages in place and-stall are also termed stalls. See also narrow stall; stallman. Nelson. b. S. Staff. A working place in a mine, varying in length from a few feet to 80 feet or more, according to the thickness of the seam and system of working adopted. A room. Fay. c. A working place in a mine. Fay.
system of compartments; a modification of pillars-and-stall. Nelson.

stall. Angl. Eng. A road along which the mineral worked in a stall is conveyed to the main road. Fay.

stall. in a stall, in the capacity of a butty or contractor. Fay.

stall angle. critical angle. The blades of axial-flow fans are of aeroflite section, which when inclined at a small angle (known as the angle of attack) to the air stream produces a large lift or raising force for a small drag, or retarding force. The lift force is the useful one which gives the thrust to the air in an axial-flow fan. The lift increases with increase in the angle of attack until a point is reached when the lift begins to fall. This angle is called the "critical" or "stall angle." - Sinclair, 1, pp. 101-102.

stallman. A collier who works at the face of a narrow stall or a longwall stall. He is paid according to a piece list of so much per ton of coal loaded out and for other work. A stallman usually has a mate or boy working with him. Nelson.

stall. A steel containing 3.5 percent silicon and often used in electrical parts subject to alternating magnetic fields because of its low core losses due to hysteresis. See also permalloy. Nelson.

stall roasting. The roasting of ore in small enclosures of earth or masonry walls. The enclosures are called stalls and may be open or closed. Fay.

stamp. a Scot. A hole or mark in the roof of a narrow stall or a longwall stall. It is used to show the grain. Webster 3d. f. To break partially cut through, or broken off to a stall. Webster 1. Eng. A section of a bloom nicked, or broken off to a stall and room. Kidman. d. Eng. See let into. SMRB, Paper No. 61. e. Eng. A hole or mark in the roof of a narrow stall or a longwall stall. It is used to show the grain. Webster 3d. f. To break partially cut through, or broken off to

standard conditions

stand. a. Two or more lengths of drill rod or casing pulled together and handled as a unit length of rod. They are taken from a borehole and set upright in a drill tripod or derrick. See also double; forge; treble. Long. b. A drill floor. Long. c. To allow a cement slurry to remain undisturbed in a borehole until it hardens or sets. Long. d. To set a string of casing in a borehole. Long. e. G. Brit. A somewhat variable unit of measurement for coal tar varying from 2½ to 3 longcubits (320 to 336 cubic feet). Nelson.


standage room. A length of roadway provided near the shaft-bottom to stock loaded mine cars and/or empty cars, (1) during peak hours when the coal reaches the pit bottom or (2) during emergency periods, such as plant breakdown at the surface, therefore, permitting coal production to continue in case of general, the standage room accommodates 45 minutes to 1 hour's winding capacity. See also bunker core. Nelson.

standard. a. Something that is set up and established as a rule for the measure of quantity, weight, extent, variation, etc. especially, an original specimen measure or weight (as the international prototype meter, kilogram, and liter of water) or an official copy of such a specimen used as the standard of comparison in testing other weights and measures. Webster 3d. b. The fineness of the metal used in coins and the legally fixed weight each coin should have when first minted. Webster 3d. c. A metal casting in the shape of a U, which is fixed to the upper plate of a theodolite and carries the trunnions for the telescope. Ham.

standard air. Atmospheric air having a specific weight of 0.075 pound per cubic foot. Note: The specific weight of 0.075 pound per cubic foot corresponds to atmospheric air at a temperature of 68° F, a barometric pressure of 30 inches of mercury, and a relative humidity of 25 percent. A.S.C.E P1826. 31 parts A1203. Dodd.

standard air density. In mine ventilation, the standard density of air for mine ventilation work is considered to be 0.075 pound per cubic foot. This is based upon the weight of 1 cubic foot of dry air at 70° F at a sea-level pressure of 29.9 inches of mercury. Bum.Bull 589, 1960, p. 4.

standard bit. a. Commonly, although incorrectly, used as a synonym for bevel-wall bit. Long. b. A bit for rock drilling. Long. c. A number of which are as specified in standards accepted by the drilling industry. Long.

standard black. A ceramic; a quoted composition is 30 parts Co3O4, 56 parts Fe2O3, 48 parts O2, 8 parts NiO, and 1 parts Cu2. Long.

standard compaction. See compaction test. ACSF 1626.

standard equations. In refrigeration, an evaporation temperature of 5° F, condensing temperature of 86° F, liquid tem-
standard conditions

perature before the expansion valve of 77° F, and suction temperature 14° F. Strock, 10.

standard copper. Practically any brand of 99.5 percent, or higher, fineness. Fay.


standard costing. A system which attempts to relate performances and actual results to standards in the field of productivity and labor costs. One defect disclosed was that the presentation of statistics was too late to effect speedy and effective control. See also method study. Nelson.

standard deviation. A measure of accuracy or precision, calculated as the square root of the variance. B.S. 1017, 1960, Pt. 1.

standard dolomite brick. See dolomite brick.

standard electrode potential. The reversible electrode potential where all reactants and products are at unit activity. ASM Gloss.

standard error. The standard deviation of many samples of the mean. This reveals the amount of inconsistency between the sample and an average sample. B. S. 1017.

standard gage. A width of 4 feet 8½ inches between the inner edges of the rails. It is the recognized gage for main line railroad in Great Britain, Europe, Australia, and the United States. Nelson.

standard gold. A legally adopted alloy for coined gold. In the United States, the alloy contains 10 percent copper. ASM Gloss.

standard height. Aust. A given height of scam, say 3 feet, below which the miner is paid so much extra for every inch short of the standard height. Fay.

standard ignition test. A method developed for testing coal dust to obtain the limits of explosibility. Rice, George S.

standard impinger. For many years, the Greenough-Smith impinger was the routine dust sampling instrument in this country. It is still relied upon as a standard, but because of its size and weight, is little used underground today. Hartman, F. A.

standardization. An agreement between engineers or authorities on certain tests, dimensions, qualities, and tolerances of a certain machine, product, or process, and to adopt same in engineering or mining practice. Standardization offers many advantages in the mining industry such as interchangeability of machine parts and a reduction in stocks of spares. Nelson.

standardization correction. A tape correction applied to a tape which is not of the correct length when filled at the correct tension under a standard temperature. Ham.


standard mineral. A hypothetical mineral composition, as used in the calculation of the norm. Synonym for normative mineral. A.G.I.

standard mix. Concrete mixed in the proportions of 1 cement, 2 sand, and 4 of coarse material. See also aggregate; concrete.

standard of ventilation. An adequate amount of ventilation to dilute and render harmless all noxious and flammable gases to such an extent that all roads and work-ings in a mine shall be kept in a fit state for working or passing therein. Mason, v. 1, p. 183.

standard parallel. In public land survey, a parallel of latitude, other than the base line, passing through a selected township corner on a principal meridian, and established for the purpose of limiting the convergence of range lines that intersect it from the south. Selya, 2.

standard penetration resistance. See penetration resistance. B.S.C.E No. 1826.

standard penetration test. a. A soil-sampling procedure to determine the number of blows by a driven hammer or in falling a distance of 30 inches per blow, needed to drive a standard sampling spoon 1 foot. The first 6 inches of penetration is disregarded, but the blows required to drive the sample the ensuing foot are counted. Long. b. See penetration test. Nelson.

standard pile. See grade pile. Ham.

standard pipe. a. A coupled pipe conforming to the dimensions or tolerances specified as standard by the API. Long. b. As used by plumbers, etc., pipe conforming to specifications adopted as standard by the wrought pipe makers in 1886. Long.

standard plough. The original coal plough; a heavy double-ended machine with fixed blades. It length is 6½ feet and height varies from 14 to 31 inches. The depth of cut can be varied from 2 to 6 inches. From this relatively slow-moving machine has been evolved the rapid plough. Nelson.

standard potential. The reversible electrode potential for an electrode when all products and reactants are at the standard state or at unit activity. Sanders, 2d.

standard practice. In progressive plant, systems, procedures to determine the number of men, tools, or any other unforeseen impediment. Nel-

standard resistivity. A term applied to machines, tools, or any other unforeseen impediment. Nelson.

standard rig. a. A well-drilling machine that can be used as a standard or a unit, expressed on a scale in which the potential for the standard hydrogen electrode is zero. This is the potential used in preparing the electro-motive force series. BuMines Bull. 619, 1964, p. 206.

standard solution. One which contains a known weight of a substance in a given volume of solution. Long.

standard surface factor. See surface factor. Dodd.

standard time. Mean local time of one meridian as used throughout a defined country or zone. For Great Britain this is Greenwich mean time. Pryor, 3.


standard wire gage. Gage number defining the diameter of wire. Abbreviation, SWG.


standby. A piece of equipment held in readiness to replace a piece that may become inoperative. Long.

standby face. A spare conveyor face, of normal length, which could be used to another face cease production due to faults, washouts, roof collapse, water, gas, or any other unforeseen impediment. Nelson.

standdown. In Great Britain, the sending of miners home because they cannot be usefully employed due to any reason outside the control of the management. In some cases, coal mining awards confine this right to certain occurrences, for example, breakdown of plant or machines. Nelson.


standing fire. A fire in a mine continuing to burn without being extinguished. Long.

standing gas. A body of fire known to exist in a mine continuing to burn for a long time; often many years. Fay.
standing gas

exist in a mine, but not in circulation; sometimes fenced off. Fay.

standing ground. Eng. Ground that will stand of drill rods. See stand, a. Long.

standing joint. A relatively short length of pipe joints, the space between the pin and box-thread shoulders before wrenching up. Long.

standing loss. The distance from the charge to the material to be penetrated. Higham, p. 50.

standing pipe. a. A relatively short length of pipe driven into the upper soil-like portion of the overburden at the first step of capping or spudding-in a borehole. Also called conductor; conductor pipe. Long. b. A short piece of pipe wedged or cemented into a borehole after completion to act as a marker and keep collar free of cave. Long. c. The first length of casing inserted in a borehole. Also called conductor; conductor pipe. Also called conductor, in drilling, a pipe closed at both ends and used to form the inside diameter of a spoon bit. G. T. B. c. A large vertical pipe or water tower which serves as a reservoir, and is used to store water, to ensure a uniform pressure in a supply system. Crispin. B.

standing shot. The result of a small or undercharged shot wherein the coal is slightly loosened so that it is easily mined by pick. The term is a misnomer, as it applies to the result and not the "shot" or "charge." Fay.


standoff. a. A short length of core attached to mine locations often fluctuates on account of pumping operations. See also water table a; held water; water-bearing strata; strata; water percolation. Fay. d. See stanking. B.S. 3618, 1963, sec. 4.

standoff distance. The distance from the charge to the material to be penetrated. Higham, p. 50.


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stannopalladinite. A cubic alloy of tin and palladium, PdSn, with some Pt and Cu.
stannopalladinite

stannous. Of, pertaining to, or containing tin in the bivalent state; for example, stannous oxide (SnO). Webster 3d; CCD 6d, 1961.


staple. a. A shaft that is smaller and shorter than the frocic rig; usually a join and one of different levels. Webster 3d. b. Eng. A small pit. Webster 2d. Used in coal mining. The American Society for Testing Materials, in a recent report, defined a pit a hole in which coal is being placed on the pointed supports in one end and having a disk of sheet iron riveted to the other; used to steady a core and gage the thickness of the metal. Standard, 1964.

staple fiber. See fiber. ASTM C152-66.

staple shaft. a. An underground shaft, which does not penetrate to the surface. Psallen, b. A relatively small vertical pit connecting a lower seam to an upper seam. It corresponds to a rise or winze in metal mining. The seam in question is in a bore in which a spiral chute or an auxiliary winder system with a single cage and counterweight is used. Standard, 1964. c. A method of wedging down coal across the working face. Fay.

star agate. A gem cutting a star-shaped figure. Fay.

star almandine sapphire. Purplish star sapphire which is usually named star ruby. Shipley.

star amethystine sapphire. Violet star sapphire which is usually named star ruby. Shipley.

star antimony. Refined metallic antimony characterized by crystalline patterns resembling stars or fern leaves on its surface. Also called star metal. Webster 3d.


star chart. Used as depressant in flotation process.

star characte. Alkaline starch (starch dissolved in dilute sodium hydroxide) is a flocculating agent used in purifying the water in coal cleaning plants. Also known as amylum. Pryor, 3.

star chloride. See nitrostar. Bennett 2d.

star chrysoberyl. Applied to chrysoberyl specimens which have some an indefinite unsymmetrical star with two of the three streaks which made up the star closer to one another than either is to the third streak. Shipley.

star connection. A method of connecting the windings of a three-phase machine, in which one end of each of the phases is connected to the same point and the other three ends are connected each to its own slip ring. The line voltage in star is 1.732 times that in delta, and the line current in delta is 1.732 times that in star. Mason, pp. 291-293.

star-delta starter. A starting switch for an alternating current motor which, in the one position, connects the windings in star for starting and, in the other position, reconnects the windings in delta when the motor has gained speed. C.T.D.

star doublet. Assembled stones which imitate star sapphire or ruby, consisting usually of (1) a calocholc top of some asceritated stone, usually decolorized rose quartz; (2) a thin mirror of sapphire or ruby color, sometimes indented with intersecting lines; and (3) (usually) an unpolished domed back of some transparent to translucent substance which imitates the back of the genuine stone. Star sapphire has also been imitated by coating the back of decolorized rose quartz with a brilliant coloring substance; also called laster back. Starlite, Shipley.

star dresser. A tool for the dressing of abrasive wheels; it consists of a series of star-shaped metal cutters separated by washers, freely mounted on the spindle of a holder. Also sometimes known as a Hunteing dresser. Dodd.

star drill. A tool with a star-shaped point used for drilling in stone or masonry. Cripin.

star facets. a. Small triangular faces or planes of gems cut on the upper part of the bezel, terminating in the table. Here, b. The light triangular facets that bound the table of a round, brilliant-cut gem between the main bezel facets. Bureau of Mines Staff.

star feeder. A rotating feeder consisting of a horizontal shaft fitted with radial blades running within a close-fitting cylindrical chamber provided with an inlet and an outlet. Also called star valve (undesirable usage). B.S. 3552, 1962.


starkeyite. First described from the X-ray pattern as FeSO₄•H₂O, and later shown to be MgSO₄•4H₂O. Named from the locality, Starkey mine, Madison County, Montana. Spencer 24, M.M., 1895.

star key. A defect similar to star marks, and showing in the burned ware in a series of small hairlines radiating from a common center, due to the influence of cold burning points, or slight impact upon the unburned ware. Enam. Dict.


star metal. Synonymous with star antimony. Fay.

star observation. In surveying, location or orientation of a station by means of stars. Webster 2d. Used in "coal mining. The Star Peak group. A group which comprises three great limestones with three interposed quartzites, the total thickness of which is in the 10,000 feet in the Triassic rocks of Neva- da; succeeds the Kokpito group. C.T.D. star pinner. Sets small cylinders bearing four potter's pins in center of saggers to support four columns of small ware. B.D.T. 1.

star pinner. Sets small cylinders bearing four potter's pins in center of saggers to support four columns of small ware. Webster 3d.

star reamer. A star-shaped tool for regulating the diameter of, or straightening a bore. Fay.

star rectifier circuit. A circuit which employs six or more rectifying elements with a connecting period of time. The star circuit is used in rectifiers plus the commutating angle. Coal Age, 1955.

starred glaze. Term sometimes applied to a glaze that has partial or complete star-shaped crystals appearing on the surface; the cause may be sulfuring. See also sul- furing. Dodd.

star shaped. A defect of glazes characterized by stellate figures. C.T.D.

star ruby. An asteriated variety of ruby. Webster 3d.

star ruby sapphire. Pink, purple, or violet star sapphires. Shipley.

stars. A defect similar to star marks, and showing in the burned ware in a series of small hairlines radiating from a common center, due to the influence of cold burning points, or slight impact upon the unburned ware. Enam. Dict.


start. N. of Eng. A lever for working a gin to which the horse is attached. Fay.

star starter. a. A drill used for making the upper part of a hole, the remainder of the hole being made with a drill of smaller gage

34075
starlet

known as a follower. Fay, b. Penn. The miner who ascends to the battery to start the conveyer. Fay, c. See battery start-
er. D.O.T. 1. d. Protective equipment to ensure that an electric motor does not receive too high a current when starting. Ham.

starling bar. A steel reinforcing bar embedded in the concrete and projecting through a construction joint to bind adjoining masses of concrete together. Ham.

starlet rods; stub rods. Rods left projecting from concrete, in order to locate and pro-
vide continuity with other reinforcement. Taylor.

starting nozzle. An electrode which is used in establishing the initial arc. Coal Age, 1.

starting barrel. A short (12 to 24 inches) core barrel used in core boring operations when the distance between the drill chuck and the bottom of the hole or to the rock strata in which a borehole is to be col-
nared is too short to permit use of a full 5- and 10-foot-long core barrel. Long.

starting casing barrel. A short piece of casing to which a core bit and shell are at-
tached and used under the same condi-
tions as a starting barrel. See also starting barrel.

starting sheet. A thin sheet of metal used as the cathode in electrolytic refining. ASM Gloss.

starting submergence. In an air lift, the dis-
tance below the static head at which the air picks up water. Lewis, p. 687.

star topaz. Yellow star sapphire. Shipley.

starved ripples. Only isolated crests of ripple marks are present. See also incomplete

starved glaze. The poor quality of the glazed surface of ceramic ware if insufficient glaze has been applied; also sometimes called short glazed. Dodd.

starved ripples. Only isolated crests of ripple marks are present. See also incomplete

star zircon. See asteriated zircon. Shipley.

Stussano furnace. Indirect fire furnace, with electrodes entering the furnace through the sides. Bennett 2d, 1962.

Staussfort deposits. A series of saline minerals found in the Eastern Saxony, Germany, which include halite, anhydrite, kleiserite, gypsum, and boracite. Fay.

Staussfortite. A massive variety of boracite found in East Germany. It resembles a fine-grained white marble; sometimes has a subcolumar structure. Fay; C.T.D.

Staussfurt silt. Seeabraum salts. Kaufmann.

station. a. A device representing the same phenomenon; for example, thermostat, a device to maintain a constant temperature, etc. B.S. 3618, 1963, sec. 2. b. The force per unit area acting on the surface of a solid boundary parallel to the flow. The static pressure is constant in all directions and is the component normal to the direction of the flow. Roberts, 1, p. 2.

c. The pressure exerted by a fluid in all directions; the pressure which would tend to burst the container; the pressure exerted by the fluid if stationary. Strock, 10.

d. The pressure at a point is the pressure that would exist at that point in the absence of sound waves. H.B.G. I. in meteorology the pressure which produces wind or storm. Bull, 589, 1960, p. 32.

stationary. That branch of mechanics dealing with the relations of forces that produce equilibrium among material bodies. Web-

static tubef. A device giving contactless control of a circuit, for example, a transistor, thyatron, saturable reactor, etc. NCB.

static tube. A shaped, solid nose, on the downstream side of which a number of small holes are positioned, around the circumference. The holes are so placed that the pressure in the tube is that of the

charge heads. Cation, p. 211.

static level. a. The position of the water table when not influenced by pumping. Leyrand.

static load. a. The basal pressure exerted by the weight of a mass at rest, such as the load imposed on the bottom by the weight of the drill-stem equipment or the pressure exerted on the rocks around an under-
ground opening. Long. b. The load on the superimposed rocks. Also called dead load. Long. b. A load that is at rest and exerts downward pressure only. Nichols.

static magnification. The ratio between the pulse of the indicator and the respective pulse of the gravity center of the station-

static metamorphism. In geology, metamor-
phism produced by the internal heat of the earth. It may be accompanied by appreciable deformation. Used in contradi-
tion to dynamic metamorphism which involves stresses principally due to thrust. Fay.

static method. See Young's modulus of elas-
tics, p. 365.

static moment. The static moment of a section about an axis, YY, is also termed the first moment of the area about the axis. Ham. It is the sum of the products obtained by multiplying each component of an area, A, by its distance, X, from YY. See also moment of inertia. Ham.

static penetration test. A penetration test in which the testing device is pushed into soil with a measurable force, as distinct from a dynamic penetration test in which the testing device is driven into the ground by blows from a standard hammer. See also penetrometer; penetrometer, soil. Ham.

static pressure. a. The difference, in consist-
tent units, between the absolute pressure at a point, and the absolute pressure of the ambient atmosphere, being positive when the pressure at the point is above the ambient pressure, and negative when below. B.S. 3618, 1963, sec. 2. b. The static pressure exerted by the weight of a mass on a unit area, such as pounds per square inch or tons per square foot. Long. c. The force per unit area acting on the surface of a solid boundary parallel to the flow. The static pressure is constant in all directions and is the component normal to the direction of the flow. Roberts, 1, p. 2.

d. The pressure exerted by a fluid in all directions; the pressure which would tend to burst the container; the pressure exerted by the fluid if stationary. Strock, 10.

e. The static pressure at a point is the pressure that would exist at that point in the absence of sound waves. H.B.G. I. in meteorology the pressure which produces wind or storm. Bull, 589, 1960, p. 32.

statics. That branch of mechanics dealing with the relations of forces that produce equilibrium among material bodies. Web-

statement of performance. A statement de-
scribing the scope and duty of a plant in terms, for example, of the tonnage of coal treated per hour, the processes used, the separations effected and sizes produced; sometimes also used to express the results of plant operation. B.S. 3552, 1962.
undisturbed airstream. Unlike the Pitot tube, the measured pressure is affected considerably by the position of the stem of the tube in relation to the pressure holes and the distance between these holes and the nose tip. The static tube is considerably more sensitive to yaw than is the Pitot tube. See also Pitot tube; Pitot-static tube. Roberts, I., p. 40.

static zone. Suggested for the zone which extends below the level of the lowest point of discharge, and in which the water is stagnant or moves with infinitesimal velocity. Fay.

station. a. The excavation adjoining the shaft at each of the different levels, where men and material are removed or delivered. Agham, p. 35. b. An enlargement of a shaft or gallery on any level, thus affording room for landing at any level. Robert, I., p. 40. and at the same time provides space for receiving loaded mine cars that are to be sent to the surface. Empty cars and material to be used in the mine are taken from the cage at this place. Also, a similar enlargement of shaft or level to receive a ballastation, pump station (pump station), or tank (tank-station). Fay. c. Any fixed point underground beyond which nacked lights may not be carried. Fay. d. Any fixed point in a mine where deputies or foremen meet to report upon the condition of their respective districts. Fay. e. An opening into a level heading out of the side of an inclined plane. Fay. f. See underground station. Agham and Mair, 1963. g. In surveying, the point at which an instrument is planted or observations are made. Webster 3d. h. Reference point in surveying, marked by a readily seen indentation in metal plate set permanently in concrete, or by suspending plug drilled into roof of underground working. Fryor, 3. i. Any one of a series of stakes or points indicating distance from a point of beginning or from a designated point, that is, a marked point on the ground, over which an instrument is to be used. A length of 100 feet, measured along a given line, which may be straight or curved, or curved line whose position is indicated by its total distance from a starting point, or zero point. For example, station 4+147.2 identifies a point 447.2 feet from the starting point, the distance being measured along a given line. Seeby, 2. m. The location on a conveyor or conveyer system where bulk material or objects are received or loaded onto the conveyor or are discharged from the conveyor. ASA M2.1-1958.

stationary dredge. A fixed vessel with equipment for digging, washing, and concentrating alluvial deposits. See also dredge. Nelson.

stationary dredger. A bucket ladder dredger which is not self-propelled, the dredged material from which is discharged into either a barge or a pipeline. Ham.

stationary engine. An engine located on a fixed foundation, as distinguished from a portable engine. Crispin.

stationary gravel. The simplest of all separating devices and the cheapest to install and maintain. It consists of a series of fixed bars or rails spaced the required distance apart in order that the "underline" may drop through. The use of a stationary gravel is limited to coarse screening of dry material (aperture 2-inches and larger), although it is sometimes used with openings as small as 3/4 inch, the efficiency dropping off in proportion. It is not satisfactory for point sticky material. Pit and Quarry, 53rd, Sec. B, p. 118.


stationary jaw. The fixed jaw of a safety clamp or wrench. Compare anvil and jaw. Long.

stationary mass. Main element of every seismograph. A heavy weight in one way or another suspended or supported and which by its own inertia remains at first quiescent during the earthquake. Schieferlecker.


stationary piston drive sampler. A piston-type sampler in which the position of the piston relative to the sample remains constant during the sampling operation. Long.

stationary split. Synonym for stationary jaw. Long.

stationary wave. A wave of essentially stable form that does not move with respect to a selected area or an object, such as a fixed shoreline. Sometimes called standing wave. A.G.I.

stationary equipment. Stationary equipment is installed in a given location and is not moved from its location in performing its function. This includes equipment such as substations, pumps, and storage-battery charging equipment. Webster 3d.

station error. See deflection of plumbline. Stewart.

station forearm. In metal mining, a laborer who supervises the haulage and handling of ore, timber, and mining supplies at a shaft station. D.O.T. 1.


stations. Points on the center line of a tunnel, permanently marked. These stations may be outside of the tunnel and used for projecting the center line into the tunnel, or they may mark the center line inside the tunnel. Slaugter.


station yards haul. Equals the number of cubic yards obtained by the number of 100 feet stations through which it is moved. Nichol.

statistical analysis. Classification, judging and evaluation of numerical data derived from observations made under suitable control. Fryor, 3.

statistical uniforMity. A term describing that variation in quality of materials of manufactured goods which is stable and determinate, so that statistical analysis and prediction can be applied to it. See also representative sample; level of control. Ham.

statistics. The collection, tabulation, and study of numerical facts and data. In industry, statistics will indicate trends which would be almost impossible to establish by other means. The statistical method is useful in: (1) estimating the real value of work done, goods, or machines in terms of useful service and maintenance costs; and (2) estimating and forecasting profits and markets. Nelson.

stator. In a torque rotary, a set of fixed vanes that change the direction of flow of fluid entering the pump or the next unit. Nichols.

staurolite. a. A silicate of aluminum and iron with chemically combined water, Fe2Al6O10(OH)8, (SiO4)4. b. A strong rubber rod which is in contact with the crest gate of a dam and is compressed between gate and structure to form a watertight joint. Ham.

stauronite. a. A silicate of aluminum and iron with chemically combined water, Fe2Al6O10(OH)8, (SiO4)4. b. A length or bar of a material used for sculpture. The best qualities are white and free from markings. Fay.

stauosphere. The dust-bearing portion of the atmosphere. Ham.


stay. a. Eng. A prop, strut, or tie for keeping anything in its place. Zern. b. A diagonal brace or tie bar to stiffen or prevent movement of a structural component. Ham.


stay bolt. A type of combination reamer and tap, used exclusively in locomotive-blower work. Crispin.

stay pole. A pile driven or cast in the ground to anchor a land tie. Ham.


steady grade. A term used to describe the grade of a conveyor or conveyor system which is limited to self-propelled, but is still used at many small mines. See also Bradford breaker; resonance screen; screen; Nelson.

steady gradient. A term used to describe the grade of a conveyor or conveyor system which is limited to self-propelled, but is still used at many small mines. See also Bradford breaker; resonance screen; screen; Nelson.

steady gradient. A term used to describe the grade of a conveyor or conveyor system which is limited to self-propelled, but is still used at many small mines. See also Bradford breaker; resonance screen; screen; Nelson.
stb per day  

std cf  

std cu ft  

steatite  
A very thin bands of ironstone. Nelson.

steadite  
a. Eutectic consisting of iron phosphide and iron, as a constituent of gray cast iron. English. b. A basic calcium silicophosphate, [Fe3O4·(CaO·2SiO2)], occurring as yellow, hexagonal needles in basic slag. English.

Steat's brittleness  
a condition of brittleness that causes transcristalline fracture in the coarse grain structure that results from prolonged annealing of thin sheets of low-carbon steel previously rolled at a temperature below 1,300° F. The fracture usually occurs at about 45° to the direction of rolling. ASM Glas.

steady  
A support for blocking up a stone that is to be worked. Standard, 1964.

steady flow  
a. A constant flow, that is, the same volume in equal units of time. Also called permanent flow. Nelson. b. A steady flow exists when the velocity, pressure, density, and temperature of the liquid at a given point in the system do not change in time. If these quantities do vary with time at a point in the system, then unsteady flow results. Roberts, 2.

steady-flow process  
One in which the fluid is continually in motion in a linear direction through a conduit. Hartman, p. 32.

steady head tank  
In connection with use of moderate pressure hydraulic water (for example, in classification of ore by gravity), a reservoir set above the draw-off points of the system, which maintains a full supply of water at a set height and therefore constant pressure. Pryor, 3.

steady point  
A pointed steel bar which can be locked in a clamp, and used to brace a drill frame against the ground. Nichols.

steady rest  
In cutting or graining, a stationary support for a long workpiece. ASM Glas.

steel down  

steelite  
Chiastolite. Shipley.

steam  
Water in the form of vapor; aqueous vapor; the gas into which water is changed by boiling. It is colorless and transparent until it begins to condense. Standard, 1964.

steam accumulator  
A vessel to smooth out violent steam loads on a boiler. While the steam density is relatively low the accumulator is charged and acts as a buffer when sudden steam demands occur. A similar device is maintained by a specially developed type of shell boiler of the thermal storage type. Nelson.

steam anthracite  
in anthracite only, coal small enough to pass through bars set 6 to 8 inches apart, but too large to pass through bars set 3 to 5 inches. Steamboat coal prepared at different collieries varies considerably in size. Comparatively few colliers prepare steamboat coal except to fill special contracts or orders. Fay.

steamboat coal  
rolls in an anthracite breake; which are set farthest east to break the coal into steamboat coal. Standard, 1964.

steam boiler  
A vessel or plant for generating steam. There are two basic types of boiler in use, the fire-tube type (Lancashire boiler) and the water-tube boiler (Babcock and Wilcox boiler). The most common and simplest boiler is the Lancashire which was developed in 1844 by Fairbairn, who put in the second flue, from the original Cornish boiler of Treve-thick. The Lancashire boiler is now gradually giving away to the Economic boiler. Nelson.

steam coal  
a. Coal suitable for use under steam boilers. Webster 3d. b. Coal which is intermediate in rank between bituminous coal and anthracite. English.

steam condenser  
a device primarily used to condense exhaust steam from an engine or turbine into water. A condenser it used to: (1) reduce the exhaust steam pressure by condensation and thus reducing back pressure on the engine; (2) return the feed water to the boiler at as high a temperature as possible. The condenser may be of the surface or jet type. Nelson.

steam curing  
The rapid curing of precast concrete units; this can be done at high pressure in an autoclave or at atmospheric pressure in chambers or tunnels. Dodd.

steam dredger  

steam drill  

steam engine  
a reciprocating engine, worked by the force of the steam on the piston; the steam expands from the initial pressure to the exhaust pressure in a single stage. The steam engines of Savonius, in 1898, and of Newcomen, in 1705, were designed to pump water from mines. Nelson.

steam extruder  
a laborer who cleans dirt and corrosion from contacts of anodes, starting sheets, and electrical conductors to prevent these accumulations from breaking electrical contacts during electrolytic refining of copper, using high-pressure steam hose. D.O.T. 1.

steam gas  
Highly superheated steam. Webster 2d.

steam hammer  
a heavy hammer, moving between vertical guides, actuated by steam pressure. Crispin.

steam-heating engineer  
in bituminous coal mining, one who operates a steam locomotive to haul railroad cars in and out of a strip mine. D.O.T. 1.

steam-hole test  

steam infusion  
The injection of steam into the coal seam by infusion tubes, connected to a small boiler or by high-pressure pipework, to suppress the dust in situ. The technique and equipment are some-what similar to water infusion. Due to technical, safety, and other problems, this is generally believed to be inferior to Nelsen.

steam jet  
a. A blast of steam issuing from a nozzle. Fay. b. A system of ventilating a mine by means of a jet of steam at high pressure; kept constantly blowing off from a series of pipes in the bottom of the intake shaft. Fay. c. A jet of steam to moisten the intake air current and thus keep the coal dust in the mine wet. Zenn.

steam jet refrigeration  
a method of cooling involving the use of steam nozzles to reduce the pressure in a water chamber so that the water boils at a low temperature; since heat is drawn from the water, it is thus cooled. Strock, 10.

steam main  
a horizontal pipe for carrying live steam from a boiler to radiators, a steam engine, or other steam consuming device. Crispin.

steam metal  
Any copper alloy specially designed to endure exposure to steam. Webster 3d.

steam overlay  
a. A mechanic excavator having a single large bucket, 1/2 to 8 cubic yards, at the end of a long beam carried in an revolving shawl. Also called steam shovel. C.T.D. b. See excavator. Pryor, 3.

steam point  
See point, d. Fay.

steam press  
a press actuated by steam pressure for truing the shape of green fire clay brick A.R.I.

steam pressed brick  
See pressed brick.

steam pressed-dried brick  
Represed brick made from a cull of clay from an auger machine equipped to evacuate the air from the extruding chamber. A.I.S. No. 24.

steam rack drier  
a room equipped with pipes containing steam erected so as to allow the stacking of pallets of green, wet ware for drying. ACSG, 1963.

steam-reduced asphalt  

steam rig  
Synonym for steam drill. Long.

steam shovel  
a. An excavating machine in which a large dipper is operated by steam power. Standard, 1964. Used for stripping purposes and in open-pit mining, especially for iron and coal. A similar shovel is now operated by electricity, gasoline, and diesel engines. Fay.

steam shovel mine  
a strip mine in which steam shovels or other power shovels are used for loading cars. Hess.

steam sizes  
a coal product which passes through a 1/4-inch-diameter hole. Compare seam, Nelson.

steam stamp  
a crushing machine consisting of a vertical stamp shaft which is forced down to strike its blow, and lifted up preparatory to striking the next, by a steam piston. Fay.

steam tempering  
The treatment of clay (particularly brick clay) with steam to develop its plasticity for the shaping process and, as an additional advantage, to reduce the time required to dry the shaped bricks. The clay generally reaches a temperature of 70° to 80° C. Also known as hot por¬
tempering. Dodd.

steam thawing  
a method of dredging permanently frozen ground in Alaska and the Yukon territory in which steam is forced through pipes which are fitted with steel points on one end and a driving head on
steam thawing

the other end so that the pipes can be hammered into the frozen gravel. Thawing by steam is a slow and costly process.

steam trap. An apparatus for allowing water or air to pass but preventing passage of steam. Strock, 10.

steam turbine. A machine in which high-pressure steam is made to do work by acting on, and rotating, blades in a cylinder. It is used for large stationary engines in power stations. Its comparative efficiency is high. Nelson.

steam winders. The most common type of steam winder at work today is the two-cylinder double-acting horizontal engine driving direct on the drum shaft. These engines are made with cylinders up to 42-inch diameter and 84-inch stroke, possess the merit of simplicity and ease of control. The two cylinders act on cranks set at 90° to each other and are large enough for either to start the engine from rest against full load, since one may happen to stop at dead center (that is, with the piston at the end of its stroke, not in any position of no turning moment on the crank). Mason, v. 2, p. 420.

steatite. Steatite of aluminum, calcium, magnesium, and zinc are used chiefly as die lubricants for dry-pressing certain ceramic products.

steatite ash. Steatite ash can be used as a blending material in the manufacture of whiteware.

steatite porcelain. A vitreous ceramic whiteware for technical application in which magnesium metasilicate, (MgO•SiO2), is the essential crystalline phase.


steatite. Massive form of the mineral talc, MgSiO3(OH). The chief sources are in the United States, France, Italy, India, Norway, and Austria. The natural rock can be machined and the shaped parts fired for use as ceramics. A far greater proportion is ground and shaped in the usual way with a clay bond to produce low-loss electronic elements. It is used as a raw material for cordierite, 

electroceramics and refractories. Dodd.

steatite ceramic. Any ceramic whiteware in which magnesium metasilicate, (MgO•SiO2), is the essential crystalline phase. A.C.S.B. 4.

steatite talc. A vitreous ceramic whiteware for technical application in which magnesium metasilicate, (MgO•SiO2), is the essential crystalline phase. A.S.T.M. "Gloss.

steam steel. Ware made from a body containing steatite; used where great accuracy of size and resistance are needed. C.T.D.

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steam steel. Ware made from a body containing steatite; used where great accuracy of size and resistance are needed. C.T.D.
steel grit, the finer being used for soft iron where a finely ground surface is desired. In some operations the sizes of steel grit may be adjusted to give the desired surface and in other cases silica sand should be mixed with the steel grit. Hansen.

steel jack. A hinged clamp on the bottom steel rails, roils, or ties, is fixed in a vertical shaft to guide the cage and prevent it swinging. See also fixed guides. Nelson.


steel jacks. a. This support is in effect a screw jack and is especially suitable in mechanical mining. Under headers at the face, or near the face, steel posts or jacks are used for legs or upright timbers, then usually replaced with wood as the equipment advances. As a safety post this type of support is very good if a wooden block is used on the top end to avoid slipping on the roof rock. Also called steel post. Kentucky, p. 142. b. Same as spelterite. Fay.

steel lines. Lines visible in the enamel surface which follows the roll direction of the steel. May also result from scratches in the metal surface. Bryant.

steelmaking. The process of making steel from solid pig iron, with or without admixture with steel scrap. The processes used are the Bessemer, open-hearth, electric, crucible, high-frequency induction, and duplex. C.T.D.

steel mill. a. Eng. An early-type apparatus for obtaining steel in a ferro of mine, consisted of a revolving steel wheel, to which a piece of flint was held, to produce sparks. See also flint mill, a. Fay. b. A mill where steel is manufactured. Also called steelworks. Webster 3d.

steel money. N. of Eng. Payment made to faceworkers who have to handle steel straps instead of timber planks. Trist.

steel needl. An instrument used in preparing blasting holes before the safety fuse was invented. Fay.

steel nippers. See nippers, a. Fay.

steel ore. A name given to various iron ores and especially to siderite, because it was supposed to be especially adapted for making steel by the earlier and direct process. See also stahlstein. Fay.

steel plate. A steel product obtained by the rolling or thickness of steel slabs. The slabs are reheated to rolling temperature, about 2,250°F and the thickness reduced in a hot roughing mill. Steel plates may be up to 75 inches and between 1/2 and 41/2 inches thick. Nelson.


steel plates. Steel upright or post to support the nether roof at a longwall or other face. It usually incorporates a yielding device. See also hydraulic prop; mechanical clamping prop; self-advancing supports. Nelson.


steel rectangular shaft supports. A shaft support consisting of H-beams, I-beams, angles, or channels. The design is somewhat similar to that used for timber. Boits, rivets, and fastening angles are used to connect and secure the steel beams. The fastening angles are riveted to the beams. The addition of galvanized-iron corrugated wall sheets (or lagging) form a secure and fireproof shaft. See also post and roof, roof post, a; banton, a; wall plate; lagging, a. Nelson.

steel ring. Ring or horseshoe shaped support made for use in long, flat roofs and as a support for the arch ring. Fryer, 3. See also steel arches.


steel separation doors; safety door; emergency door. A steel door specially erected for the purpose of being closed only in an emergency, such as a fire or explosion. Steel is necessary to secure strength and avoid destruction by fire. Steel doors may also be used as protection in the back of doors in the vicinity of the pit bottom or fan drift. Nelson.

steel sets. Used in main entries of coal mines and in shafts of metal mines in the United States. The sections are I-beams for caps and H-beams for posts or wall plates, the H-section giving equal stiffness in two directions at right angles to each other. Steel sets of various shapes are coming into wide use in European coal mines where pressures are so great that timber would not be satisfactory. Lewis, p. 51. See also tunnel support.

steel sheet pilings. Filling composed of interlocking rolled steel sections driven vertically into the ground with guide wailings in place before excavation starts. Ham.


steel slab. Steel which has been rolled in a slabbing or coiling operation. The slabs, which may weigh up to 11 tons, are descaled, that is, the surface flaws are removed by the use of oxyacetylene torches to provide a smooth surface of steel plate. Nelson.

steel support. A straight or curved length of steel, usually of H- or channel section, used for support purposes in mine roadways, faces, or shafts. A steel support (1) possesses a high degree of permanency or long service; (2) ensures a minimum area of excavation for given dimensions in the clear; and (3) it is fireproof. In return airways and shafts, a chrome-nickel-copper steel is sometimes used to counteract the corrosive air. For high-strength roof bars best results are obtained by the use of heat-treated low-alloy steels of the carbon manganese type. See also S.M.R.E. bar; steel arches. Nelson.

steel tapes. Thin bands of varying lengths wound into round leather cases and graduated in feet and inches on one side and links on the reverse. They require careful handling as they are easily snapped by twisting and kinking. Mason, v. 2, p. 713.

steel tunnel support. Tunnel-support systems made of steel are roughly of five types; (1) this type is usually made in two pieces for maximum speed of erection, lowest first cost, and lowest erection cost. It is sometimes used in three or five pieces to give the desired conditions and with the following methods of attack: heading and bench, top heading, and full face. This type is especially applicable to circular and high-sided tunnel sections where only a light roof support is needed; (2) this type is used for undercutting; (3) this type may be blended to give the desired support in tunnels with bad rock conditions required quick support; and full face. In return tunnels for heavy loads associated with squeezing conditions. Lewis, pp. 54–56.

steel wire reinforced belt. A rubber belt in which the cords are replaced by high carbon steel wide strands. The wires are copper plated and rubber coated to provide maximum adhesion to the rubber cover. Nelson.

steel wire rope. See wire rope. Nelson.

steel wool. Fine threads of steel matted together into a felt or cloth for polishing or cleaning surfaces of wood or metal. Crispin.

steelworks. See steel mill.

steelyard. Weighing machine in which rigid steel bars is pivotted about a fulcrum placed close to one end, from which the weight and object are supported. Weights are moved over the long portion, which is graduated appropriately. Pryor, 3.

steeling: stellng. The brick or stone lining of a shaft. Fay.

steenstrupine. A silicate and phosphate with the formula (La,Ga,Na)(Al,Fe,Mn), (Si,P), (0.45). Steenberg.

steep seams. See edge coal; rearers, Fay.

steeply inclined, in, and also to prevent the bottom from heaving. A full circle with ribs closely spaced is heavily lagged for heavy loads associated with squeezing conditions. Lewis, pp. 54–56.

steepenteunsafe. A silicate and phosphatic, with fluoride (Fe, Ca, and Na). Nelson, 1, p. 74.

steep fault. Fault dipping at an angle of 45° or more. Synonym for high-angle fault.

steep gradient. In general, in coal mining, an inclination of a roadway, working, or other portion of a mine greater than 1 in 4. Nelson.

Steinkopf. See Steinkopf.

steep drift. In some mines, a dip of from 40° to 60°. Streets, t. 1, p. 56.
steer

steer. Leic. Steep; highly inclined; dips fast. Fay.

steering brake. A brake which slows or stops one side of a tractor. Nichol.

steering clutch. A clutch which cannot disconnect power from one side of a tractor. Nichol.

Stefan-Boltzmann Law. The energy radiated in unit time by a black body is given as

\[ E = \sigma T^4 \]

where \( E \) is the energy radiated, \( \sigma \) is the Stefan-Boltzmann constant, and \( T \) is the absolute temperature of the body. \( E \) is the energy radiated in unit time by a black body.


steeple. In coal, primarily the vascular tissues of the axis of a vascular plant. It consists of two parts: the xylem which carries water from the roots, and the phloem which carries the food. Hess.

stel. Sprag. Mason.

stellar coal. See stellarite. Fay.

stellarite. A variety of galena with part of the lead replaced with antimony and arsenic. Standard, 1964.

stel. In coal, primarily the vascular tissues of the axis of a vascular plant. It consists of two parts: the xylem which carries water from the roots, and the phloem which carries the food. Hess.

stem. a. Eng. A narrow road driven to protect the loose strata of the face from fall. Fay.

stemming. The brick or stone lining of a shaft to prevent the loose strata of the sides from falling. Fay.


stemmannite. A variety of galena with part of the lead replaced with antimony and arsenic. Standard, 1964.

stele. In coal, primarily the vascular tissues of the axis of a vascular plant. It consists of two parts: the xylem which carries water from the roots, and the phloem which carries the food. Hess.


stemming stick. A steel or timber prop. A steel or timber prop. Fay.

stemmer. a. A series of alloys containing cobalt, chromium, tungsten, and molybdenum in various proportions; very hard material used in British coal mines. Also called tamping rod; beater. See also scraper; stem; stem vegetation. Nelson.

stem vegetation. Nelson.

stemming. The brick or stone lining of a shaft to prevent the loose strata of the sides from falling. Fay.

stemming stick. A steel or timber prop. A steel or timber prop. Fay.

stemmer used in British coal mines. Also called tamping rod; beater. See also scraper; stem; stem vegetation. Nelson.

stemmer used in British coal mines. Also called tamping rod; beater. See also scraper; stem; stem vegetation. Nelson.

stem. a. Eng. A narrow road driven to protect the loose strata of the sides from falling. Fay.

stem. b. Newc. A narrow road driven to connect two winning places. SMRB, Paper No. 61. c. A narrow road driven to connect two winning places. SMRB, Paper No. 61. d. A narrow road driven to connect two winning places. SMRB, Paper No. 61. e. A narrow road driven to connect two winning places. SMRB, Paper No. 61. f. A narrow road driven to connect two winning places. SMRB, Paper No. 61. g. A narrow road driven to connect two winning places. SMRB, Paper No. 61. h. A narrow road driven to connect two winning places. SMRB, Paper No. 61. i. A narrow road driven to connect two winning places. SMRB, Paper No. 61. j. A narrow road driven to connect two winning places. SMRB, Paper No. 61. k. A narrow road driven to connect two winning places. SMRB, Paper No. 61. l. A narrow road driven to connect two winning places. SMRB, Paper No. 61. m. A narrow road driven to connect two winning places. SMRB, Paper No. 61. n. A narrow road driven to connect two winning places. SMRB, Paper No. 61. o. A narrow road driven to connect two winning places. SMRB, Paper No. 61. p. A narrow road driven to connect two winning places. SMRB, Paper No. 61. q. A narrow road driven to connect two winning places. SMRB, Paper No. 61. r. A narrow road driven to connect two winning places. SMRB, Paper No. 61. s. A narrow road driven to connect two winning places. SMRB, Paper No. 61. t. A narrow road driven to connect two winning places. SMRB, Paper No. 61. u. A narrow road driven to connect two winning places. SMRB, Paper No. 61. v. A narrow road driven to connect two winning places. SMRB, Paper No. 61. w. A narrow road driven to connect two winning places. SMRB, Paper No. 61. x. A narrow road driven to connect two winning places. SMRB, Paper No. 61. y. A narrow road driven to connect two winning places. SMRB, Paper No. 61. z. A narrow road driven to connect two winning places. SMRB, Paper No. 61.


Step up. To increase the voltage of (a current) by means of a transformer. Webster 3d.

Step vein. A vein alternately cutting through the strata of country rock and running parallel with them. In Australia, it is called step reef. Fay.

Stepwise longwall. N. of Eng. A variant of gateway longwall in which faces 12 to 40 yards in length are stepped, each face being 4 to 6 yards in advance of the adjacent one. Trit.


Stereochrome. Branch of chemistry which deals with the optical behavior of atoms in a molecule, and their spatial or steric arrangement. Pryor, 3.

Stereo graphic projection. a. A stereoscopic projection of a crystal. Fay. b. Diagram in graphic form with three axes, used to give three-dimensional representation on a plane surface. Pryor, 3.

Stereo graphic projection. In mineralogy, a projection made on a plane through the center of a sphere by projectors from the South Pole. Fay.

Stereo comparator. An apparatus for determining the specific gravity of powders or porous materials. Osborne.

Stereo metric map. In photographic mapping, an instrument for accurately measuring the three space coordinates of a point by stereoscopic evaluation of two images of the same point contained in two overlapping photographs taken from two different exposure stations. Seelye, 2.

Stereo gram. a. A stereo graphic projection of a crystal. Fay. b. Diagram in graphic form with three axes, used to give three-dimensional representation on a plane surface. Pryor, 3.


Stey. Steep; highly inclined. Fay.

Stey. Steep; highly inclined. Fay.

Sterling silver. A silver alloy containing at least 92.5 percent silver, the remainder being unspecified by usually copper. ASM Gloss.

Sterlingite. A hydrous magnesium silicate, Mg₅Si₃Fe₂Ca₂(Si₂O₇)(OH). Cracked; in the United States, apparently rare. English.


Sterilization. a. A process of destroying all forms of life from objects. b. The process of destroying all forms of life from objects. c. The process of destroying all forms of life from objects. d. The process of destroying all forms of life from objects. e. The process of destroying all forms of life from objects. f. The process of destroying all forms of life from objects. g. The process of destroying all forms of life from objects. h. The process of destroying all forms of life from objects. i. The process of destroying all forms of life from objects. j. The process of destroying all forms of life from objects. k. The process of destroying all forms of life from objects. l. The process of destroying all forms of life from objects. m. The process of destroying all forms of life from objects. n. The process of destroying all forms of life from objects. o. The process of destroying all forms of life from objects. p. The process of destroying all forms of life from objects. q. The process of destroying all forms of life from objects. r. The process of destroying all forms of life from objects. s. The process of destroying all forms of life from objects. t. The process of destroying all forms of life from objects. u. The process of destroying all forms of life from objects. v. The process of destroying all forms of life from objects. w. The process of destroying all forms of life from objects. x. The process of destroying all forms of life from objects. y. The process of destroying all forms of life from objects. z. The process of destroying all forms of life from objects.

Stereo radiography. A technique for producing paired radiographs which may be viewed with a stereoscope to exhibit a shadowgram in three dimensions with various sections in perspective and spatial relation. ASM Gloss.

Stereo topographic map. See stereoscopic map. Seelye, 2.


Sterile coal. Eng. Black shale or clay on top of a coal seam. Fay.

Sterility coal. That part of a coal seam which, for various reasons, is not mined. B. S. 3618, 1965, sec. 1.


Sterling. Having a standard of value or fineness established by the British government; said of English money of account and of gold and silver; as, pounds sterling; sterling plate. Standard, 1964.

Sterling silver. A silver alloy containing at least 92.5 percent silver, the remainder unspecified by usually copper. ASM Gloss.

Sterenberga. A salt of silver, S₂,Fe₃,As₂. It contains 42.6 percent sulfur, 54.2 percent silver, and 55.4 percent iron. Fay.

Sternt. Scot. Rough; coarse-grained or crystalline, for example, stony limestone. Fay.

Sterrettel. Supposedly Al₃(PO₄)₂(OH),.SH₂O, it is probably ScPO₄·2H₂O; its structure is probably that of the metamorphic type; eganite and sterrittite are identical. American Mineralogist, v. 45, No. 1-2, January-February 1959, p. 257; Fleischer.

Sterno metal. An alloy of three parts copper, two parts zinc, and a small proportion of iron and tin; stronger and cheaper than gunmetal. Standard, 1964.

Stetefeldite. A somewhat uncertain compound composed of silver, iron, copper, antimony, sulfur, and water. Fay.

Stefefeld furnace. A furnace for the chloridizing and roasting of silver ores, and also for roasting fine copper ore low in sulfur. Provision is made for an auxiliary fire place. Fay.

Stevansite. A hydrous magnesium silicate, [Mg₅Si₃Fe₂Ca₂](Si₂O₇)(OH). Cracked; in the United States, apparently rare. English.

Stevenson's formula. A formula by which the height of waves can be calculated. See also fetch. Ham.


Stewartite. a. A colorless to yellow hydrous manganese phosphosilicate, 3MnO·PO₄·2H₂O. Triclinic. Fibers or minute crystals. From Stewart mine, Pala, Calif. English. b. A steel-gray fibrous variety of bort containing iron and, therefore, magnetic. From Kimberley, Republic of South Africa. English.

Stewarts bor. See bort, c. Hess.


Stibianite. Stibianite is the inner of three composing the remainder which, for various reasons, is not mined. B. S. 3618, 1965, sec. 1.

Stibiocolumbite. Name proposed for the stibiocolumbite from Mt. Grande, Calif, because the amount of niobium is greatly in excess of that of columbite; a steel-gray fibrous variety of bort containing iron and, therefore, magnetic. From Kimberley, Republic of South Africa. English.
stibiolite. A brown, yellow, reddish-yellow talc talcoid of antimony, \( \text{Sb}_2 \text{O}_3 \), \( \text{Ta} \), \( \text{Nb} \), \( \text{O}_3 \). Orthonorbic, hemimorphic, hemi-English.

stibioeolumbite. The ancient name for antimony and

stiblum. The ancient name for antimony and

stiblite. Synonym for stibiconite. Dana 6d, p. 36.

stichtite. A lilac basic hydrous carbonate of

sticky. A technique used in trench

sticking up. The process of joining together,

sticky coal. A. Coal strongly adhering to a hard stratum of rock above or below it; also called frozen coal. Fay. A coal seam which does not separate cleanly from the roof and fragments of the roof adhere to the top coal as it is worked. A sticky coal results in a high proportion of shale in the run-of-mine coal. Also called ditched or Nature.

sticky limit. The lowest water content at which a soil will stick to a metal blade drawn across the surface of the soil mass. ASC E 1956,

stiff frame. See redundant frame. Ham.

stiff frame. See redundant frame. Ham.

stiff plastic process. A process of brickmaking,

stiffness. The ability of a metal or shape to

still. a. To become fixed or lodged in a

stillage. A small platform on which shaped

still loading. A technique used in trench

stillings. 

stillings. a. N. of Eng. The walling of a shaft within the tubbing above the first hard stratum underlying quicksand. Fay.
b. A stand, as for holding vats or caasks, or for unburned pottery while it is drying. Standard, 1964.

c. To cut off

d. To cease work

e. Eng. To cease work

still mud machine. A brick machine for making


still well. A. A combination to a main body of water by a small inlet; such an arrangement is suitable for a recording

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stilpnomelane

identical with typical chalcodite. The name stilpnomelane has a priority over chalcodite. The ferrous mineral does exist; for it, the varietal name ferrostilpnomelane is appropriate. Hey 2d, 1955.

stilpnomelane

1078

stocking end

word used to describe a system (for example, sampling method) which has in it an element of randomness. Pryor, 3.

stocking. A line of stock of a type appropriate to a chimney but of greater irregularity of outline. Nelson. b. Eng. Coal, or ore, stored at the surface during slack trade, or in reserve for an extra demand at any time. Fay. c. The average tonnage sent out of a working over a given period, say a week, and, although the useful rock as distinguished from the waste. Fay. e. An irregular, metalliferous mass in a rock formation; as a stock lead in orestone. Fay. f. A body of igneous rock that is smaller than a batholith and intruded upward into older formations and that in ground rough is roughly circular or elliptical but in cross section may increase downward. Webster 3d. g. A core of small wet coal, with a hole through for the air blast, made between the tuyere and the front of a forge. Webster 2d. h. A holder for a threaded die. Webster 3d. i. The proprietorship element in a corporation divided into shares and represented by transferable certificates and giving to the owners a pro rata interest in the assets, the earnings, and except when withheld in the charter, in the voting power of the business. Webster 3d. j. The mixture of ore, coke, and limestone charged into the furnace, or stored in bins at the stock house. Fay. k. A sharply domed body of intrusive igneous rock that projects from a body of plutonic rock that covers less than 40 square miles, has steep contacts (general dip in a given direction), and, although generally discordant, may be concordant. A.G.I. m. In forging, the portion of metal cut from the bar that has been allotted to a given number of forgings. Henderson. n. A body of nonfusible iron, such as quicksilver, that is contained or contained in another body of fusible iron. Nelson. o. A body of lead ore in limestone. Fay. p. A body of limestone or other rock containing in it an ore that is of sufficient quantity to cause explosion or to be otherwise dangerous. Hudson. q. A holder for a threaded die. Webster 3d. r. A holder for a threaded die. Webster 3d. s. A builder holding together the main reinforcing bars in reinforced concrete. Ham. t. A cloth made of silk or other material, used for covering the face and protecting the face from the heat of the blast furnace. Webster 3d. u. A builder holding together the main reinforcing bars in reinforced concrete. Ham. v. A cloth made of silk or other material, used for covering the face and protecting the face from the heat of the blast furnace. Webster 3d. w. A builder holding together the main reinforcing bars in reinforced concrete. Ham. x. A cloth made of silk or other material, used for covering the face and protecting the face from the heat of the blast furnace. Webster 3d. y. A cloth made of silk or other material, used for covering the face and protecting the face from the heat of the blast furnace. Webster 3d. z. A cloth made of silk or other material, used for covering the face and protecting the face from the heat of the blast furnace. Webster 3d.
stocking end


stockpile. a. The ore accumulated at the surface when shipping is suspended. Standard, 1964. An accumulation of ore or mineral built up when demand slackens or when the treatment plant or beneficiating section is temporarily unequal to handling the mine output; any heap of material formed to create reserves for loading or other purposes. Nelson. c. Material dug and piled for future use. Nichol, 2.

c. A fixed outer rail against which the rope ends are suspended. Fay.

stock salt. Rock or evaporated salt, with or without added trace minerals, used for feeding stock. Kaufmann.

stock unloaders. A laborer who unload ore, coke, or stone from cars on trestle. Fay.

stockwork. An ore deposit of such a form that it is worked in floors or stories. It may be a solid mass of ore, or a rock mass so interpenetrated by small veins of ore that the whole must be mined together. Stockwork is classified from tabular or sheet deposit (veins, beds), which have a small thickness in comparison with their length and breadth. Diction in the main plane of the deposit (that is, in strike and dip). Taken from German term stockwerk. See also polystock.

stockyard. A space reserved on the surface near the materials shaft for the temporary storage of steel, timber, and other bulky items of supplies for mine use. The yard is surfaced and a mine car is used therein.也可用于writing.

stoichiometric. A chemical compound, or a batch for synthesis, is said to be stoichiometric when the ratio of its constituents exactly is demanded by the chemical formula. Of more interest in the field of special ceramics are non-stoichiometric compounds. See also non-stoichiometric Dodd.

stoichiometric chemistry. Quantitative chemical relations during reaction. Pryor, 3, p. 20.


stroke. Unit of kinematic viscosity. The cgs unit of kinematic viscosity being that of a fluid which has a viscosity of one poise and a density of one gram per cc. Webster 3d.

stroke. A hole, as in a reverberatory furnace, for introducing a rabble or other tool for stirring. Standard, 1964.

stroke. A mechanical appliance for feeding coal, coke, or other fuel into a boiler or furnace. In hand-stoking, the man who shovels the fuel into the furnace is known as the stoker. Also called underfoot stoker; vibrating grate. Nelson.

stoker. A screen size of coal specifically designated, often in fine equipment. B.C. & B. This coal can be of any rank and the stoker is usually designed to fit the physical characteristics of the coal. The flue gas content in the selection of coal for stoker use are: size limits, size consist, uniformity of ash content, calorific fusion characteristics, ash, sulphur and volatile matter percentages. Mitchell, p. 123.

Stokes diameter. Equivalent free-falling.


Stokes' law. a. A formula expressing the rates of settling of spherical particles in a fluid. A.G.I. b. Gives the rate of fall of a small sphere in a viscous fluid. When a small sphere falls under the action of gravity through a viscous medium it ultimately acquires a constant velocity, \( V = \frac{2g\rho_{d}(d-d)}{9\eta} \), where \( g \) is gravitational acceleration, \( d \) is the radius of the sphere, \( d \) and \( d \) are the densities of the sphere and of the medium respectively, and \( \eta \) is the coefficient of viscosity. \( V \) will be in centimeters per second if \( g \) is in centimeters per second per second; \( a \) will be in centimeters; \( d \) and \( d \) will be in grams per cubic centimeter; and \( \eta \) will be in dynes-seconds per square centimeter, or poises. Handbook of Chemistry and Physics, 45th ed., 1964, p. F-58. c. The wavelength of light emitted by such material is longer than that of the radiation used to excite the fluorescence. In modern language, the emitted photons carry off less energy than is brought in by the exciting photons; the details accord with the energy conservation principle. Handbook of Chemistry and Physics, 45th ed., 1964, p. F-58. See also elutriator; sedimentation test.

Stokes' stretcher. The simplest type of stretcher used for underground first aid. This basket-type stretcher acts as a splint for the whole body and is constructed of tubular steel and strong wire mesh. Used for lifting or lowering injured persons in difficult places. McAdam, p. 104. This type of stretcher is used in metal mines or in coal mines where the coalbed has a steep pitch.

stoking. In powder metallurgy, presintering or sintering in such a way, that the compacts are put through the furnace at a fixed rate by manual or mechanical means; also called continuous sintering. ASM Gloss.

stolzite. A mineral, PbWO₄, consisting of a native lead tungstate isomorphous with wolframine and probably with scheelite and powellite. Webster 3d. Tetragonal. Dana 17.

stomach. a. Mid. To set a prop or sprag with a. Level. As in a fragment of pebble or larger size. Fay. b. A short line are hung, or to serve as a bench for. Fay.

stone. a. A variety of halotrichite. Standard, 1964. Also called rock butter. Fay. b. A sort of alum. Fay. c. A kind of clay said to have been used instead of brick. Fay.

stone carver. In stonework industry, one who carves out figures or designs in full or broken rock. Webster 3d.


stone brick. A hard brick or firebrick made in Wales. Webster 3d.

stone butter. A. A variety of halotrichite. Standard, 1964. Also called rock butter. Fay. b. A kind of clay said to have been used instead of brick. Fay.

stone carver. In stonework industry, one who carves out figures or designs in full or broken rock. Webster 3d.


stone-concentration. Synonym for diamond concentration. Long.

stone content. Synonym for diamond content. Long.

stone crusher. a. A machine for breaking stone, as for road building. When used

used, while in Michigan copper mines "rock" is the common expression. Fay. g. Commonly, although incorrectly, used as a synonym for diamond. Long.


stone blind. A variety of sandstone. Fay.

stone-block paving. Paving consisting of stone slabs accurately cut to a rectangular shape in order to obtain a minimum joint thickness. Ham.


stone crash. Land abounding in stones, especially a subsoil of small stones or finely broken rock. Webster 3d.

stone dunch. Eng. Hard, sandy underclay, or fragments that have been taken from coal. Fay. a. A machine for breaking coal, coke, or other fuel into a boiler or furnace. In hand-stoking, the man who shovels the fuel into the furnace is known as the stoker. Also called underfoot stoker; vibrating grate. Nelson.

stone dunch. Eng. Hard, sandy underclay, or fragments that have been taken from coal. Fay. a. A machine for breaking coal, coke, or other fuel into a boiler or furnace. In hand-stoking, the man who shovels the fuel into the furnace is known as the stoker. Also called underfoot stoker; vibrating grate. Nelson.

stone dust. a. A material in which a stonecutter's ax is used, consisting of fragments or filings. Him. b. A sort of alum. Fay. c. A kind of clay said to have been used instead of brick. Fay.

stone elevator. In coal mines where the coalbed has a steep pitch.

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stonedust barrier. A device erected at strata to stoniedust dust. a. In coal mines any inert dust stoniedust dropout. See rollout.


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stone reparer
called sticker. D.O.T. 1.
stone rubber. In stonework industry, who
rubs down the surface of finished blocks
for a better building lime and sand-
stone with abrasive to remove defects and
marks left by hand and machine tools.
Also called stone finisher. D.O.T. 1.
stones. a. Detached particles of rock usually
smaller than 10 inches (256 millimeters)
in diameter. Stones are classed as gravel
b. Containing or composed of stones,
stone Sawyer. See circular sawyer, stone;
c. A crystalline inclusion present as a fault in glass; stones may re-
main as a fault in glass; stones may re-
d. The assembly carrying the return roll-
of the pot to the return section. Fay.
stone saw. A stone-cutting apparatus having
no teeth, being a simple iron
knife. Long. b. The number
of near-
put up called sticker. D.O.T. 1.
stone sawdust. Comb. Sandy fireclay.
stone scraper. A man who squares or
shapes stones, as for building. Standard,
1964.
stone scraper. a. In stonework industry, one
who trims roughing grade slate to largest
blocks, which allows the pickup of a trimming
machine fitted with rotary cutting knives.
b. Any cleat or beam to check the
motion of stones wks. Wire smaller than No. 14 put up
in 12 Isound coils, which are about 8
inch; low fire shrinkage; enough plasticity
and toughness for shaping; no lime or
Fe-bearing concretions; and very little coarse
moisture. Fay.
stone weight. Synonym for diamond content.
Long.
stone wire. Wire smaller than No. 14 put up
in 12 pounds coils, which are about 8
inches inside diameter. Zern.
stope (1082)

**stopping**

The act of excavating ore, either above or below a level, in a series of steps. In its broadest sense stopping means the act of excavating ore, either by working upward (overhand or downward) or by rooms in flat deposits. It covers the breaking and removal of the ore from underground openings, except those driven for exploration and development. The removal of ore from drifts, crosscuts, shafts, winzes, and raises, which are excavated to explore and develop an ore deposit, is incidental to the main purpose for which stopes are driven and is not a stopping operation. Exploratory and development openings are driven to prepare a mine for extraction of the ore by stopping. *BuMines Bull. 390, 1936*, p. 3. b. In civil engineering, an enlargement. *Fraenkel*. c. The loosening and removal of ore in a mine either by working upward (overhead or overhead) or downward (underhand). *A.G.I. Supp.* d. A method of intrution of light acid magma into heavier basic rocks at Ascutney Mountain, Vt. Blocks of the older rock are wedged loose overhead, settle in the magma, and are assimilated at depth. Thus, the magma works its way upward. *A.G.I.* e. A process whereby plutonic rocks are emplaced. Magna engulfs blocks of the overlying country rock, these blocks sink into the magma, and are presumably assimilated at depth. The magma in this way can eat its way upward. *A.G.I.* 1. See stope, b. *Fay.*

**stoping and filling.** See overhand stopping, b. *Fay.*

**stoping drill.** A small air or electric drill, usually mounted on an extensile column, for working stopes, raises, and narrow workings. *Fay.*

**stoping methods.** The classification of stopping methods adopted by the U.S. Bureau of Mines. *BuMines Bull. 390, 1936*, p. 3. b. In civil engineering, stopping includes (1) stopes in flat deposits; (2) caved stopes with pillar supports which includes naturally supported this includes open stoping with open stopes in small ore reserves and other areas. *Bierman.* i. A hand-size air drill mounted on a column or other support. *Nichols.* 2. See stope drills. D.O.T. 2.

**stopper.** A. A stopping drill. *Fay.* b. A light percussion type rock drill, a stope (an underground opening from which ore is extracted in a series of steps). Also called stoper. D.O.T. 1.

**stoping and filling.** See overhand stoping, b. *Fay.*

**stoping head.** A. The round-ended refractory (fire-clay or graphite) shape that terminates the stopper-rod assembly in a steelcasting ladle and controls the rate of flow of metal through the nozzle. *Dodd.* b. A movable refractory shape for the control of the flow of glass in the channel leading from a glass tank furnace to a revolving pot of a suction machine. *Dodd.* c. A refractory closure for the mouth of a covered glass pot or for the working hole outside an open pot. *Dodd.*

**stopper grinder.** One who grinds bottle necks and stoppers on a grinding lathe to produce a perfect fit between the two. D.O.T. 1.

**stopper hole.** In a puddling furnace, the hole through which the puddle raffle is introduced. *Webster 2d.*

**stopper maker.** One who forms and finishes fire clay stoppers for open hearth ladles, using a stopper press and a finishing machine. D.O.T. 1.

**stopping.** Stopping includes, or more commonly, a masonry or brick wall built across old headings, chutes, airways, etc., to confine and compress the air or to close off access to certain passages, and also to lock up the gas in old workings, and in some cases to smother a mine fire. *Fay.* b. A permanent wall built to close off the unused or no longer needed crossties to prevent the air from short circuiting. *Lewis*, p. 544. c. A dam or seal to isolate old working containing water or injurious gases. *See also inrush of water. Nelson.* d. The filling up of any cracks in biscuit pottery ware prior to the glotfiring. *Dodd.*

**stopping builder.** In bituminous coal mining, one who builds walls of concrete, stone, or brick and mortar, to close off old passageways or haulageways underground, to maintain ventilation in new workings. D.O.T. 1.

**stopping distance.** See braking distance.

**stopping off.** a. Depositing a metal like copper in localized areas to prevent carburization, decarburization, or nitriding in the vicinity of the stops. *ASM Gloss.* b. Filling in a portion of a mold cavity to keep out molten metal. *ASM Gloss.*

**stopping valve.** a. A valve used for controlling the flow of a liquid or gas by turning it on or off. b. A valve shutoff. *Fay.* c. In a steam boiler, a valve which serves to isolate the boiler from the common
steam range when it is laid off for cleaning or repair. Maun, v. 2, p. 339.

storage; memory device. The element of a computer system that retains information that is temporarily stored and is required for reference. N.C.B.

storage battery. A. A combination of secondary cells or accumulators which when charged may be used for a considerable time after as a source of electric current. There are a number of types and makes. Large one find use in operating mine-haulage motors, while a portable type is used in the electric safety lamp. Fey, b. See secondary cell, a. Morris and Cooper, p. 233. c. See accumulator. Nelson.

storage battery locomotive. A. An underground locomotive powered by storage batteries which is cheaper than one driven by compressed air, or by electric power supplied from an overhead wire. Ham. b. See battery locomotive. Nelson.

storage battery-type electric mine locomotive. See electric mine locomotive.

storage tanks. Large circular steel tanks for storing water, located near the well or near the refineries. Maun, 4th, p. 199.

Stora-Kaldo process. See Kaldo steel process.

store. A mine surface building where spare replacements, protective clothing, fuel, etc., are stored and issued for use when required. Nelson.

store-energy welding. Welding with electric energy accumulated electrostatically, electromagnetically, or electrochemically at a relatively low rate and made available at a higher rate required in welding. ASM Glist.

storekeeper. A man appointed at a mine to see to the issue of stores and to ensure that materials are readily available when required. Guided by the manager, he aims to avoid the accumulation of excessive quantities of slow moving articles. Nelson.

store-hole. A pebble beach built up by storm waves at exceptionally high tides, immediately above the level reached by still higher tides. Challenge.

store delta. a. A deposit of a type that has found considerable use for the determination of the viscosity and thixotropy of clay slips. Dodd.

storemometer. A rotating cylinder viscometer of a type that has found considerable use for the determination of the viscosity and thixotropy of clay slips. Dodd.

storm-paved. A gently inclined paved bank to a breakwater. Ham.


storm sewer. A sewer which is wholly empty but which is designed to carry the overflow of storm water. Ham.

storm surge. A rise or piling up of water against shore, produced by wind stress and atmospheric pressure differences in a storm. Schiefferdecker.


storm water. The water which runs off a catchment area after a heavy rainfall. Schiefferdecker.

storm-water tanks. Tanks which receive excessive storm water and allow grit or other solid material to settle before the water is drained off into a stream or river. Ham.

storm wave. A rise of the sea over low coasts not ordinarily subject to overflow; it is caused primarily by wind, and has no relation to the tide brought about by gravitational forces except that the two may combine. More than one-fourth of all the loss of human lives in tropical cyclones has been caused by these inundations and not by the winds directly. A.C.I.

Storrow whirling hygrometer. A hygrometer in which the two thermometers are mounted side by side on a brass frame and fitted with a loose handle so that it can be whirled in the atmosphere to be tested. The instrument is whirled at some 200 revolutions per minute for about one minute and the readings on the wet- and dry-bulb thermometers recorded; used in conjunction with Glashier's or Marvin's hygrometrical tables. It gives more consistent and accurate results than the ordinary instrument. Nelson.

stove side. That side facing the direction from which a glacier moves, a rock or hill in its track; as, the stove side of a crag; opposite of lee side. Standard, 1964.


stove coal. a. In anthracite only; two sizes of stove coal are made, large and small. Large stove, known as No. 3, passes through a 2 & 1/4 inch mesh and over a 1-7/8 to 1-1/4 inch mesh; small stove, known as No. 4, passes through a 1-7/8 to 1 inch mesh and over a 1/4 to 1 inch mesh. Only one size of stove coal is now usually made. It passes through a 2 inch square mesh and over 1-3/8 inch square mesh. Zern. b. See anthracite coal stowes.

stoved salt. Stoved open-pan salt. Kaufmann.

stowing. The process of placing the load on the frame of a ship. Barta.

stowage. Scot. A kiln, as for firing pottery or drying manufactured glass. Harker, 4th, 2d. c. See hot-blast stowe. Dodd.

stow road. Scot. An abandoned road in which the debris of a vein thrown back of a miner and which supports the roof or hanging wall of the excavation. Zern. c. See solid packing. Nelson.

stowing systems; stowing molds. The temporary boards or sheets to hold the material stowed by pneumatic or hydraulic machines in the waste area. The forms sometimes use one board as a core and one, which are moved forward as the stowing of each track is completed. Nelson.

stoving methods. Methods of stowing coal or ore deposits in which systematic stowing of the worked out areas is part of the system. See also coal mining methods; filled stops; solid stowing; strip packing. Nelson.

stoving molds. See stowing forms. Nelson.

stowing. A. Method of mining in which all the material of the vein is removed and the waste is packed into the space left by the mining. Fey. b. The debris of a vein thrown back of a miner and which supports the roof or hanging wall of the excavation. Zern. c. See solid packing. Nelson.

stows. Seven pieces of wood set on the surface of mining property which were fastened together with pins of wood; two stows are called soul trees; two; stow-board; two, hank benches; and one, a spindle. Davey. Nelson.

stowce. A windlass. Fay.

stowplates. Metal plates or sheets, usually closed, used in the manufacture of stove, four sizes, 14, 16, 17, and 19. E. C. M. 1886, p. 1028.

stowce. Fay.

stowce. Wallace.

stradow. See stowage.

straightaway. It is said to be set up or stowed up. Zern.

straightaway; best-hardening finish. Finish produced by hardening a paint or varnish coating by means of heat, for example, with a brush or lamp. Also called baking finish. Bennett, 24, 1962.

stow. a. To pack away rubbish into caves or old workings. Fey, b. To go into to stow away the waste; to put debris into the waste. Maun, 4th, 2d. Eng. To fill a place with stone or debris. SMRB, Paper 61, 1964, p. 200 revolutions per minute for about one minute.

stowaway. Newc. A place into which rubbish is put. Also spelled stowboard. Fay.

stowce. a. A windlass. Fey. b. Derb. A wooden landmark, placed to indicate possession of mining ground. Also spelled stowce. Fay.


stowing. a. A method of mining in which all the material of the vein is removed and the waste is packed into the space left by the mining. Fey. b. The debris of a vein thrown back of a miner and which supports the roof or hanging wall of the excavation. Zern. c. See solid packing. Nelson.

stowce. Nelson.

stowce. Barta.

stowace. Nelson.

stowce. Fay.

straddle shot. Shot with the shotpoint in the center of the seismometer spread. Schiefferdecker.

straddle asE*g. Face milling a workpiece on both aides at once by using two cutters simultaneously.

st. P. Abbreviation for strain point. See also strain point. Dodd.

straddle pipe. In gas manufacture, a bridge pipe connecting the retort with hydraulic main. Fay.

straddle shot. Shot with the shotpoint in the center of the seismometer spread. Schiefferdecker.


straight arch. See jack arch. 4.1.S.1. No. 24.

straightaway. In stripping, a pit that follows the direction of the stope projected on an oriental horizon plane. Woodford, p. 3-4.

straddle.
straight bit, Eng. A flat or ordinary chisel for boring. 

straight brick. A rectangular shape, 

straight coal. S. Staff. An excavation made 

in thick coal, having the solid coal left on 

the top of it. Also called straight stall. 

Fay. 

straight-cut gang frame. In quarrying, a saw 

that uses an annular diamond bit in 

air night compressor. A compressor with 

a straight-res 

straight polarity. Arc welding circuit arrange-

ment in which the electrode is connected 

and properly elastic strain energy and can be 

recuperated as work rather than heat. 

Boo. 

strain strain. A porosity refractory shape for 

use in foundries to control the flow of 

metal and to keep slag and sand inclu-

tions out of the casting. High shock resistance is required. 

Dodd. 

strain gage. a. An electrical, mechanical, or 

optical device used to measure the strain 

of rock, cumulative loading of support props, 

opening cracks, etc. Pryor, S. b. An elec-

tronic mechanical device which transmits 

small displacements to changes in 

resistance which are proportional to the dis-

placement. Strain gages are used in ocean 

bottom pressure measuring equipment. 

HOG. 

strain gage, electric resistance. The basic 

principle of this was enunciated by Lord 

Kelvin in 1854 when he applied tension to 

the fine wires as observed that their resistance increased with tension. 

This was first used for measuring strain in 

1930 by Carlson, who investigated strain in concrete structures, using fine steel 

wires. A further advance was the bonding of wire to a metal structure so that the 

wire automatically absorbed the deformation of straining hammers. During the 

Second World War this type of gage was used with outstanding success by the 

Royal Aircraft Establishment, Farnborough, in England, for laboratory and flight testing of 

complex aircraft structures. The foil strain gage is bonded to the structure 

by an adhesive, reliable operation being possible between 300° and 350° C. 

1090
strain gage, electric resistance

See also electric resistance strain gage. Ham.

strain gage, vibrating wire. This consists of a wire stretched between knife edges, one being free to move longitudinally. The wire is maintained vibrating at a fixed frequency by an excitation method. The knife edges are held firmly against the gage under test, a change of strain in the wire being detected in the wire and hence its natural frequency. This gage is used in conjunction with a reference instrument of fixed frequency; electrical impulses from both instruments are superimposed to produce beats having a frequency equal to the difference between the frequencies of the two instruments. Changes in the frequency of the test gage caused by variations in strain result in identical changes in the beat frequency. The joint output from these two instruments is applied to the plate of a cathode-ray tube, leading to an oscillation of the electron beam with a frequency equal to that of the higher of the two frequencies, with an amplitude which increases and decreases with the same frequency as that of the beats. Dodd.

strain hardening. An increase in hardness and strength caused by plastic deformation at temperatures lower than the recrystallization range. ASM Gloss.


strain sheet. a. A skeleton drawing of a structure, as a roof of true or a bridge, showing the strain to which each member will be subjected. Fay. b. A quarrymen’s term for granite sheets produced by compressive strain. Fay.

strain slip cleavage. a. A variety of cleavage occurring in certain low-grade metamorphic rocks, due to differential movement or slip along each of a nearly parallel series of closely packed shear planes. Between each pair of shear planes, the rocks are puckered into sigmoidal microscopic folds, the outer limbs of which merge tangentially into the shear planes. Holmes, 1929, b. The phenomenon is commonly seen in cataclastic rocks, and must not be confused with the partial exsolution of zoned crystals. Holmes, 1929. strain sheet. a. A skeleton drawing of a structure, as a roof of true or a bridge, showing the strain to which each member will be subjected. Fay. b. A quarryman’s term for granite sheets produced by compressive strain. Fay.

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strata gases
flow and rock porosity and fissures also allow gas migration. The principal strata gases are methane, carbon dioxide, nitrogen, sulfur dioxide, hydrogen sulfide, and radon. (See p. 22-43.)

strata temperature. The strata temperature is determined by the surface temperature, the diffusivity of the strata and the emissivity of the surface. With rocks of high thermal conductivity, and thus, high diffusivity, the strata temperature in temperature with depth is small, that is, the geothermic gradient is low. Where rocks have low thermal conductivity, in coal measure strata, the geothermic gradient is steep. See also geothermic gradient. Roberts, I. p. 139.

strategic mica. Ruby and nonruby block mica. Good-stained or better qualities, grade No. 6 or larger; ruby-stained A/B quality, grade No. 6 or larger; ruby and nonruby film, first and second qualities, grade No. 4 and smaller; muscovite and phlogopite splittings; and phlogopite block of high heat quality. Skow.

stratified. Formed or lying in beds, layers, or strata. Foy.

stratiform. See composite cone. A.G.I.

stratified rocks. a. Derivative or stratified rocks may be fragmental or crystalline; those which have been mechanically formed are all fragmental; those which have been chemically precipitated are generally crystalline; and those composed of organic remains are sometimes partially crystalline. Synonym for sedimentary rocks. A.G.I. b. Rocks arranged in layers. Shell Oil Co.


stratigraphic bore. Exploratory boreholes drilled primarily to determine geological sequence and type of rock formations in a given region. See also structure drilling. Nelson.


stratigraphic control. The apparent localization of mineral deposition by stratigraphic features. A.G.I.

stratigraphic geology. See geology. Fay.

stratigraphic heavy. a. For normal faults, the width of the gap between two parts of a disrupted bed, measured in the direction of the faulted bedding plane. Schieffel- decker. b. For reserve faults, the width of the overlap between two parts of a disrupted bed, measured in the direction of the faulted bedding plane. Schieffelder.

stratigraphic hole. A borehole drilled specifically to obtain a detailed record of the character and composition of the rock formation penetrated and not for the purpose of locating a mineral deposit. Long. See also record hole.

stratigraphic separation. See stratigraphic throw. A.G.I.

stratigraphic sequence. Any stratum (not complicated by overthrusting or over- folding) is younger than the strata below it and older than the strata above it. This original succession from older below to younger above is referred to as stratigraphic sequence. Nelson.

stratigraphic test hole. A borehole drilled for stratigraphic information, including lithology, porosity and permeability. It is drilled to determine potential productivity zone, and thus may result in production. See also seismic shtothole; thin hole; and earth or other structures that may serve as a conductor, such as pipelines. This condition may cause an electric current to flow in pipelines that form a parallel path with the track system. Such current is called stray current. BuMinex Bull. 570, 1937, p. 17. Electric current that is introduced in the earth by leakage of industrial currents. Schieffelder.
stray sand

stone, separated by a short interval from a more persistent member by a break or other change in lithology. A.G.I.

streak. A band of color in the surface of the powder of a mineral as obtained by scratching the surface of the mineral with a knife, file, or the tooth of a needle by rubbing it on an unpolished porcelain surface. Fay. b. The characteristic white or colored streak a mineral makes when rubbed against a streak plate. Bureau of Mines Staff.

streaked. Having some of the mineral constituents so arranged as to give the rock a striped or streaked appearance. In the eruptive rock, this structure is often produced by the ting of the mass in a partially cooled condition. It is best seen in obsidian, rhyolite, and quartz porphyries. Fay.

streak-out ripples. See flame structure. Pettijohn.

stream. A continuous unidirectional current of gas, liquid, or solid material moving along a steady, curved path, or in one or more directions. Spalding.

stream plate. A piece of unglazed porcelain for testing the streak of minerals. Fay.

streamers. Irregular, generally platy lentils of streaking. Synonym for streaming. See also streak.

stream-down sluice. A sluice box placed to receive the material rejected from the tables of a dredge. Fay.

stream-elevated ore. See also stream ore.

streamfretting. That process by which rock material is forced downstream by pushing, by rubbing it on an unpolished porcelain surface, and containing minerals, such as quartz, pyrite, chlorite, sericite, carbonates or food plants during periods of overflow. Consequently, the deposits are pocketed and grade laterally into sandy material. The pockets, however, yield a fine plastic clay, but different pockets vary greatly in composition. Stokes and Hayes, 1955.

stream-down sluice. A sluice box placed to receive the material rejected from the tables of a dredge. Fay.

streamer. a. Corn. To separate or clean ore by washing. Fay. b. A body of flowing water, whether in an open or closed conduit; a jet of water as from a nozzle; or air. The Gulf Stream is an example. See also c. A steady current in water or air. The energy content in relation to its weight. Nichols. c. The force developed by the explosive. Kentucky Act. 1624. The stress at which rock ruptures or fails. BuMiner Bull. 587, 1960, p. 2. e. The limiting stress that a rock or mineral can sustain without failing by rupture or continuous plastic flow. Ruption strength or breaking strength refers to this stress as a stress of rupture. If a body deforms plastically continuously after a certain stress has been reached without any increase in stress, this is also called strength. See also fundamental strength; ultimate strength. A.G.I. f. A term to indicate relative thickness in mineralogic glass. ASTM C162-66.

strength of current. The number of amperes flowing through a circuit. Analogous to the tonnage of gallons per minute in a water pipe. Crispin.

strength of materials. The science that deals with the effects, forces causing changes in the size and shape of bodies. Crispin.

strength. a. Force per unit area, often thought of as force acting through a small area within a plane. It can be divided into components, normal and parallel to the plane, called normal stress and shear stress, respectively. True stress denotes the stress where force and area are measured at the same time. Conventional stress, as applied to tension and compression tests, is force divided by the cross-sectional are. Nominal stress is the stress computed by simple elasticity formulas, ignoring stress raisers and distortion at the plastic limit in a notch bend test, for example, it is bending moment divided by minimum section modulus. ASM Gloss. b. The intensity at a point in a body of the internal forces or components of force which act on a given plane through the point. As used in product specifications, stress is calculated on the basis of the original dimensions of the cross section of the specimen. A.G.I. c. The force that results in strain. A.G.I. Supp. d. Resistance of a body to compressional, tensional, or torsional force. A.G.I. Supp. e. Any condition of tension or compression existing within the glass, particularly due to incomplete annealing, temperature gradient, or inhomogeneity. ASTM C162-66.
the distribution of stress. 


stress concentration factor. K. The ratio of the greatest stress, in the region of a notch or other stress raiser as determined by advanced theory, photoelasticity, or direct measurement of elastic strain to the corresponding nominal stress. ASM Gloss.


stress corrosion cracking. Failure by cracking under combined action of corrosion and stress, either external (applied) or internal (resulting from mechanical stresses) may be either intergranular or transgranular, depending on metal and corrosive medium. ASM Gloss.

stress diagram. See stress-strain diagram. Ro.

stress difference. The algebraic difference between the maximum and minimum principal stresses. A.G.I.

stress-strain diagram. A graph on which the stress is divided by the length over which it is measured and expressed in inches per inch. C.T.D.

stress field. The solid figure formed by surfaces bounding vectors drawn at all points of the cross section of a member and representing the unit normal stress at each such point. The stress solid gives a picture of the stress distribution on a section. Ro.

stress-strain curve. A curve similar to a load extension curve, except that the load is divided by the original cross-sectional area of the test piece and expressed as tons or pounds per square inch, while the extension is divided by the length over which it is measured and expressed in inches per inch. C.T.D.

stress-strain diagram. a. A graph on which is plotted stress vs. strain. Such a graph may be constructed in any test during which increments or continuous measurements of both stress and strain are made. It is commonly constructed for the comparison, tension and torsion tests. It is usually necessary for the determination of deformation energy, elastic limit, modulus of elasticity, modulus of rigidity, percent elongation, and other related properties. H.B.G. c. The curve obtained by plotting unit stresses as ordinates against corresponding unit strains as abscissas. Also called stress diagram. Ro.

stress-strength ratio. The ratio of the actual stress in a specimen to the stress at which it resists further increase. B.S. 3618, 1963, sec. I.

stress strain; opposite of antistress minimum. Webster 3d. See also Stokes stretcher; Neil-Robertson stretcher; Briggs stretcher carriage; Croxale stretcher carriage; McAdam, pp. 105-107.

stress-strain bond. A form of bond in which the brick or aslar are laid lengthwise in successive courses, so that the joints of one course are at the middle of those of the adjacent courses. Standard, 1964.

stretching. A process for straightening rod, tubing, and shapes by application of tension at the ends of the stock. The products are elongated a definite amount to remove warpage. ASM Gloss.

stretching bond. The laying of brick in a wall as stretchers with broken vertical joints. A.R.I.
stretch point. The greatest stress at which a material exhibits a specified elongation under load. Hast.

striation. That which forms when the inverted limb of an overturned or recumbent fold becomes so stretched that it ruptures. Webster 3d. See stretch or very small grooves. Pettijohn.

strich. A minute groove or channel; a threadlike line; a narrow band (as of color) especially when one of a series of parallel grooves or lines. Webster 3d. See also striate. Fay. A very low intensity generally of interest only in optical glass. See also cori, b. ASTM C162-66.

striated, Streaked, or with lines or grooves running, more or less parallel to each other. Gordon.

strait crystal. One with strie on the surface of a face or faces. Skipley.

striation. a. A very fine parallel line marking the surface or cleavage face of a mineral. Fay. b. A channel or scratch made in rock scoring. Standard, 1964. c. A scratch or small channel gouged by glacial action. Bedrock, pebbles, and boulders may show striation, a. The course or bearing of the outcrop of a bedrock. Gordon. Also used in the application of the term to the strike of bedding, schistosity, etc. Lewis, p. 352.

strike. a. The development of opacity or a Mike and lead, lode, or vein, as of ore. Standard, 1964. See also strike, b. A combined effort among workmen to compel the employer to the conduct of his business until completed and the mortar set. A.G.I. d. A very small lead, lode, or vein, as of ore. Standard, 1964. See also strike, b. Also called running bar; running head. See also running bar. Webster 3d.

stringer. Kentucky. Also called running bar; running head. See also running bar. Webster 3d.

stringer. A long horizontal member in a bridge or tunnel. Sand.

string course. A distinctive, usually projecting course in a brick wall; its purpose is aesthetic. Dodd.

string dryer. A tunnel-type dryer, particularly for drying bricks placed intermittently. See also running bar. Webster 3d.

stringer. A balk set between the heads of props and the balks or girders of ported members. Platt.

string. a. Pieces of pipe, stringing, or other downhole drilling equipment coupled together and lowered into a borehole. Compare string strap, tool. b. A drill string term for the drilling bit, jar, drill stem, rope socket, and other tools connected to the lower end of a drill string. Standard or percussion drilling. Also used for the rig and complete drilling equipment. A.G.J. c. A measurement of depth of a drill hole obtained by stringing over the length of cable from the drilling floor to the crown, or top of the drilling director or derrick. A.G.I. d. A very small lead, lode, or vein, as of ore. Standard, 1964. See also string, b. a. Eng. A balk set between the heads of props and the balks or girders of ported members. Platt.

string (stringer) head. A continuous weld bead made without appreciable transverse oscillation, in contrast with weaved bead. ADM Gloss.

string course. A distinctive, usually projecting course in a brick wall; its purpose is aesthetic. Dodd.
strip-pit limits

stripping-pit limits

stripper. A nearly depleted well whose in-

stripper punch. In powder metallurgy, a

stripper, hand. One who paints stripes and
decorative edges on glass, enamel, or
ceramic products using small hand brushes.

stripper. a. See strip, b. Fay. b. Shipping a Mg. Aust. The forming of a jig, 
die cavity and later moves farther into
disturbing. Fay.

stripping. Punch. In powder metallurgy, a

striping-pit limits

stringer. k. In wrought materials, an elo-

cated configuration of microconstituents
or foreign material aligned in the direc-
tion of elongation. More commonly, the term is as-
sociated with elongated oxide or sulfide
inclusions in steel. ASM Gloss.

stringer lead. A small ore body—generally, a
vein leading to a more valuable one.

D.G.I.

stringer lode. A shattered zone containing a
new, small ore body. Generally practiced only
where the coal seams are laid bare by the stripping of the surface soil
and rock strata. Operation are reporting
more and more to this form of mining as
it greatly reduces cost of production, especially those in iron ore.
It is esti-
mated that for every ton of anhidrite that is stripped instead of mined, ten men
are deprived of work. Stripping also elimi-
nates the cost of timbering, hauling, pumping, ventilating, and complicated
safety provisions. Kenna. The operation of
removing the overburden prior to
working the mineral in a quarry or open
pit mine. Bureau of Mines Staff. c. The loading or clear-
ing away of coal from a longwall face
after shotfiring. Nelson. d. Openpits min-
ing. See strips. e. See striping the quarter
area encompassing the pay material, its
area beyond the limits of the ore pit to
includes area of pay material plus enough
area of overburden or thin layers
removed from a coal face. See also strip,
which is otherwise obscure. Standard, 1964.

stripper, hand. One who paints stripes and
decorative edges on glass, enamel, or
ceramic products using small hand brushes.

strip foundation. A continuous founda-
tion for a wall or for several piers or columns
which are commonly designed. See also plumb-
ing. Nelson. b. The use of stretched
strings in awkward underground workings
to provide survey lines and basis for off-
sets. In the lost thread method of survey,
string or thread is paid out as a meas-
uring device as a traverse line is walked.

strip, n. 1. The removal of a surface layer or deposit,
from a coal face. See also strip pit. 2. The filling of prepared coal from the face.

strip, a. In coal mining, to remove the
earth, rock, and other material from a
seam of coal, generally by power shovels.
Generally practiced only where the coal
seam lies close to the earth’s surface.

B.C.I. b. To remove from a quarry, or
other open working, the overlying earth
and disintegrated or barren surface rock.
Fay. c. To mine coal, alongside a fault,
or barrier. Fay. d. To fill prepared coal
from a coal face. Mason. e. To complete
the filling of prepared coal from the face.
Mason. f. Can. To remove soil and vege-
tation interfering mineral deposit. Hoffman.
g. To remove overburden or thin layers
of pay material. Nichols. 2. h. A shallow
cast ingot of brass for rolling into sheets.


stripping-pit limits

working approaches to the pit. Bull. Mines

stripping ratio. The unit amount of spoil or
which may be removed to gain ac-
to a similar unit amount of ore
or mineral material. Bureau of Mines Staff.
struggles. A strip mine.
stripping salt. See abraum salts. Kaufmann.
stripping shovel. See shovel crane-
n. D.O.T.:
stripping-shovel operator. In bituminous coal
mining, one who operates a power shovel in
a strip mine to strip back overlying ground
and to load coal into cars. Also called
boom cat; coal-loading-shovel en-
stripping solution. In solvent extraction, the
aqueous solution used to re-extract the
uranium from the pregnant solution. New-
ten, p. 440.

stripping systems. The removal of the over-
burden and mining of the ore in one or
more layers. The top layer (face being broken
by blasting and the broken ore loaded by
hand, shoveling machine, or steam shovel.
The name "boxes" or "bench-open-pit working"
has been suggested. Fey.

stripping the quarry. The removal of all dirt
and disintegrated material from the quar-
ry face. Nelson.

stripping yard. The place where glass plates
are polished and engraved before grinding and
polishing. ASTN C162-66.

strip pit. A coal or other mine worked by
stripping. An open-pit mine. FAY.

strip sample. A sample, in the form of a
notch or groove, cut from roof to floor of
a coal seam, or hanging wall to footwall
of a vein. See also groove sample. Nelson.

strip steel. Flat rolled steel from the finishing
rolls in a hot strip mill. Strip steel may be
made to specified thickness in thinsness
from 0.049 to 0.25 inch. The strip
is wound into coils by downcollets,
be up to 60 inches wide and ranges in
thickness from 0.049 to 0.25 inch. The
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is comparable to times of importance in meteorological and biological processes, this isotope is one of the principal radioactively active species in terms of activity and in fusion products that are a few months to a few years. Since it is a bone seeker, it is metabolized in much the same manner as calcium; it is generally considered the most hazardous component of fallout; it is the cause of much of the concern for the fallout problem; and it is the adsorbable, Kapton polyethylene is claimed for use where one or more faces will be exposed in the finished wall and for which specifications include requirements on color, finish, and other properties affecting appearance. This classification includes facing brick, structural clay facing tile, ceramic glazed facing building tile, architectural terra cotta and ceramic veneer. ASTM C43-65T.

This classification includes facing brick, structural clay facing tile, ceramic glazed facing building tile, architectural terra cotta and ceramic veneer. ASTM C43-65T.

The term 'structural' is often used to signify a material or a design that is not intended to carry loads. Typically, structural materials are used in the construction of buildings, bridges, and other large-scale projects. Structural materials are designed to resist loads and stresses, and they are typically made from strong and durable materials such as steel, concrete, or wood. Structural materials are used in a wide range of applications, from simple construction projects to complex engineering designs. Structural materials must be designed and manufactured with careful consideration of the forces and stresses that they will experience in service. This is accomplished through the use of mathematical models, computer simulations, and laboratory testing. The choice of structural materials depends on the specific application and the desired performance characteristics. ASTM C71-64t. ASTM C43-65T. ASTM C71-64t.
structure - 1093

stall covering - 1099
stull dirt; stull rock. Material supported upon the stulls. Fay.

stull stopes. Stopes in which the roof is supported by audacious pillars or concrete columns. Storey, v. 1, p. 394.

stull piece. A piece of timber placed slanting over the back of a level to prevent rock falling into the level from the stopes above. Standard, 1964.

stull timbering. The support of walls in shrinkage stopping by setting stulls. Nelson, 

stun. A comparatively horizontal passage-dull timbering. The support of walls in narrow veins frequently or less than the normal amount of (such) an element or radical; not used systematically. Webster 3d.

sub Abbreviation for subbituminous A.

subA. A prefix denoting under, below, or less than, that of soda and potash combined, or rather for stiflim, which is contrasted with the negligible erosive forces under the sea. Hy.

subaccretion. The erosion of land masses and peneplains; arroyo cavitation. A.G.I. This is contrasted with the negligible erosive forces under the sea. Hy.


subAer. Deposit laid down on a land surface. Schiefederker.

subaerial erosion. The erosion of land masses and peneplains; arroyo cavitation. A.G.I. This is contrasted with the negligible erosive forces under the sea. Hy.

subaqueous. Peat deposit formed at moderate elevation under the influence of a cold-temperature climate. Tomkeeff, 1954.

subaqueous mining. Surface mining in which the material mined is removed from the bed of a natural body of water. American Institute of Mining and Metallurgical Engineers. Technical Publication No. 604, 1954.

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subaudible noise

variably a period of increased microseismic activity precedes any large-scale ground movement or failure. *Inaction*, 1954.

subaerial a. A layer of material laid on the natural ground under a road base for purposes of subsoil. b. The lowest part of a base. *Crupin."

subbituminous c. A coal. Both weathering and nonagglomerating subbituminous coal have less than 11,000 or more, and less than 13,000 British thermal units (moist, mineral-matter-free). *Subbituminous B coal. Both weathering and nonagglomerating subbituminous coal having 9,500 or more, and less than 11,000 British thermal units (moist, mineral-matter-free). *ASTM D388-38.

subbituminous C. Both weathering and nonagglomerating subbituminous coal having 8,300 or more, and less than 9,500 British thermal units (moist, mineral-matter-free). *ASTM D388-38.

subdivision. See group level. *Stokes, e. 1, p. 228.


subdrift caving. See sublevel caving. *Nelson.

subdrifting and caving. See top slicing combined with ore caving. *Fay.

subdrilling. Refers to the breaking of the base i.e., where boreholes are drilled one foot = several feet below the level of the quarry floor. *Striefker, p. 16.

subglacial. Formed or deposited beneath a glacier. *Fay.

subglacial. Applied to a lithic wacke or lithic arenite containing less than 10 percent matrix. *A.G.I.

subglacial. Formed or deposited beneath a glacier. *Fay.

subgrade. a. The natural ground below a road, track, or siding. *Nelson. b. The surface produced by grading native earth, or cheap imported materials, which serves as a base for a pavement. *Fay.

subgrade surface. The surface of the earth or rock prepared to support a structure or a pavement. *Fay.

sublevel caving. A stopping method in which relatively thin blocks of ore are cavled out by successively undermining small panels. The ore deposit is developed by a series of sublevels spaced at vertical intervals of 15 to 20 feet or more, and occasionally more. This is not all done before stoping operations are begun, but usually only one or two sublevels are developed at a time, beginning at the top of the ore body. The sublevels are developed by connecting the raise, or undercutting or roof, and then undermining the ore by cutting and mining the ore body, or driving horizontal or near-horizontal stopes, and removing the waste. *Fay.

1 sublevel stoping: *Fay.

sublevel backstopping. See sublevel stoping.
sublevel caving

was shoveled into cars and trammed to the raise, but in recent years it is dropped to the raise by means of belt conveyors. These lower sublevels are developed and caved back until the entire block has been mined. This method is used when the ore body is divided into sublevels; the broken ore falls into the sublevels and may be transported by trams. The ore is usually block caved, but in some instances is caved by crosscuts, which are extended from the sublevels and empty in the slice above it. The ore body is developed first by a series of sublevel drifts below the main haulage level. These sublevels are often 20 to 25 feet apart vertically but in some instances are 40 to 50 feet apart. They are connected by a starting raise at one end of the level and by a main raise for entrance to the next level at the other end. Chute raises connect the haulage level to the lowest sublevel, at which the ore is excavated in open stopes, which ore is blasted and drawn through a gathering level in the country rock below. Used with strong ore and strong walls. The method is used with both vertical and horizontal drifts, the latter separated by comparable distances. Vertical pillars may be left between stopes on the same level, and horizontal ones to separate the main haulage. After the block is mined out, the pillars may collapse after the mine is abandoned, leaving all the ore free. Sublevel back stoping, a method of mining best developed in the Mitchell slicing system. See top slicing combined with ore caving. Fay.

sublevel drive. A drive often made in a section, especially in gently inclined deposits, which divides the deposit into narrower panels and zones. They are narrower, and the support and equipment for them is more simple than that required in level drives. Stocks, c. 1. p. 233.

sublevel method. See sublevel stoping, b. Fay.

sublevel slicing. See top slicing combined with ore caving; sublevel method. See sublevel stoping, a. Like a submarine cavern: submerged are midis. An arc-welding process wherein coalescence is produced by heating with an electric arc or area between a bare metal electrode or electrodes and the work. The work is shielded by a blanket of granular, fusible material on the arc. The metal is obtained from the electrode and sometimes from a supplementary welding rod. Coal Age, v. 66, No. 3, Mar. 1961, p. 92.


submerged channel. A channel of which grades continually downwards. Hy.

submerged closed. See Benthic Division, Hy.


submerged layer. a. To cause to pass from the solid state to the vapor state by the action of heat and again to condense to solid form. Webster 3d. Used to dry a substance, to purify, or to dehydrate by heating a containing mixture. Webster 3d.


submerged mining theory. The theory that a vein was filled first with metallic vapors. Fay. submergence. See surface float. Hy. submergence phenomena. Any objects which are more or less constantly beneath the surface of the water, usually rarely exposed and filled with air, and which ore is obtained from the electrode and sometimes from a supplementary welding rod. Coal Age, v. 66, No. 3, Mar. 1961, p. 92.

submerged object. Any object which is submerged is an object which comes to rest totally or partially beneath the surface of the water and remains there until it is removed or destroyed. Hy.

submerged thalweg. See submarine thalweg. Hy.

submerged weight. The weight of the solids in air minus the weight of water displaced by the solids per unit of volume of soil mass; the saturated unit weight minus the unit weight of water. ASCE 1926.

submerged wall. A wall of refractory material below the level of the molten glass in a tank furnace and separating the melting zone from the refining zone. Dodd.

submergence. a. In an air lift, the distance below the water level, during pumping, at which the air picks up water. Lewis, p. 457, b. A term which implies that part of a mass has become inundated by the sea but does not imply whether the sea rests on the land or the land rests on the sea. A.G.I.

submersible pump. A centrifugal pump, usually driven by electricity, which can be used in submersible applications in which the pump is totally enclosed and fully protected and its position in a shaft or borehole
submersible pump


subsoil


subsoil content. A fault whose detailed location has been mostly determined by previously existing planes of weakness. Nelson.

subsequent ore deposit. See epigenetic deposit.

subsequent stream. Subsequent, which Jukes used in a descriptive sense, has been used similarly in a restricted and technical sense for streams that have grown headward by retrogressive erosion along belts of weak structure, and also for streams which, having been thus developed in one cycle, persist in the same courses in a following cycle. See also longitudinal valley. A.G.I.

subsequent valley. The valleys on the soft rocks which are opened up after the birth of the streams are called subsequent valleys by Schuenck. A.G.I.

subsequent valley. The valleys on the soft rocks which are opened up after the birth of the streams are called subsequent valleys by Schuenck. A.G.I.

subsequent valley. From the surface resulting from collapse of deep workings. Pryor, 3.

subsoil. A sinking down of a part of the earth's crust. Fay. b. The lowering of the strata, including the surface, due to underground excavations. See also maximum subsidence. Nelson.

subsoil. A soil below a subgrade or fill; that is, the portion of a soil profile occurring below the water table. Fay.

subsoil. A soil below a subgrade or fill; that is, the portion of a soil profile occurring below the water table. Fay.

subsoil. A soil below a subgrade or fill; that is, the portion of a soil profile occurring below the water table. Fay.

subsoil. Subsoil is the area affected by sub-"-sidence over areas where minerals or other substances have been removed. The area is larger than the mined-out area below. A.G.I.

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subsolling

soil, clay, etc., for aerating, draining, and moistening the soil. Fay.

subsoil plow. A one-tooth ripper designed for agricultural work. Also called pan breaker. Nichols.

subsoil. a. The part of any structure which is below ground, more particularly the foundations. The latter may take

many forms, according to the nature and bearing strength of the ground. Ham.

b. The lower portion of a structure upon which something else is built up. Gipson.

subsoil. a. Underground; the zone below the surface whose geologic features, principally stratigraphic and structural, are interpreted on the basis of drill records and various kinds of geophysical evidence. A.G.I. Supp. b. An underground work-place. Long. c. The underside of a glass blank or sheet of glass. Kinney.

subsoil. a. The surface in the interstices of the zone of aeration that open directly or indirectly to the su'face and hence communicate with the atmosphere. A.G.I.

subsoil. a. Same as structure contours and so-called to distinguish them from contours representing the surface of the ground. Stokes and Varnes, 1935.

subsoil. a. Correlation of rock units and structures that do not appear at the surface, by means of well logs, mine maps, and geophysical data. Stokes and Varnes, 1955.

subsoil. a. Formation of isolated particles that sludge beneath the surface metal. This results from the preferential reaction of certain alloy constituents with oxygen, nitrogen, and sulfur. A.G.I.

subsoil. a. Currents flowing below the surface. Currents normally flow at a speed different from that of the surface currents and may have a different set. Hy.

subsoil. a. The removal of the surplus water from the interior of the soil, by means of natural drainage (for a gravelly soil), or by artificial drains placed under the surface. See also catch-wate drain. Nelson.

subsoil. a. A submerged float attached by a line to a surface float which reveals its movement. See pipping, c. Nelson.

subsoil. a. A body of flowing water, core drilling, and geophysical prospecting. A.G.I.

subsoil. a. See subsurface waste disposal.

subsoil. a. A plane surface representation, generally in horizontal projection, of geologic data or features beneath the earth's surface. There are many types of subsurface maps, including contour maps, isopachous maps, and maps showing variations in lithology, or proportions of rock types in strata. Hy.

subsoil. a. Waste disposal in which manufacturing wastes are disposed of in porous underground rock formations. Disposal wells should be at least 200 feet deeper than the deepest water-bearing formation, and they must be sealed with cement from top to bottom. Also called subsurface injection. Bureau of Mines Staff.

subsoil. a. Value of the water that exists below the surface of the solid earth. A.G.I.

subsoil. a. A horizontal bar used in the subterranean surveying by tacheometry. It is held at a distant point and its distance, direction, and length and the angle which it subtends at the observer's eye. See also tacheo-

metry. Ham.

subsoil. a. The state of being placed beneath something else; specifically, in geology, the deposit. In stratigraphy, the deposit is exposed in descending series. Standard, 1964.

subsoil. a. The bedrock beneath a surficial deposit. Fay.

subsoil. a. Being or lying under the surface. Fay.

subsoil. a. A stream of boiling water that passes through a very large inter-

stice, such as cave, cavern, or a zone of large communicating interstices. A.G.I.

subsoil. a. Same as semitransparent. Shipley.

subsoil. a. Imperfectly or partially transparent; semitransparent. Webster 3d.

subsoil. a. A region of conver-

gent currents marked by rapid increase in surface water density with distance to-

ward poles. Water sinking farther from the equator is more dense and will sink to greater depth. Hy.

subsoil. a. Having a domelike form due to intrusive intrusion into the rocks beneath; said of some domes in strata and of the consequent deformation of the surface and the resultant form of the topography. Fay.

subsoil. a. Not quite vitreous. Webster 3d.

subsoil. a. Deposit. According to European nomenclature, a mineral deposit of mag-

matic origin formed at moderate or shal-

low depth, that is under epiprecular condi-

tions, very often in Tertiary or Quater-

nary lavalas; a term sometimes substituted for the pocket deposit. Schirderdecker.

subsoil. a. Below weathering. Pertaining to the consolidated material—bedrock or a highly weathered layer—on or near the surface. This velocity is distinctly greater than that in the weathered zone. A.G.I.

subsoil. a. A yellow or reddish-brown resin-

ous substance. A.G.I. 

subsoil. a. A method of a seismic wave in a bed immediately under-

lying the low-velocity weathered layer or rock, beneath which the velocity is greater than that in the weathered zone. A.G.I.

subsoil. a. A yellow or reddish-brown resin-

ous substance. Schieferdecker.

subsoil. a. It occurs in considerable quantities on the coast of the Baltic Sea, and in the bituminous coals of Southern Franklin. A.G.I. Also called elektro. Fay. 


subsoil. a. At the bottom of a cutting edge or tooth which tends to pull it into the ground as it is moved. Nicholls.

subsoil. a. A method of mapping glassware, the parison is made by sucking molten glass into a mold, the final shape being subsequently produced in a blow-mold. The process is also known as vacuum-and-blow. See also parison.

subsoil. a. A painted or painted surface. Corn. A honeycombed or porous stone. Fay.

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sucker rod. a. The pump rod of an oil or artesian well. Fay.
b. A rod of steel or wrought iron, used in connections so that it may be joined to other rods and so form a string by which to operate a pump in an oil well.
suction sand. a. A deep well oil pump used widely in the United States for extracting oil. The pump is fixed at the foot of the well and consists of a working barrel and hollow plunger operated by a line of rotating hooks from a walking beam at the surface. Nelson.

sucking. Loss of volatile oxides, particularly lead oxide, from a glass by volatilization during glazing in unsealed saggers or adjacent to nonvitreous kiln furniture, the vapor being sucked into the porous refractory. The fault is prevented by washing the inside of saggers with glaze or in saggarless firing, by the use of kiln furniture of low porosity. Dodd.

suction meter. An anemometer that measures wind velocity by the degree of exhaustion caused by the blowing of the wind through or across a tube. Standard, 1964.
suction boiler. Synonym for sand pump. See also sand pump, a. Long.
suction box. The strainer at the foot of the suction pipe of a pump or of a suction hose. Standard, 1964.
suction blad. See backblad, a.
suction casting. See vacuum casting. Henderson.
suction chambers. If the pressure within the sealed-off mine area is less than that outside, it is necessary to reduce the pressure within the chamber. This is done by using an ejector or fan to draw air through a pipe in the outer wall of the chamber, a second pipe, fitted with a control valve, serving as an intake. Adjustment of the valve gives regulation of the pressure against the intake. The function of the suction chamber is to provide a trough of low pressure between the sealed area and the intake, so that air which would otherwise be drawn into the sealed area, through fissures and pores surrounding the seal, is drawn instead into the chamber. Roberts, J., p. 100.
suction cutter. a. In dredging, use of pump fed by pipe with power-rotated cutting blades to lift spoil. Pryor. b. In alluvial dredging, use of power-rotated cutting shoe to detach minerals from deposits followed by their delivery by suction and elevation through a centrifugal pump. Pryor, 3.
suction-cutter dredger. A dredger in which rotary blades dislodge the material to be excavated, which is then removed by suction as in a sand-pump dredger. C.T.D.
suction dredge. a. Essentially a centrifugal pump mounted on a barge. Carson, p. 29. b. A dredge in which the material is lifted by pumping through suction pipe. Fay.
suction dredger. a. A dredger which digs by means of powerful suction pumps, the semiliquid spoil thus raised being frequently discharged through a floating pipeline. Ham. b. See sand-pump dredger. C.T.D.
suction fan. A fan which sucks or draws the air towards it through airways or air pipes. The term generally used is exhaust fan. Nelson.
suction food. The lead or height to which water can be raised on the suction side of a pump by an influence of atmospheric pressure. Normal atmospheric pressure will sustain in a vacuum, a column of mercury 30 inches high, or a column of water 30 by 13.6 divided by 12, equally 34 feet in height. Therefore, theoretically, a pump should be able to draw water from a depth of 34 feet. Because of constructional imperfections, mine pumps are not usually placed at a greater height than 20 to 25 feet above the surface of the water in the pump. Nelson. See also lift pump.
suction hose. The flexible, reinforced hose that runs from the drill sink to the intake port on a pump. Long.
suction head. In pump nomenclature, exists when the liquid level is below the pump centerline and/or when a gage on the suction side is above the pump centerline. Pit and Quarry, 33d, sec. E, p. 87.
suction pipe. a. That part of a pump where the water enters. Fay. b. See snore; strainer. Nelson.
suction pressure. Pressure in the suction line or evaporator of a refrigerating system. Struck, 10.
suction primer. A pump auxiliary to a steam pump, used to exhaust the air from the main pump. Standard, 1964.
suction process. Any process where glass is gathered by vacuum into the mold. ASTM C162-66.
suction pump. A common pump in which the liquid to be raised is pushed by atmospheric pressure. The vacuum is obtained by a vacuum machine, usually in the form of a suction pump. Webster 3d. Theoretically the suction pump will lift water about 34 feet, but practically only a little over 20 feet can be counted on, because of leakage and other losses. Webster 7.
suction pyrometry. High velocity thermocouple. An instrument for the determination of the temperature of moving gases when it differs considerably from that of their surroundings; the hot gases are drawn rapidly past the junction of a fine wire noble metal thermocouple. Such an instrument is used, for example, in the determination of the temperature of hot kiln gases passing through setting of relatively cool bricks. Dodd.
suction rate. See absorption rate.
succitive dikes. A dike which has been forced quickly into a crack otherwise opened, by fault or earthquake relieving strain, aided by gravitational suction, owing to the condensation by cooling of the gases from the magma, contacts generally fairly straight and not close welded. J. Geol. v. 30, No. 2, Feb.-Mar., 1922, p. 165.

suitable. A variety of hypersthene basalt. A.G.I.
suitability. The name given to a floating mass of decaying vegetable matter, originating from the impenetrable mass which accumulates on the Upper Nile and where it hinders navigation. It formed an obstruction 20 miles long and about 20 feet deep, when it becomes so compact that it will support an elephant. Ham.
suitability drawdown. A rapid lowering of water levels by gravity caused by tidal variations. See also drawdown. Ham.
suckly partings. Term used among Lanca-shire miners for isolated lumps or broad lenticular bands of fusain in coal. Tomkies, 1934.

sutiklinna. An early type of updraught inter-mitted kiln. The fire boxes were below the kiln floor which was perforated for the upward passage of the hot gases. Fry.
sugar. A fault on lead crystal glass resulting from inadequate control during acid processing and not being crystalline on the surface of the glass. Dodd.
sugar of lead. Lead acetate. Fey.
sugar sand. A sand-like material that breaks up into granules resembling sugar. Arkell.
sugar stone. Eng. An ironstone in Norfolk, so-named from its rich brown color. Arkell.
sugar test. A quality test for cement. See also Merriman test. Dodd.
sugar tube. A device to measure the degree of dryness of mine air. It was first used on the Rand and consists of a tube containing about 30 grams of crystallized sugar. A known volume of mine air is aspirated through the tube. The sugar is dissolved and the dust is caught on a filter paper which is incinerated to give the weight of dust. The instrument thus measures airborne dustiness on a mass basis. See also dust sampler, gidget impinger, and unit dust hithet clientele, Nelson.
sugar-tube method. A dust sampling technique which measures airborne dustiness on a mass basis. A sugar tube consists of a glass tube 2½ inches in diameter and 5½ inches long. It is filled by a suitable pump to a mass hole. The dust is retained in the sugar tube, which is then stopped and sent to the laboratory for analysis. R.I. 2392, 1922.
sugary cut. Undue roughness of the edge of flat glass resulting from faulty cutting. Dodd.
sugary quartz. A granular and somewhat friable and massive variety of quartz. Same as sucrose spar. Fay.

S.A.G. Process. A German method for the shaping of highly grogged fire clay refractories; the body is added as a slip and shaping is by a compressed-air rammer. The name derives from the originators: Scheidhauer und Geissel A. G. Dodd.

suite. a. A series of objects or things related
suite through origin or composition and claded together for purpose of study. Minerals and rocks are commonly treated in suites. Stache and von seew (of himeam rocks). See consanguinity.

Mkt. of lune. See walfamtime. Compound with the structure R methyalte. A name given by Stache and von seew (of himeam rocks). See consanguinity.

Mkt. of almohm. A chemical teagent added indrmia.g nib. On silts where the sulfate. a. A salt or an ester of sulfuric acid, John to gray, acidic, andesitic porphyrites 373.

water softening plants. Cooper, pp. 372-463. Used in water for the temoval of organic substances, such as cylinder oil. Used in metal and ceramic cleaning and in the electroplating and refining of metals. CCD 6d. 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. 2-277.

suite. A name given by Stuche and von John to gray, acidic, andesitic porphyrites. See lune.


suite. To convert into sulfate, as by roasting sulfuric acid. Fay.

suite. The chemical reaction that takes place in many roasting operations in which sulfur-containing materials are heated, carbon disulfide and in carbon tetrachloride; and colorless. Aquous solutions are high in chloride giving pH values lower than that of solutions of these also in carbon tetra-

suite. A compound of sulfur with more than one element. A salt or an ester of hydrogen sulfide. Except for the sulfides of the alkali metals, the metallic sulfides are usually insoluble in water and occur in many cases as minerals. Webster 3d.


suite ore. Ore in which the sulfide minerals predominate. Bailer.

suite zone. That part of a lode or vein not yet oxidized by the air or surface water and containing the unaltered sulfide. Fay.

suite. In conditioning a flotation pulp, addition of soluble alkaline sulfides in aqueous solutions. Sodium sulfide is usually insoluble in water and occurs in many cases as minerals. Webster 3d.

suite zone. That part of a lode or vein not yet oxidized by the air or surface water and containing the unaltered sulfide. Fay.

suite. A salt or ester of sulfuric acid; a compound containing the radical, SO4.

suite. A byproduct of the paper industry used as a cheap temporary bond, for example, for silica refractories; it has also been used as a plasticizer in making building bricks. It generally contains 50 to 70 percent of the lignin-sulfonate of Na, Ca, or Mg. Manufactured with 15 to 30 percent of a mixture of sugars; the ash content of the NFs type is very low but that of the Na type may amount to 30 percent.

suite. A hydraulic cement made with a mixture of high alumina cement and gypsum (or hydrite). Dodd.

suite. A mineral in which sulfur and antimony are united chemically with a metal. Weald, 1922.

suite. An ore mineral of any metal or metals with which sulfur and arsenic are united chemically. Wedd, 1922.

suite. Reaction which introduces one or more sulfonic acid groups either by direct use of H2SO4 or by means of a mercaptan (=SH), followed by oxidation. Pryor, 3.

suite. A hydrophilic group known as HS-. In the sulfate 

suite. A hydrophilic group known as HS-. In the sulfate ester O. SO4 an oxygen link is provided, See sulfonic acid.

suite. Elements that occur preferentially in minerals free of oxygen (or fluoride or chlorine), that is, mostly as sulfides, tellurides, tellurides, arsenides, antimonides, intermetallic compounds, native elements, etc. This group includes some of the chalcophile and some of the siderophile elements as classified by Goldschmidt. A.G.I.

suite. a. This brittle, odorless, nonmetallic element in group VI of the periodic system, exists in two stable crystalline forms (alpha sulfur and beta sulfur) and in at least two amorphous forms and two liquid forms. In every physical state, whether solid, liquid, or gaseous, elemental sulfur gives off more than one allotrope, the relationships of which are not yet well understood. Alpha sulfur converts to beta sulfur at 94.5°C or 55.5°C on heating. This transformation is reversi-

suite. A hydrophilic group known as HS-. In the sulfate ester O. SO4 an oxygen link is provided, See sulfonic acid.
sulfur

sulfur with oil of vitriol. Colorless - dark brown depending on purity, highly corrosive, dense, oily liquid. H₂SO₄, molecular weight 98.07, density of liquid 1.84, boiling point 338° C.; density of gas 21.9 grams per liter; specific gravity of liquid, 1.4337 (at 0° C); density of gas, 21.927 grams per liter; viscosity, about 0.13 centipoise.

sulfur burner. A furnace in which sulfur is burned as an electrical inductor. CCD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-246. b. Iron pyrite occurring in coal seams. Also iron sulfide (pyrite) occurring in concretionary form of the sulfide of iron occurring as both pyrite and marcasite. This material seizes to crystallize or grow within the coal as a result of the action of waters bearing sulfuric acid acting upon pyritic minerals. The element occurs naturally in association with volcanos and hot springs, and in cap rocks in salt domes. Extensively produced from pyrites and pyritic minerals, either directly or as a byproduct, also as byproduct in gas striping. Sulfuric acid, hydrogen sulfide, and sulfur dioxide (paper making), and in vulcanizing compounds, fungicides and insecticides. Used in die casting to cover a pot of molten magnesium to prevent burning. Sulfuric acid. Combinations of sulfur with oxygen. SO₂, SO₃, SO₄, SO₃, and SO₄. Pride.

sulphur. See also pick a dot dol sulfur print. Exhibition of sulfur contents and locations in a polished specimen of steel or iron, by pressing against it after paper moistened with acid and a lead salt. H₄S is generated and blackens the paper at the point of contact. Pryor, 3.


sulfuric acid. Colorless tritium crystal or liquid; SO₄; molecular weight, 96.06; specific gravity, 1.84; boiling point, 336° C.; density of gas, 21.927 grams per liter; viscosity, about 0.13 centipoise.

sulfurization. Colorless to dark brown, depending on purity, highly corrosive, dense, oily liquid. H₂SO₄, molecular weight 98.07; density of liquid, 1.84, boiling point, 338° C.; density of gas, 21.9 grams per liter; specific gravity of liquid, 1.4337 (at 0° C); density of gas, 21.927 grams per liter; viscosity, about 0.13 centipoise.
sundance series. marine jurassic clays

sundown splatter. a characteristic effect
shocked on some of the old luster pottery
made in Sunderland, England; after the
luster had been applied it was splattered
with a second medium which caused the
formation of irregular patches on the
bar luster. Dodd.

sundial. the hypothetical amphotile end
member. NaCastrAs(SiAs)(OH). Hey, MM, 1964; Fletcher.

sundried brick. see adobe brick. ACSG, 1969.

sung. the quantity of heat from the
sun tending to heat an enclosed space.

sunny observations. in surveying, fixation of
longitude and/or latitude of a station, or
orientation of a survey line, by use of
theodolite. to relate Sun's altion, sidereal
time and theodolite's location. Pryor, 3.

suns. the same as fire opal. Standard, 1906.
sunshine. a name of a soft grade of paraffin
wax with a low melting point. It can be
burned in an ordinary miner lamp
with a nail (usually copper) in the wick
and gives little smoke. Also called miners'
sun. sunken part. see dig-down part. Nickle.
sunken shaft. a shaft which is driven from
the top downwards (vertical or inclined).
Prangell.
sunlight. a name of a soft grade of paraffin
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Prangell.

supercharger. A blower that increases the intake pressure of an engine. Nichols. p. 215

superheated steam. Steam above a temperature at which an equilibrium can exist between it and another phase having more internal energy, without obtaining the high-energy phase. ASM Gloss. p. 448

superheater. b. Heating molten metal above the normal casting temperature so as to obtain more complete refining or greater fluidity. ASM Gloss. p. 832. c. The heating of a vapor, particularly saturated (wet) steam, to a temperature much higher than the boiling point. This is done in power plants to improve efficiency and to reduce condensation in the turbine. LIV. Gloss. p. 830

superimposed. a. Applied to ores or ore minerals that have been formed by generally decreasing pressure; Ores formed by downward enrichment. Compare hypogene, c. Fay.

superimposed environment. Solution of metal by water from the upper part of an ore deposit and its redeposition below, causing the environment of the underlying ore. Bateman.

superimposed sulfide enrichment. A process of enrichment near the surface originating in the primary ore acquires increasing metal values as a result of the chemical reaction between descending metal-bearing solutions with the primary (or hypogene) sulfides, whereby secondary sulfur compounds are formed. Also called secondary sulfide enrichment. Schieferdecker.

superimposed zone. The zone in which superimposed sulfide enrichment occurs. Schieferdecker.

superior. a. To heat a vapor not in contact with its own liquid so that it remains free from suspended liquid droplets. Webst 3d. b. Heat added to a substance after melting is complete. Leet. c. Sensible heat in a gas above the amount needed to keep it a gas. HOG.

superheating. a. Heating a phase above a temperature at which an equilibrium can exist between it and another phase having more internal energy, without obtaining the high-energy phase. ASM Gloss. b. Heating molten metal above the normal casting temperature so as to obtain more complete refining or greater fluidity. ASM Gloss. c. The heating of a vapor, particularly saturated (wet) steam, to a temperature much higher than the boiling point. This is done in power plants to improve efficiency and to reduce condensation in the turbine. LIV. Gloss. d. To place one thing upon another. Kinney.

superimposed ac. A form of current in which an ac component is superimposed on a dc component.
Superimposed lens. A dispersion pattern formed in the rock by dissolving and reprecipitation of materials in subsurface waters. 

Superimposed load. In foundation work, it implies all loads other than dead load. 

Superimposed stream. There can be no doubt that the present courses of the streams were determined by conditions not found in rocks through which the channels are now carved, but that the beds in which they now occur were formed in the regolithic rock when the district last appeared above the sea, have been swept away. While Powell applied the term first to the valley only, later writers have applied it also to the streams which occupy such valleys. Synonym for superposed stream. 

Superintendent. a. The mining engineer or manager of a coal or metal mine. He is in immediate charge of all operations concerned with the development and mining of the coal or ore. See also mine superintendent. Nelson. b. The person who shall have, on behalf of the operator, immediate supervision of one or more mines. Jokes, c. One who supervises; a director; an overseer. Ricatto, i. 

Superintendent, colliery. In anthracite and bituminous coal mining, one who supervises and is responsible for all activities of mining and preparing coal for market at a mine. Also called colliery boss. D.O.T. 

Superintendent-of-tanks. One who supervises the feeding and maintenance of glass-melting furnaces (tanks), and the operation of reheating ovens (lehrs) for fire-glazing glass articles. Directs unloading and storage of raw materials and crushing and washing of waste glass (cullet) used as ingredients in the manufacture of new glass. D.O.T. 

Superior official; higher official. An official between the owner and the manager of a coal mine. It includes both officials in the direct line of command and functional or specialist officials. See also agent. Nelson. 

Superintendent pattern. A dispersion pattern developed more or less directly over the bedrock source. Hawkins, 2, p. 152. 

Superintendent. See methane drainage. Roberts, i, p. 80. 

Superlattice. An ordered arrangement of atoms in a crystal lattice to form a lattice superimposed on the normal solid-solution lattice. A.S.M. Glass. 

Superphosphate. Trade name for activated charcoal. Hess. 

Superpose. A classification applied to high-temperature, high-pressure A.S.M. Enam. 

Superpose. A mechanism, invented by Proctor, which simulates making, dumping, and storing steam used in plastering and giving protection to its peened or smooth surface treatment of metal is used to ripen eggs and as a research and production mechanism. Paint, see also superposition. 

Superposition. a. A principle stating that if a body is subjected to several stresses acting simultaneously, then each stress produces its own strain or strains, and these strains may be superimposed to give the complete state of strain of the solid. Similarly, two separate stress distributions in a body, due to the application of two separate stresses, may be superimposed to give the stress distribution due to the simultaneous application of those two stresses. Isaacson, pp. 16-17. b. The order in which rocks are placed above one another. Pay. c. A principle which simplifies structural calculations and which can be used for solving the forces acting in a redundant frame. Ham. 


Superpushing. Using extra large pushers, or two or even three standard units in tandem, in order to increase the speed and size of loading. Nichols, p. 8-30. 

Super-refractory. Refractory capable of withstanding unusually high temperatures and/or other severe conditions of operation. Bennett 2d, 1962. 

Supersaturated solution. A solution is said to be supersaturated when it contains in solution more of the solute than can hold at that temperature in the presence of the crystals of the solute. Cooper. 

Supersaturation. Higher concentration of a solute in a solution than would correspond to its solubility at a given temperature; a metastable condition, as the excess solute in solution when the solution is seeded by introducing a crystal of the solute. Bennett 2d, 1962. 

Supersonic. Pertains to phenomena in which the speed is higher than that of sound. Not synonymous with ultrasonic; see also supersonic frequency. 

Supersonic testing. See ultrasonic inspection. Osborne. 

Supplanted. See overgrown. Mann, v, 1, p. 141. 

Suppletion. The deformation upper part of an evolving stratum magma. Wegg-Larsen's term for the upper nonmagmatic phase of an evolving stratum magma. 

Supplied-air respirator. An atmospheric-supplying device which provides the wearer with a supply of air from a source that is outside of the contained area. The worker's range of operations is always limited by the length of the air hose which brings him the uncontaminated air. Only those with manual or motor driven blowers are approved for immediately harmful or oxygen-deficient atmospheres. One which have no blower, or which recycles the expired air of completed synthesis are recommended for trenched work, point spraying, etc., where gases and dusts are of sufficiently high concentration to permit the wearer's escape in case of accident. With the addition of special mask-hoods or helmets, the air supply system respirator has been adapted for protection against abrasive blasting. Best, 1961. 

Supplies department. A department which aims to ensure that the requirements of the mine, in matters of equipment and stores, are fulfilled; that the various articles of the necessary quality and as far as possible, of standard design and price. In addition, the quantity of physical stores held at the mines is controlled, thus avoiding the tying up of capital unnecessarily. A further function is to ensure that spare parts, vital to production, are always available. See also storekeeper. Nelson. 

Supple vehicle. A carriage or car for taking in materials alongside a production conveyor. A recent development, the carriage is capable of carrying a load of about 1 ton over the normal run of conveyors to heights of 1 in 4. It runs on pneumatic tires and is driven by a diesel engine. The narrow, flat rear wheel of the vehicle, or "feet," enables it to run in the space normally available alongside a gate conveyor. In addition to the...
supercritical fluid. a. A fluid that is superheated above its critical temperature, becoming a single phase that cannot be separated into two phases by pressure or temperature changes. 

surface alteration. b. The characteristic of having a surface that is not a perfect mirror, but has some degree of roughness or texture.

critical temperature. The temperature at which a fluid phase changes from a gas to a liquid, or vice versa, when pressure is held constant.

supercritical. Relating to or denoting fluid states of matter whose density is greater than their critical density, typically in the range of 10% to 30% above their critical pressure, where their behavior is no longer solely governed by classical thermodynamics.

surface. a. The interface between two phases or materials, such as the surface of a solid versus a liquid or gas.

supercritical fluid. b. A fluid that is in a state where it behaves as a single phase, with properties that are different from those of a pure gas or liquid.

surface. c. The outer layer of a material that is exposed to the environment, interacting with it and providing a boundary between the material and its surroundings.

supercritical. c. Pertaining to or denoting a state that is above the critical point of a substance, where the distinction between liquid and gas phases becomes indistinct.

surface. d. The boundary between two different phases, such as the boundary between the gaseous phase and the liquid phase.

supercritical. d. In a fluid state where the density is higher than the critical density, the fluid may not form distinct liquid and gas phases.

surface. e. The boundary where two or more materials meet, such as the boundary between a metal surface and the surrounding air.

supercritical. e. Refers to the state of a fluid where it is at a high enough density to be considered neither purely a gas nor a liquid.

surface. f. The outer layer of a material, where it is exposed to the environment and interacts with it.

supercritical. f. Pertains to fluids that are in a state where their behavior is significantly different from classical fluids, having properties that are influenced by both their density and temperature.

surface. g. The boundary where two materials meet, such as the boundary between a metal and the surrounding medium.

supercritical. g. Pertains to fluids that are in a state where they are not in the conventional phases of gas or liquid, but a single phase.

surface. h. The interface between two phases, such as the interface between a liquid droplet and the surrounding gas.

supercritical. h. Refers to fluids that are in a state where their properties are influenced by both their density and temperature, leading to unusual behaviors.

surface. i. The boundary where two or more materials meet, such as the boundary between the body of the Earth and the surrounding atmosphere.

supercritical. i. Pertains to fluids that are in a state where they do not conform to classical thermodynamic behavior.

surface. j. The outer layer of a material, where it interacts with its surroundings.

supercritical. j. Refers to fluids that are in a state where they exhibit properties that are distinct from typical gases and liquids.

surface. k. The interface between two phases, such as the boundary between a solid and a gas.

supercritical. k. Pertains to fluids that are in a state where they are not in their conventional phases of gas or liquid.

surface. l. The outer layer of a material, where it is exposed to the environment.

supercritical. l. Refers to fluids that are in a state where their behavior is significantly different from classical fluids.

surface. m. The boundary where two materials meet, such as the boundary between a metal and the surrounding medium.

supercritical. m. Pertains to fluids that are in a state where they are not in the conventional phases of gas or liquid.

surface. n. The outer layer of a material, where it interacts with its surroundings.

supercritical. n. Refers to fluids that are in a state where they exhibit properties that are distinct from typical gases and liquids.

surface. o. The interface between two phases, such as the boundary between a liquid droplet and the surrounding gas.

supercritical. o. Pertains to fluids that are in a state where they do not conform to classical thermodynamic behavior.

surface. p. The outer layer of a material, where it is exposed to the environment.

supercritical. p. Refers to fluids that are in a state where they exhibit properties that are significantly different from classical fluids.

surface. q. The boundary where two or more materials meet, such as the boundary between a solid and a gas.

supercritical. q. Pertains to fluids that are in a state where they are not in the conventional phases of gas or liquid.

surface. r. The outer layer of a material, where it interacts with its surroundings.

supercritical. r. Refers to fluids that are in a state where they exhibit properties that are distinct from typical gases and liquids.

surface. s. The interface between two phases, such as the boundary between a liquid droplet and the surrounding gas.

supercritical. s. Pertains to fluids that are in a state where they do not conform to classical thermodynamic behavior.

surface. t. The outer layer of a material, where it is exposed to the environment.

supercritical. t. Refers to fluids that are in a state where they exhibit properties that are significantly different from classical fluids.

surface. u. The boundary where two materials meet, such as the boundary between a solid and a gas.

supercritical. u. Pertains to fluids that are in a state where they are not in the conventional phases of gas or liquid.

surface. v. The outer layer of a material, where it interacts with its surroundings.

supercritical. v. Refers to fluids that are in a state where they exhibit properties that are distinct from typical gases and liquids.

surface. w. The interface between two phases, such as the boundary between a liquid droplet and the surrounding gas.

supercritical. w. Pertains to fluids that are in a state where they do not conform to classical thermodynamic behavior.

surface. x. The outer layer of a material, where it is exposed to the environment.

supercritical. x. Refers to fluids that are in a state where they exhibit properties that are significantly different from classical fluids.

surface. y. The boundary where two or more materials meet, such as the boundary between a solid and a gas.

supercritical. y. Pertains to fluids that are in a state where they are not in the conventional phases of gas or liquid.

surface. z. The outer layer of a material, where it interacts with its surroundings.

supercritical. z. Refers to fluids that are in a state where they exhibit properties that are distinct from typical gases and liquids.
surface damage

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surface resistance. The surface resistance of an extended solid. These waves readily penetrate the overburden to an appreciable depth, but they are reflected only from sharp discontinuities in the overburden. See also separate system. Ham.
surface roughness. See roughness, a. A.S.M. Gloss.
surface roughness. Runoff that has not passed below the surface of the land during its journey to the outlet of the drainage area considered. A.G.
surface relief. Salinity of the surface waters varies in all the oceans in relation to latitude, the meridian, and the water phase. Perry.
surface tension. Product of the surface energy and the surface tension coefficient. Ham.
surface trespass. A trespass on a water surface used for drinking or washing purposes. Long.
surface wave. An elastic wave in which the displacement amplitude decreases rapidly with increasing distance from the source. These waves readily penetrate the overburden to a certain depth, but are reflected only from sharp discontinuities in the overburden. See also separate system. Ham.
surface water. a. Water running into underground workings from the surface of the ground. b. Water that rests on the surface of the lithosphere, A.G.
surface water drain. Any pipe laid in the ground for the purpose of carrying away surface water. See also separate system. Ham.
surface wave. A wave in which the energy is confined to the surface of a liquid where it is directly propagated without a water phase. Hal.
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surfacing

surfing

surf tide. Surface active agent, a substance that affects the properties of the surface of a liquid by concentrating in a layer near the surface. Brantly. 1.

surf. Terra used among British miners for (1) a cylindrical or barrel-shaped hopper, or (2) pressure exerted by a pent-up gas resulting in its escape with or without subsequent combustion.

surficial. Characteristic of, pertaining to, formed on, situated at, or occurring on the surface and unconsolidated residual, alluvial, or glacial deposits lying on the bedrock. Fay. The name is applied to both the undecomposed and unconsolidated materials at the earth's surface, such as stream alluvium, glacial deposits, and unconsolidated residual, alluvial, or glacial deposits lying on the bedrock. Also, the geological term for the unconsolidated material at the earth's surface. Surficial deposits consist of unconsolidated material that has been transported by the action of water, wind, or other agents and is deposited on the earth's surface. Surficial deposits include materials such as sand, silt, and clay. Surficial deposits are often referred to as unconsolidated deposits because they have not been subjected to the process of consolidation, which is the hardening of sediments as a result of compaction and cementation. Surficial deposits are often found in areas that were previously covered by bodies of water, such as lakes and oceans, and are deposited as the water recedes. Surficial deposits are also found in areas where wind or other types of erosion have removed the overlying consolidated deposits. Surficial deposits are important resources for human activities, as they can provide a source of water, sediment, and other materials for use in construction, agriculture, and other industries. Surficial deposits are also important for understanding the history of the earth, as they can provide evidence of past environments and conditions. Surficial deposits are often studied using techniques such as sedimentology, geochronology, and paleoecology.
The text on the page is a continuation of the previous discussion on suspended solids. It includes the following definitions and explanations:

- **Suspended solids**: Solids that can be separated from the water by settlement or filtration.
- **Suspended load**: The portion of load that remains in suspension.
- **Suspended roax**: A method of roasting where the material is suspended in a fluid medium.
- **Suspended solids**: Particles that are suspended in a fluid and do not settle out under gravity.
- **Suspended solids conveyor**: A type of conveyor used to transport material that is suspended in a fluid.
- **Suspended solids concentration**: The concentration of suspended solids in a fluid.
- **Suspended solids transport**: The process of transporting suspended solids in a fluid medium.

The page also includes definitions of terms related to the mining industry, such as:

- **Suspended solids in mine**: The concentration of suspended solids in mine water.
- **Suspended solids in water**: The concentration of suspended solids in a water stream.
- **Suspended solids in air**: The concentration of suspended solids in the air.
- **Suspended solids in soil**: The concentration of suspended solids in soil.
- **Suspended solids in sediment**: The concentration of suspended solids in sediment.

The text also contains references to specific locations and sources, such as:

- **DOD**: Department of Defense
- **Bennett 2d**: Refers to the 2nd edition of a work by Bennett
- **Webster 3d**: 3rd edition of Webster's dictionary
- **ASTM D 1079-54**: American Society for Testing and Materials standard test method for...

The text is a continuation of a larger discussion on the properties and behavior of suspended solids in various environments.
swage test

swage tool. An electric test, carried out with low voltage, for verification of such de-
lays in a vitreous enamel as produce blistering or other blemishes. Dodd.

swage. 2 A. A New. A thick layer of stone or re-
forced clay at the bottom of the ware. Fay
b. T. Pease. Impressed clay or black-
shale. Compare upset swage. Arkell

swage, A depression in a roadway usually
caused by the Dung of weight of the roof from above. Arkell; Lane Sub-
sequent of weighting of the roof. Fay &
Aust. A part of personal belongings car-
rried in a bag. J. Wall. 2 A. Tool used in
smelting. Webster 3d. A man used to haul
away hot waste. Gray & Smith.

swaged. It is produced in diameter by use of a
swage. A part of the Christmas tree
swally; swally. A trough, or syncline, in a
swallow hole. A. A natural cavern formed
swallet. 1. A tool used in repair collapsed
or damaged caesure. Williams. A tool used
in shape of a hollow. Fay.

swallet. 2 A. A part of the roof. Fay &
Aust.

swallet hole. A. G. I. A gouge-shaped hole
brought about by the settling of the mine roof. Fay.

swally. A trough, or syncline, in a
swallow hole. A. A natural cavern formed
in the roof of a mine yard for the workings
of a mine. Grove.

sway. A sideways movement, such as side-
ways of a许多人 or a reduction on
metal products, such as rod and tubing by
forging, squeezing, or hammering. See also rotary swage. A. S. M. Gloss.

swamp. A. Aust. A mire, a bog, or a place
where travels in search of employment; so called because he car-
rries his swag, or bundle of clothes, blanket,

swale. A. Local depression in the floor of an
entry or room. Grove.

swallet. A. Eng. An underground stream;
also, an opening through which a stream
appears on the surface. Webster 3d. A
also called swale. Fay. b. An in-

swamp block. A large rectangular block
of cast iron used by a blacksmith. It is pierced through with numerous holes;
the iron is heated, swaged, placed in a box of sand, and allowed to cool. The
resulting block is then broken into smaller pieces by hammering.

swaged. Reduced in diameter by use of a
blacksmith's swages, hence the name. This
process is used to reduce the size of a metal object, usually by hammering.

swaging. A hammering process, but the same
result may be attained by pressing forcing or
by spinning. Fay.

swag. A. A bundle of clothing, or a pack of
articles. Webster 3d: Fay.

swag. b. A bundle of clothing, or a pack of
articles. Webster 3d: Fay.

swag. c. A tool used in repair collapsed
or damaged caesure. Williams. A tool used
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swallow hole. A. A natural cavern formed
in the roof of a mine yard for the workings
of a mine. Grove.
sweeps. A. The dust of workshops, of the sawdust ejected by the sawing processes. B. A machine used to remove dust from a surface. C. A local enlargement or thickening in a coal seam. D. A soil or rock that can expand freely in a direction perpendicular to the heating surface. A.G.I.

sweet coal. Eng. Term in use among miners for low volatile bituminous coal.

vent formation of channels as pulp flows radially across the surface.

providing a rotating brush which prevents the dust from becoming airborne.

swimming pool reactor. A furnace used for the manufacture of producer gas.

swing-bowl. A type of furnace used in the manufacture of producer gas.

swing-day. Synonym for change-day.

swing-frame mill. A machine in which the shaft is driven by a steam engine.

swing-frame regulator. A simple method of regulating the flow of a stream of water.

swing-day. Synonym for change-day.

swing-elevation. The distance in degrees which a shovel must swing between digging and dumping points.

swing cut. A slabbng cut.

swing day. Synonym for change-day.

swing hammer. A type of hammer used in the mining industry.

swinghammer. A type of hammer used in the mining industry.

swing-back. A type of hammer used in the mining industry.

swing back. A Weller tool for locomotive.

swing-electrode controller. This controller is made up of three fixed electrodes consisting of groups of parallel plates of non-conducting alloy to form an electrode pair. A reasonable time is allowed the discoverer to explore the vein or lode to find out its strike and thus enable him to lay his claim.

swing boat. Swinging boat. Mid. Before the introduction of cages and guides, skipping or skidding coal, and also the men, were raised and lowered swinging looee in the shafts. See also butt. Fay.

swing-electrode controller. This controller is made up of three fixed electrodes consisting of groups of parallel plates of non-conducting alloy to form an electrode pair. A reasonable time is allowed the discoverer to explore the vein or lode to find out its strike and thus enable him to lay his claim.

swing-back. A type of hammer used in the mining industry.
swinging field magnetization

Swinging field magnetization. A magnetic field which is the result of two or more magnetizing forces impressed upon the sample so that each field is rotated in a controlled sequence and which permits magnetic-particle inspection after one processing. ASTM Gloss.

Swinging gate. An instrument of the steady deflection type, where speed is read off directly from the scale of the instrument. This is most useful for measuring low speeds, since it permits a spot reading. This instrument does not integrate and is used extensively in work connected with the ventilation of building interiors, and to a fair extent underground. Robert's, I, p. 39.

Swinging plate. An amalgamated copper plate hung in a sluice to catch float gold. Fay.

Swinging-lib crane. A crane with one horizontal boom on which there is a counterweight. It can swing through a full circle. See also titan crane; tower crane. Ham.

Swinger loader. A tractor loader that digs in front, and can swing the bucket to dump to the side of the tractor. Nichols.

Swing loose. Ark. To gradually loosen over time. Fay.

Swing shift. a. Workday from 4 p.m. to 12 p.m. to 8 a.m. to 4 p.m. Nichols. c. Workday from 3 a.m. to 11 a.m. to 11 p.m. to 3 a.m. Nelson.

Swing roller. In a revolving shovel, one of several tapered wheels that roll on a circular track. At the weight of the vane is constant, the angle of inclination will be dependent upon the rate of change of velocity in ducts and the rate of air discharge from ventilating grills. Roberts, I, p. 76.

Swing shift. A jack used to replace derailed cars on a railway track. Fay.

Swing soft. The marks on the bottom of a pot formed by cutting from the wheel. ACSG, 1964.

Swivel. Pure, uncoated, luster silver of various sizes, usually having a banker's or assayer's seal stamped on them; used by U.S. 261, "specimen of exchange and reckoned by weight. The larger, sometimes called shoes, are boat shaped and weigh about one pound troy. Standard, 1964.

swivel coupler. a. A coupling where one link is made so that it can be rotated independently of other links. When this coupling is used, one or more cars can be rotated on a revolving dump without unloading from the surface. Zern. b. A coupling that gives complete freedom to a deflecting wedge-setting assembly. Long.

Swivel head. a. The assembly of a spindle, chuck, feed nut, and feed gears on a swivel head drill machine that surrounds, rotates, and advances the drill rods and drilling stem. On a hydraulic-feed drill the old gear uses are replaced by a hydraulically actuated piston assembly. Also called boring head; drill head; drilling head; gate. Long. b. In a diamond drill, the mechanism that rotates the Kelly and drill string. Nichols. c. See drill head.

Swivel head gear. The box gear mounted on the outside of the drive quill in the swivel head of hydraulic-feed, and/or some types of gear-feed, diamond drills. The gear meshes with, and is driven by, a miter gear on the drill motor shaft. Long.

Swivel holding plug. Same as holding plug. Long.

Swivel hook. a. A hoisting hook suspended from a freely rotating (bearing) part in such a manner that the rotation of the drill rods is not transferred to the hoist cable or vice versa, when the rods are pulled or lowered. Long. b. A hook with a switch control to its base or eye. Nichols.

Swivel neck. Synonym for a washer or a mud seal. Long. Also called gooseneck.


Swivel sockets. Another name for jars. Stoesz, v, p. 77.

Swivel trough. A short, adjustable angle trough, which permits turning the conveyor panline any amount up to 10°, either to the right or to the left. The position of the swivel is controlled by a roof jack and a pendulum. Jones.


Swivel-rolled stake. A bench vice which may be rotated on its base to bring the work which it holds into better position. Crispin.

Swivel type. Also an old term for certain alluvial deposits found in coal measures. Fay.

Swivels. The marks on the bottom of a pot formed by cutting from the wheel. ACSG, 1964.

Swivel coupling. a. A coupling where one link is made so that it can be rotated independently of other links. When this coupling is used, one or more cars can be rotated on a revolving dump without unloading from the surface. Zern. b. A coupling that gives complete rotary freedom to a deflecting wedge-setting assembly. Long.

Swivel coupler. a. A coupling where one link is made so that it can be rotated independently of other links. When this coupling is used, one or more cars can be rotated on a revolving dump without unloading from the surface. Zern. b. A coupling that gives complete freedom to a deflecting wedge-setting assembly. Long.
syenogabbro. An intrusive rock that contains syenodiorite. A term based on the form of sylvester. A hand-operated device for with-
sylvite; sylvine. The principal ore of Was-
sylvine. The name for krennerite. It is of minerals, (Au,Ag)Te2. Conesponds to broic minerals. An orthoclase gabbro. The
mediate however, be called monzonite, a term which should,
fuss from quartz, that is, for phaner-
crystalline igneous rocks intermediate in
free from quartz, that is, for granites for rocks like the latter, but
of medium grain size, oc-
syenite. Fay. Of medium grain size, oc-
product near volcanoes. It is a source of
synchronous timing
angle to each other. These disks rotate with the same speed in the same direction
and are so set to be widest apart at the bottom. Feed is from the center, and
the material is gradually crushed at
near the edge, then thrown out by centrifugal force. Liddell 24, p. 358.
symplectic. The term produced by the
intergrowth of two different minerals. Pegmatic, granophyric, poikilitic, ophtlue,
and bauxitic textures are included un-
der this term. See also symplektite. Stokes and Vernes, 1955.
symplektite. A secondary intergrowth of two
minerals which are interwoven or plaited,
together, one of the minerals usually hav-
ing a vermicular shape. The texture so
produced is described as symplektic, and
is found in certain igneous and metamor-
phic rocks. Commonly the intergrowth is
symplectic.
symphylite. A pale indigo or green prismatic
monoclinic mineral with perfect cleavage,
3FeAs2O5.8H2O, forming 3FeAsO4.10(OH)2;
specific gravity, 2.96. Larsen, p. 181.
symphonic minerals. See diagnostic min-
ucleus.
synodinite. It is essentially vertical. McKinstry, p. 641.
synonym. An intrusive rock that contains
orthoclase in addition to the normal gabb-
broic minerals. An orthoclase gabbro. The
plutonic equivalent of trachybasalt. A.G.I.
sylvite. a. One of the gold telluride group
of minerals, AgTl2. Corresponds to the same general formula as calaverite and
krennerite. It is usually associated with
igneous rocks and, in veins, with native
gold. Monoclinc. Steel-gray to silver-
white in color. Brilliant metallic luster becoming dull on exposure. Contains 99.2
percent gold, 13.3 percent silver. Specific
gold.
syphoxite. A rare, weakly radioactive,
orthorhombic or monoclinic min-
eral, (Ce,La)(Ca,Co)AsO4, usually found
in pegmatites associated with auriferous,
microline, astrophyllite, fluorite, gado-
linite, xenotime, cordylite, and cathaplite.
May be related to paratite. Crosby, p. 110.
synthetic TIM-P. See also monzonite, a term which should,
syntecton. A space in a seam from
which the coal has been eroded and its
material. A.G.I.
synthetic TIM-P. See also monzonite, a term which should,
synthetic TIM-P. See also monzonite, a term which should,
synthetic TIM-P. See also monzonite, a term which should,
synchronous timing

at the proper time in relation to the voltage to insure a balanced current wave; (2) each is exactly the same as the preceding one essentially identical to the first; and (3) the last half-cycle is of opposite polarity to that of the first. I.C. 8075, 1962, p. 64. Used in metallic-synclinal responses to reagent combinations to obtain the maximum possible recovery of ore or metal. Nelson.

syncline. A term now generally applied to mineral or ore deposits formed contemporaneously with the enclosing rocks, as contrasted with epigenetic deposits, which are of later origin than the enclosing rocks. Holmes, 1920.

synclinal deposits. Deposits formed contemporaneously with the parent rock and enclosed by it. There are two types of synclinal deposits, the igneous and the sedimentary. Some examples are nickeliferous sulfides, nontitaniferous magnetite, diamond, chromite, and corundum. Lewis, p. 273.

synclinal igneous deposits; magmatic segregations. Deposits formed by the solidification of basic magmatic material and occur as dikes and irregular masses. Lewis, p. 273.

synclinal ore deposit. Term generally applied to ore (mineral) deposits formed contemporaneously with the enclosing rocks. Schiefler-decker.

synclinal pattern. A dispersion pattern formed at 1 station so tiny that the matrix in which they occur. Synclenetic patterns include those developed (1) in igneous rocks during the crystallization, (2) in residual soil, gossan, or leached rock as a residual product of weathering, and (3) in glacial till, as clastic material mechanically transported and deposited by glacial action. Haukés, 2, p. 26.

synclinal sedimentary deposits. Include placer deposits and beds like the Clinton hematite ores, which are simple sedimentary rocks containing sufficient valuable minerals to be mined profitably. Lewis, p. 273.

synclinite. Applied to a texture of rocks in which they occur. Synclenetic patterns include those developed (1) in igneous rocks during the crystallization, (2) in residual soil, gossan, or leached rock as a residual product of weathering, and (3) in glacial till, as clastic material mechanically transported and deposited by glacial action. Haukés, 2, p. 26.

syncline. A fold in rocks in which the strata dip inward from both sides. Fay, b. A trough-shaped curve of the strata. Gordon.

synclinal axis. In geology, the central line of a syncline, toward which the beds dip from both sides. Fay.

synclinal bend. An upwardly concave flexure in which the beds of one limb dip relatively steeply toward the apex (line of greatest flexure) and the beds of the other limb dip gently away from it. Stites and Barnes, 1955.

synclinal closures. Structural basins and canyons, usually of downcurrent sense, because when these are represented by structure contours, these contours are closed. Stokes and Barnes, 1955.

synclinal mountain. See anticlinal mountain.

A.G.I.

synclinal valley. a. The plication of the earth's crust produces alternating depressions and elevations, unless the folds are pressed together into a loop, or some. The depressions are synclinal valleys. A.G.I. b. Synclinal valleys are those which follow synclinal axes. A.G.I.

syncline. A fold in rocks in which the strata dip inward from both sides toward the axis. Opposite of anticline. Fay.

syncline. Same as synclinorium. Fay.

synclinorium. a. A compound syncline; a closely folded belt, the broad general structure of which is synclinal. Also called syncline. Fay. b. A major syncline composed of many smaller folds. Ballard.

syndacty. A hold pattern for synthetic detergents. See also detergents, synthetic.

syndactyl. A group of persons or concerns who combine under a usually temporary agreement to carry out a particular transaction, such as underwriting a bond issue. Webster 3d.

syndicate. Person who works with a, party of men who combine under 'a usually temporary agreement to carry out a particular transaction, such as underwriting a bond issue. Webster 3d.

synclinal mountain. See anticlinal mountain.

syndet. Abbreviated form for synthetic detergent.

synclinal axis. In geology, the central line of a syncline, toward which the beds dip from both sides. Fay.

syndrome. Any of a large number of chemicals formed from a basic substance by rigidly proportioned raw materials by crystallization during slow cooling of a melt or by solid-state reactions. A.G.I.


synthetic faults. Subsidiary faults parallel to the master fault. A.G.I.

synthetic gem. One artificially made from chemicals. Schaller.

synthetic hematite. Manufacturers' misnomer for various metallic imitations of hematite, Shiple.

synthetic hematite. Misnomer for various metallic imitations of hematite, Shiple.

synthetic mica. Any of a large number of micac formed from a basic substance by rigidly proportioned raw materials by crystallization during slow cooling of a melt or by solid-state reactions. A.G.I.

synthetic mineral. An artificial substance having all the properties of a mineral. Hurlbut.

synthetic ore. A term used by the Bureau of...
siderite. An obsolete term for meteorites.

Syrian asphalt. A valuable pitch found in Syria.

Syracuse salt. A series of chief-salt-bearing formations.

Syphonic incinometer. An instrument widely used for measuring the temperature in gas and oil wells or boreholes. The device is low-cost, highly accurate, and portable. Pryor, 3, p. 159.

Syntetite. A trade-mark name for synthetic sapphire, also known as synthetic sapphire. See synthetic ruby.

Synthetic stone. A reproduction of a stone, either naturally occurring or man-made. Nelson.

Synthetic sapphire. A synthetic gemstone that resembles the natural mineral sapphire. Ricketts, I.

Systematic error. An error that is always present and affects the results in a consistent manner. Zimmerman, p. 111.

Systematic timbering. Placing mine timbers in a manner that is systematic and uniform, allowing for efficient and safe mining operations. Nelson.

Systematic sampling. The taking of samples in a systematic manner, ensuring that each sample represents a specific portion of the population. Zimmerman, p. 107.

Systematic error. a. A cumulative error that is always in the same direction. b. A constant error. Zimmerman, p. 111.


Synthetic sapphire. A trade-mark name for synthetic sapphire, also known as syntetite.

Synthetic ruby. A synthetic gemstone that resembles the natural mineral ruby. Ricketts, I.


Systematic error. e. See bias error. Zimmerman, p. 135.


Systematic error. g. See bias error. Zimmerman, p. 145.

Systematic error. h. See bias error. Zimmerman, p. 150.

Systematic error. i. See bias error. Zimmerman, p. 155.


Systematic error. k. See bias error. Zimmerman, p. 165.


Systematic error. m. See bias error. Zimmerman, p. 175.


Systematic error. o. See bias error. Zimmerman, p. 185.


Systematic error. s. See bias error. Zimmerman, p. 205.


Systematic error. w. See bias error. Zimmerman, p. 225.


table cutter. A lapidary who cuts tables or plane faces on diamonds or other precious stones. Fay.

table diamond. A relatively flat diamond used as the form of diamond used in the manufacture of table cut diamonds. Fay.

table feeder. See rotary table feeder. ASA M674-1958.

Table flotation. Flotation process practiced on a shaking tabe, which is an inclined, vibratory screen, conditioned, and fed to table as thick slurry. Flotation particles become g' measurable, held together by minute air bubbles and edge adhesion. These roll across and are discharged nearly opposite feed end process being helped by jets of low-pressure air from piping set across table. Tablings work along deck to discharge material.

Tableland. a. A plateau, or elevated region of flat or undulating country rising to heights of 1,000 feet, and more, above the level of the sea. See also plateau. Fay. b. In geography, any flat or comparatively level tract of land considerably elevated above the general surface of a country. A.G.I. c. A flat or undulating elevated area; a plateau or mesa. A.G.I.

tableman. a. In the stonework industry, one who lays out and marks marble slabs to prior to their being cut, using a rule, straightedge, and crayon or chalk. D.O.T. L. b. See screenman. D.O.T. 1. c. In ore dressing, screening, and refiling, one who tends concentrating tables used in treating pulp (mixture of finely ground ore and water) to separate valuable minerals from a matrix of waste gangue, etc. See also undercurrent. Hess.

tablemount. a. A platform or plate on which coal is put into a mine shaft for temporary purposes. Fay. b. A small pillar of coal. Fay. c. A small pillar of coal. Fay. d. Veinstone; gangue, etc. Fay. e. Scot.

table reef. An isolated coral reef or island, many miles from an octahedron by cutting to opposite sides of a country. A.G.I. 


table spar. Tabular spar. See also wollastonite. Fay.

table stone. The typical form thus described which results from the use of a relatively higher table of the same size prior to their being cut, using a rule, straightedge, and crayon or chalk. D.O.T. 1.


table trap. See screenman. D.O.T. L.


table water. See also wollastonite. Fay.

table way. The form of cut which results from the use of a relatively high table of the same size prior to their being cut, using a rule, straightedge, and crayon or chalk. D.O.T. 1.

tableway. All utensils and decorative articles used for table service. ASTM C242-60.

tableting. Separation of two materials of different densities by passing a dilute suspension over a slightly inclined table having a reciprocating motion or shake with a slow forward motion and a fast return. Bennett 216, 1946. Add.

Tablet marble. A beautiful transparent limestone, composed of innumerable laminae, thin as paper, and formed by deposition from a calcareous sea-water containing opaline siliceous material. Tabliz marble. Fay.

Table water. See sugar chlorides. C.C.S., 1961.

table water. See also wollastonite. Fay.

Tack coat. A thin coat of hot road tar or bitumen emulsion applied over a road surface to improve adhesion with the subsequent single or two course bitumen final surfacing. See also wearing course. Fay.

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Tack aluminas. Corundum (> 95.9 percent Al2O3) supplied by Aluminum Company of America, grade 4fO4, for refractories, contains < 0.25 percent MgO and 61% for electroceramics, contains < 0.05 percent Na2O. Dodd.

Tablet crossing-bedding. A cross-bedded unit with a flat base and flat top forming a tabular body. Pettijohn.


Tabular deposit. A flat tablike or stratified bed, for example, a coal seam. Nelson.


Tabular structure. A tendency in certain igneous or crystalline rocks to separate into plates or laminae. It differs from stratification in manner of origin. Standard, 1964.

Tabi-cut. This is a modified double-spiral cut. As regards the advantage it is inferior to the proper double spiral. The benefits of the Taby cut are, however, that the holes are here located vertically below one another on one and the same line. This facilitates drilling and mechanization of the drilling. Langford, pp. 245, 247.

tacharanite. A mineral (Ca,Mg,Al,Si)Al3O6. It is a green to greenish-bluish, birefringent mineral, and birefringence is generally deeper than 100 fathoms, too thin of which has a compactly smooth platform. Schieferdecker.
tackey

Making tack welds. ASM Gloss.
tack. v. An assemblage of ropes or wire cable; and pulleys arranged for hoisting or conveying materials. Putters in former times also used a tail

tackle block. Synonym of block and tackle.
tackle; tackers, Leic. a. Small chains put around the top of loaded tubs or buckets, to keep the coal from falling out. Fay, b. Short chains formerly used for raising and lowering men in a shaft. Three men generally sat at them at one time. See also bant; bont; Fay.
tackler skip. s. Staff. A kind of box in which men used to ride in a shaft; used also for carrying minerals. See also paddy pan; bant; bont; a. Fay.
tack rivet. A rivet which carries no load but is inserted for convenience of construction. Ham.
tack welds. Small, scattered welds made to hold parts of a weldment in proper alignment. While the final welds are being made, ASM Gloss.
tacoma process. An electrolytic method for removing carbon from iron. Fohl.
taconite; taconyte. a. The cherty or jaspery form and which may be hematite or magnetite, or a combination of the two especially hard, lean iron ore that has its rock that encloses the Mesabi iron ores in Minnesota. In a somewhat more general sense, it designates any bedded ferruginous chert of the Lake Superior district. Stokes and Varney, 1933. b. In Minnesota practice, it is any grade of extremely hard, lean iron ore that has its iron either in banded or well disseminated form and which may be hematite or magnetite, or a combination of the two within the same or body. Cumming.
taconite ore. A type of highly abrasive iron ore now extensively mined in the United States. Sandstrom.
taconyte. See taconite.
tactical planning. The short-term or day-to-day planning at a mine to maintain the scheduled output. The planning does not cease with the layout of faces; it also includes the necessary services, such as housing, supplies, etc. See also strategic planning; ventilation planning. Nelson.
tactile. A general term for rocks of complex mineralogy formed by the contact metamorphism of limestone, granite, or other carbonate rocks into which foreign matter from the intruding magma has been introduced by hot solutions. Stokes and Varney, 1933.
tadjerfte. A black, semiglasy, crustlike stony meteorite composed of bronze and olivine.
tadpole nests. An early name used for interterence ripple mark. Pettijohn.
tajuglainite. In Besborodko's classification, a mixed rock with more than 65 percent granite; one with 35 to 63 percent is a migmatite and with less than 35 percent, an injection gneiss. A.G.I. Supp.
taeniolite. A white, colorless, or tinged with blue basic silicate of potassium, lithium, and magnesium, KLiMgSiO4F2 (Ark.). Crystals thin, elongated strips; friable masses. Monoclinic, belonging to the mica group. From Nararsaul, Greenland; Magnet Cove, Ark. English.
tagline. A line from a crane boom to a clamshell bucket. Fay.
tagged. Said of atoms rendered radioactive (labeled), the movements of which can then be traced by use of Geiger tube. Pryor.
tagged atom. See tracer. LOL.
tagg's method. A graphical method of determining the ratioistic of the ground. A.G.I.
tagline. A line from a crane boom to a clamshell bucket that holds the bucket from running out of position. Nichols.
tailing pit. See catchpit. Fay.
tailing machine. Aust. A machine or apparatus for dressing the tailings and for obtaining gold from the detritus from other ore-dressing apparatus. Fay.
tailing out. See dying out. Fay.
tailing pond. Area closed at lower end by constraining wall or dam to which mill effluents are run. Clear water may be returned. After settlement in dam, via penstock(s) and piping. Pryor.
tailings. a. The part of a deposit, or any incorpo-ration, or fluid material separated as refuse, or separately treated as inferior in quality or value; leavings; dregs; dross; The sand, gravel, and cobbles which pass through the sluices in hydraulic mining were formerly generally designated as tailings, but of late years, in a wall; a tailing. Standard, 1964. a. The tail of a shovel deck. Nichols. e. The anchor end of a cable excavator. Nichols. f. A barrier or barrier formed behind a small island or a skerry. Also called trailing spilt; banner bank. Siefiedercker.
tail tower. The anchor for a track cable, or the turn point for a backhaul line in a cable excavator. Nichols, 2.
tail back. Eng. When fire damp ignites and the flame is elongated or creeps backward against the current of air, and possibly causes an explosion of a large body of gas, it is said to tail back into the workings. Fay.
tail bay. That part of a canal which is immediately downstream of the tail gates. Ham.
tail beam. H. It. A joint or beam which abuts against the header joint. Crispin.
tailblock. a. The boom foot and idler sprocket assembly on a ladder dither. N.E. b. The block used to pull a sluizer to the face. Bureau of Mines Staff.
tail chain. a. A chain used in mine haulage; also, tail rope. Korson. b. Scot. A chain by which a horse hauls either the wagons. Putters in former times also used a tail chain. Fay.
tail crab. In mining, a crab or winch for operating a tail rope. Standard, 1964.
tailend. a. That part of a mining belt conveyor which consists of the tail section and when required, a bel tail, a telescopic section, and a loading station. NEMA MBI-1961. b. The end of a conveyor in the vicinity of the delivery point. See also tension end. Nelson.
especially in state and United States legis-
lations. Often, they have been called
mining debris or simply debris. Fay, b.
The gangue and other refuse material re-
sulting from the washing, concentration,
or treatment of ground ore. Webster 3d.
c. Those portions of washed ore that are
regarded as too poor to be treated fur-
ther; used especially of the debris from
stamp mills or other ore-dressing ma-
chinery. As used in the mineral industry
(cocumulates) that is to be smelted.
Standard, 1964. d. The inferior leavings
or residue of any product; foots, bottoms.
Including the residue after most of the
valuable ore has been extracted. Fay, e.
The term tailings has been construed as
including slag. Fay, f. The term tailings
as used in the mineral industry is used in
the plural form. Fay, g. Material applied
to sectional residue, for example, table tail-
ings, which is the residue from shaking
screens and tables. This material may be
recreated or retrieved. Nelson. h. The
waste rock after the asbestos fiber has
The decomposed offcut of a vein or bed.
Fay, j. Borehole returns allowed to run
to waste; the parts of the drill cut-
tings that are discarded. Long, k. The reject
from froth flotation cells. B.S. 3552, 1962.

tailings dam laborer. In ore dressing, smelt-
ing, and refining, a laborer who performs
the functions of a belt or chain conveyor
which carries in it the tailings; a channel
for conveying away from the processing
plant. Nelson.
tailings machine. A machine for sifting the
tailings and collecting the foots from the
conveying system after it has passed through
the washer. Nelson.
tailings man. A general term applied to a
worker who tends equipment used to dis-
perse of tailings (worthless material) after
valuable minerals have been removed by
crushing and concentration processes. The
material used, which varies with each individual mill;
pumps, bucket elevators, desliming cones,
and screens and tables. Also called labor-
tailings machine. A machine for sifting the
tailings and collecting the foots from the
conveying system after it has passed through
the washer. Nelson.
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perse of tailings (worthless material) after
valuable minerals have been removed by
crushing and concentration processes. The
material used, which varies with each individual mill;
pumps, bucket elevators, desliming cones,
and screens and tables. Also called labor-
tailings sampler. See mill sampler. D.O.T.
tailings settling tank. A vessel to remove solids
from the tailings effluent as in a coal
washery. The tank is about 60 feet in
diameter and 10 feet deep. The tailings
are fed in at the center with a flocculant.
As the suspension travels from the center
to overflow at the perimeter of the tank,
the solids settle out and the clear water
effluents, is collected, and returned to
the washer for reuse. Nelson.
tailings thickener operator. See thickener

tailings wheel. A wheel carrying buckets or
compartments on the periphery and used
in conveying liquid, pulp, or sand from a
lower to a higher level. Nelson.
tail joist. A joist which has one end ter-
minal against a header joist. Crispin.
tailoring. A light carried at the back end of
either the tail pulley or the tail sprocket.
Jones.
tailrace. a. A trough or channel through the
tailings; a channel for con-
tinuing water away from any plant or
structure. See. b. A trough or channel used for
moving pumps in shafts. Fay.
tail-rope coupler. In bituminous coal mining,
one who works on a tail-rope haulage
system, removing haulage-cable hook from the
rear of a cage or scraper loader, or to
at the tail pulley. Zern.
tail-rope engineer. In bituminous coal min-
ing, one who operates a hoisting engine
driving a. See the tail pulley. B.S. 3618, 1963.
b. The rope that is used to draw the empties back into a mine
in a tail rope haulage system. B.S. 3757, 1963.
c. A counterbalance rope attached beneath the
cage when the cages are hoisted in bal-
ance. Zern. d. A hemp rope used for
moving pumps in shafts. Fay.
tail-rope rider. In bituminous coal mining,
one who works on a tail-rope haulage
system, removing haulage-cable hook from the
rear of a cage or scraper loader, or to
at the tail pulley. Zern.
tail-rope system. A method of haulage in
which one rope—the main rope—is
attached to the front end of a trip of cars
and another rope—the tail rope—is
attached to the rear end of the trip.
This is operated by a hoisting engine and two
tails. a. Can. Portion of tailings containing
some mineral which cannot be economic-
ally removed. This is commonly separated as
it leaves the treatment plant so that rec-
covery can be known and controlled at
time. Hoffman, b. Corn. Refuse tin
thermally treated at high temperatures to
be treated again. See also tailing. c. See de-
pleted uranium. L. E. H.
tail-rope system. A method of haulage in
which one rope—the main rope—is
attached to the front end of a trip of cars
and another rope—the tail rope—is
attached to the rear end of the trip.
This is operated by a hoisting engine and two
take the air

current. Fay. b. Applied to a ventilating fan as working well, or working poorly. Fay.

takeup. a. In a belt-conveyor system, a tensioning system as a carriage-mounted weight free to run downhill; or a take-up pulley with weights hanging vertically near the end of the belt. Pror, :fr. L. *tangere*, to touch. Pror. 3. b. Any device for taking up slack or removing the looseness of parts due to wear or other cause. Griehn. c. See chain takeup. JTM.

take up bottom. Ark. To remove rock from the floor of a roadway to increase the height. Also called bottom brushing. Fay.

takeup pulley. An idler pulley so mounted that its position is adjustable to accommodate changes in the length of the belt as may be necessary to maintain proper belt tension. NEMA Bulletin 1964.


taking. Eng. A mineral-land lease. See also take b, tack. Fay.

taking-in-test. Removing a small amount of ore from the furnace to determine its quality. Mertensia, 6th, p. 414.


taking timber necessary to support timber improvements. The term applied to a miner which means all the timber he might need to take the working of his mine possible. Ricketts, 1.


talbot pror. A process for protecting the surface of a coal deposit in order to prevent the escape of combustible gases. Friedlander, 1955. This is a pig and ore process, although scrap is occasionally added. It depends upon the rapid oxidation of the impurities contained in the pig iron by a liquid, highly ferruginous slag and is carried out in the basic open hearth furnace, generally of the tilting type. The essential feature of the process is to retain a certain amount of metal in the furnace (1) to dilute the impurities contained in the additions of pig iron, and (2) to supply the heat necessary to keep the slag very fluid. A tilting furnace of 200 tons capacity or over is ordinarily employed, and from about one-quarter to one-third of the finished steel is tapped out at one time. This having been done, additions of iron or oxide lime and line are made, and after they are properly melted and incorporated in the slag, molten pig iron is run in. A violent reaction takes place and most of the phosphorus and silicon are eliminated in a few minutes, a large part of the slag running out of the furnace. The bath is then adjusted as a practice in ordinary practice, a part tapped, and the cycle of operations repeated. Osborne.

talbot pror. A process for protecting the inside of cast iron pipes with a coating of sand and bitumen. Ham.

talc. A very fine-grained magnesium silicate, Mg$_3$Si$_2$O$_5$(OH)$_6$, usually occurring as a natural alteration of magnesium silicate rocks or in metamorphosed dolomites. Compact variety near the feed faces; massive varieties end.

called steatite in distinction to the foliated varieties which are called talc. Monocline. Color, white, apple green, gray; lustre, pearly, high resistance to acids, alkalies, and heat; Mohs' hardness, 1 to 1.5; specific gravity, 2.7 to 2.8. Found in New York, North Carolina, California, Vermont, Georgia, Maryland, Virginia, Nevada, Montana, Texas, Washington, United in cermics; in gas burning, in electrical insulation. French chalk is a variety used for crayons. Also called potstone; soapstone. Dana 17; Fay; CCD 6d, 1961.


talcoid. Resembles talc, as talcoid shist. Fay.

talcose. Containing talc, as potstone, steatite, and talcose granite. Fay.


talk schist. Schistose rocks consisting chiefly of talc and quartz. Talc is also prefixed to several other rock names. Fay.

talcum. The same as talc and soapstone. Fay. 19. Some days or a day's output of coal. Fay.

talking. Term applied to a series of small bumps or ripples within the walls. Bumping, talking, and spitting are signs that the rock is beginning to yield to the stress and indicate a change in conditions within the rock. Spalding, p. 76.

tall oil. The oily mixture of resin acids, fatty acids, and other materials obtained by acid treatment of the alkaline liquors from the digesting (pulping) of pine wood. Used in drying oiled, in sizing oiled, in emulsifiers, in flotation agents, in driers, in oil well drilling muds, in core oils, in lubricants, and in asphalt derivatives. CCD 6d, 1961.

tallow drop. A style of cutting precious stones in which the stone is stoned on one or both sides. Fay.


tamba. Precious stone placed by the miner who loaded the car. Also called tally. Fay.

tam-o-shanter. A very large hat, sometimes of straw, sometimes of felt, and nonferrous melting refractories. C.T.D.

tammar. A kind of muscovite. Fay.

tammarite. A melanocratic dike rock, containing augite and barkevikite as the chief mafic minerals, and talcose or nannophyllite as an accessory; as the chief felsic constituent; in addition, small amounts of orthoclase or plagioclase may be present. The type is thus a lamprophyric facies of nepheline basalts. Holmes, 1929.

tanaragite. A monocline, colorless, vitreous luster, Na$_2$Si$_2$O$_4$·6H$_2$O, found at Tarapaca, Chile; a secondary mineral formed principally under acidic conditions by the oxidation of sulfides in aluminous and alkali-rich environments. Dana 7, v. 2, pp. 460-467.

tanbark. A coarse-leafed plant. The chief member of the oil-bearing strata in the Mexican oilfields, of Lower to Middle Cretaceous (Washita or Cenomanian) age; includes the Escamela limestone above and the Maltratra limestone below. C.T.D.

tanmaz. Trade name for a premium grade mullite refractory made from the best grade of calcined Indian Kyanite to which a mineralizer is added. The term also increases the mullite content of the bond. Al$_2$O$_3$ 88 percent. Specific uses are glass melting superstructure and feeder parts, ferrous and nonferrous melting refractories, crown and lining for linings for all types of furnace and kiln. CCD 6d, 1961.

tamakh. A Malayan term for black incrustation found on auriferous quartz. Fay.


tammit. A doubtful mineral, possibly an artificial alloy, especially Fe and W. Ferrotungstite; crookinite (crookinite also the name of a Cu,Ti telluride). Dana 6d, p. 1049.

tam-o-shanter. A very fine-grained, soft, brittle, natural stone found in Scotland. It is used in the United States as an axstone and for sharpening knives. Fay.

tamping. a. To tightly pack a drilled hole with a mallet of metal. See tamper. b. To tamp down or pound down ballast on a railway track, or road metal. See also packing. C.T.D. d. To pound or press soil to compact it. Nichols. c. See stem. B.S. 3618, 1964, see tamper.

tamper. A. In bituminous coal mining, one...
tamper

who fills drill holes in which explosives have been charged, by machine driller or miner, with clay or some other tamping material, using a tamping bar. Also called shot tamper. B.O.T. 1. b. One who tamps. Standard, 1964, c. An implement for tamping; a tamping iron or tamping bar. Standard, 1964. Sometimes made of wood, copper, or iron with a copper tip. See also tampering bar. Fay. d. It is to stop compaction of soil in spots not accessible to rollers. Nichols.

tamping. a. The act of inserting and packing explosives and stemming in a shot-hole. See also stemmer. Nelson. b. The act of packing a drilled hole around a cartridge with fine dirt from the floor of a mine before blasting, to prevent a misdirection of the force of the blast. Korson. c. The material placed over a charge in a borehole, to better confine the force of the explosion to the lower part of the hole. Stauffer. Drilling down, as of a broom handle for tamping or this purpose. Ham. b. A piece of wood or hickory (in Kentucky) used for tamping or holding down, as of a charge. Burmin Style Guide, p. 62.

tamping bar. a. A rod made of wood for pushing cylindrical cartridges in holes. Metal rods must never be used for this purpose. Ham. b. A piece of wood used instead of tamping material to close up a loaded blasting hole.Standard, 1964.

tamping plug. A plug of iron or wood used instead of tamping material to close up a loaded blasting hole. Standard, 1964.

tamping rod. See stemming rod. B.S. 3618, 1964, sec. 6.

tamping roller. a. One or more steel drums, flanged or not, used for rolling and compacting soil in spots not accessible to rollers. Nichols. b. A revolving cylinder containing stones used to tamp a roadway. Georgia 1964, sec. 6.

tamul. Trade name for a refractory made of sintered synthetic mullite grain; Al₂O₃, 68.21 percent. Available in refractory heat setting cements, air setting cements, hydraulic setting cements, and ramming mixes. Used in refractories for glass melting superstructure, ferrous and nonferrous metal melting, construction of high temperature furnaces and kilns using all types of fuel. CCD 64, 1961.


tandum. a. A double-axle drive unit for a truck or grader. A bogie. Nichols. b. A tandem axle unit in which one part follows the other. Nichols.

tandum die. The same as follow die. ASM Gloss.

tandum-drive. A three-axle vehicle having two driving axles. Nichols.

tandum-drive conveyor. A conveyor having a belt in which upper one is driven and lower one is discharging simultaneously. The upper one is usually one-third the diameter of the lower one and is loaded at a pocket halfway down the shaft. The lower skirt is loaded at the shaft bottom and skips and tamps in the conveyorway pocket. Thus, the rope on the winding drum is only equal to half the full depth. See also two-stage hoisting. Nelson.

tandum hydroseparator. A two-celled hydro-separator with troughs. The raw coal feed is conveyed through a trough by water under pressure where the refuse stratifies to the bottom. The action in the first cell is that of a forceful upward current which results in the removal of the heavy refuse. In the second cell a lighter current permits the settling of lighter and smaller refuse. The refuse settles to a perforated cell deck where it joins the slowly moving slate belt of the discharge. Refuse discharge is controlled by a refuse gate or hinged plate at the end of the cell bed. Kentucky, p. 308.

tandum mill. A rolling mill consisting of two or more stands arranged so that the metal being processed travels in a straight line from one stand to another, without, in continuous rolling, the various stands being synchronized so that the strip may be rolled in all stands simultaneously. Contrast with single-stand mill. ASM Gloss. See also continuous mill.

tandum ram. A ram with two rolls of similar diameter running on the same track. Ham.

tandum support system. A trade name for a longwall steel support system. It consists of two 50 ton chocks in line at right angles to the face and linked together with double-acting ram. In operation, the front chock is lowered and advanced with the conveyor and ram to the roof, the rear chock is then lowered and brought forward. Nelson.

tandum unit plant. A longwall conveyor face with two face conveyors of different capacities, one delivering on to the other—tandum fashion. The layout has the disadvantage that the whole tonnage of coal must be transported along the second conveyor, and any breakdown on the second conveyor will affect the output of the entire face. Nelson.

tandum welding. Arc welding in which two or more electrodes are in a plane parallel to the line of travel. ASM Gloss.

tanette. A small timbers fixed in a particular manner for supporting the sides of headings in soft ground. Fay.


tank. a. A large vessel or receptacle, made of wood or metal, intended to contain a fluid as gas or water; as water tank, gasoline tank. Used as a synonym for vat. Fay. b. A subterranean reservoir into which a pump delivers water for another pump to raise. Fay. c. A melting unit, in which the container for the molten glass is constructed from refractory blocks. ASTM C162-66.

tank building. The act or process of storing oil, etc., in a tank. Fay. b. The price charged for storage in a tank. Fay. c. The capacity of a tank or tanks. Fay. d. The water residue deposited in lixiviating vats or tanks. Fay.

tank block. A refractory block used in the lower part of a glass tank furnace. These blocks are normally made of sillimanite, mullite, or corundum; they are frequently made by electrofusion of the refractory, which is then cast in a mold to form a highly crystalline, virtually non-porous, block which is very-resistant to attack by the molten glass. Dodd.

tank car. Railroad cars equipped with large steel tanks for transporting crude oil. Mercereau, 4th, p. 199.

tancker. A vessel constructed for the special purpose of carrying liquids in bulk form. Shell Oil Co.

tank furnace. a. Essentially a large, box-shaped refractory material holding from 6 to 200 tons of glass, through the sides of which are cut ports fed with a combustible mixture (producer gas and air, coke oven gas and air, or oil spray and air), so that flame sweeps over the glass surface. With the furnace is associated a regenerative or recuperative system for recovering part of the heat from the waste gas. C.T.D. b. See tank. ASTM C162-66.

tank glass. a. Glass melted in a tank as distinct from a pot. ASTM C162-66. b.
tank glass

Tank glass suitable for tank melting. ASTM C162-66.

tank reactor. A nuclear reactor in which the core is in a closed tank, as distinct from an open pool reactor. Commonly used as research and test reactors. L. Dod.

tank sprayer. A pressure-sure tank mounted on wheels for impregnating timber. Ham.

tank station. See station. Fay, p. 646.

tannic acid. (C₇H₅O₇)₄Na, tannin. A yellow amorphous powder or lustrous crystalline scales, soluble in water, alcohol or glycerol and slightly soluble in ether. It is used as a reagent and in the treatment of births. Enam. Diet.

tannin. A complex organic compound of carbon, hydrogen, and oxygen produced by metabolism in trees and plants. Sodium tannate is used to some extent as a de- flocculant for clay sludges. Dodd.


tantalum. At. symbol, Ta; molecular weight, 180.948; specific gravity, 13.6. Dodd.

tantalum bond. A complex organic compound of carbon, hydrogen, and oxygen produced by metabolism in trees and plants. Sodium tannate is used to some extent as a de- flocculant for clay sludges. Dodd.

tantalum carbide. TaC; molecular weight, 106.02; specific gravity, 5.08 (at 27° C); decomposes in moist air; melting point, 2420° C; boiling point, 4270° C; decomposes in water and in acids except hydrofluoric acid; and soluble in hydrofluoric acid and in fused potassium-hydrofluoride sulfate. Used in the production of tantalum metal. C.C.D., 64, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-228.

tantalum pentachloride; tantalum chloride. Tantalum tetrachloride; tantalum tetachloride. Tantalum dichloride; tantalum chloride. Pale yellow; vitrous luster; crystalline; TaCl₅; molecular weight, 358.21; specific gravity, 3.68 (at 27° C); decomposes in moist air; melting point, 216° C; boiling point, 221° C; soluble in water and in acids except hydrofluoric acid; and soluble in hydrofluoric acid and in fused potassium-hydrofluoride sulfate. Used in the production of tantalum metal. In optical glass, in special glass having a high index of refraction for camera lenses; as an intermediate in the preparation of tantalum carbide, and in electronics. C.C.D., 64, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-228.

tantalum pentoxide; tantalum oxide. Colorless; orthorhombic; Ta₂O₅; molecular weight, 161.89; specific gravity, 5.6; melting point, 5200° C; very hard material. Dodd.

tantalum pentoxide. A complex organic compound of carbon, hydrogen, and oxygen produced by metabolism in trees and plants. Sodium tannate is used to some extent as a de- flocculant for clay sludges. Dodd.

tantalum boards. Several boards are known, including the following: Ta₂O₅, Ta₂O₅, 50° C; specific gravity, 3.25; thermal expansion, 3.5 x 10⁻⁵/°C; Ta₂O₅, 14.5° C; Ta₂O₅, melts incongruently at 2650° C; specific gravity, 13.6. Dodd.

tantalum, tantalum oxide. A complex organic compound of carbon, hydrogen, and oxygen produced by metabolism in trees and plants. Sodium tannate is used to some extent as a de- flocculant for clay sludges. Dodd.

tantalum oxide. Two oxides are known: Ta₂O₅, melts incongruently at 3090° ± 50° C; Ta₂O₃, which loses nitrogen at 1900° C. Dodd.


tantalum pentoxide; tantalum oxide. Colorless; orthorhombic; Ta₂O₅; molecular weight, 161.89; specific gravity, 5.6; melting point, 5200° C; very hard material. Dodd.

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taper-lock sprocket

tapered bushing for rigid mounting on a shaft. JEM.

taper off. Con. To stop work temporarily.

taper of thread. Measurement in inches of taper or slope for a 1 foot length of the thread. Brandy, Zick, and Johnson.

taper pin. A straight-sided pin that is smaller at one end than at the other. Nichols.

taper reamer. A reamer whose fluted portion is smaller at the front end than at the back, red to produce a hole with a specified taper. ASM.

taper rope. A rope that has a gradually diminishing diameter from the upper to the lower end. The diameter of the rope is decreased by dropping one wire at a time at a regular intervals. Both round and flat ropes may be made tapered, and such ropes are intended for determining a vessel with a view to proportioning the diameter of the rope to the load to be sustained at different depths. Brantly, 2.

taper shank. Part of a tool, conical in shape, which fits a driving member, usually with a tongue on its end. ASM Gliss.

taper chamfer. A chamfer of seven threads in nine threads in length. ASM Gliss.

taper-type dropper. A device by which a thread is roughened by wire cutting. Much used in the mud process of boreholes. Long.

tape-triangulation method. A mine roadway consisting of a short piece of casing cemented in the collar of a borehole at the upper end of which is affixed a gate or feed. Also called disk. Fay. To let water out of a mine by tapping the place where the water is confined. Fay.

tappet. a. A sliding member working in a guide, interposed between a cam and the push rod or valve system which it operates, to change side thrust on the latter. C.T.D. The collar under which the cam is inserted so as to lift the stamp. Fay. b. Removal of molten metal from a furnace, ASM Gliss. b. Melting metal from a furnace. ASM Gliss.

tappening. a. Opening the outlet of a melting furnace to remove molten metal. ASM Gliss. b. Melting metal from a furnace. ASM Gliss.

tapping assembly. A mechanical device consisting of a set of pins or tapping cements. See ASR. Fay. Also called disk. Fay.

tapping bar. See tap bar. Fay.

tapping clay. A plastic clay used in plugging holes. ASM Gliss. b. Melting metal from a furnace. ASM Gliss.

tapping old workings. Boring a hole into old workings to release gradually any accumulated gas. Fay. The borehole tapping may be followed by driving an advance heading into the area. This is dangerous if the heading is extended, borehole tapping is kept in advance of the face to prevent the sudden break-through of water. See also inrush of water. Nelson.

tapping the hollows. Eng. Allowing water or gas, or both, to flow out of old or abandoned workings, often under a great pressure. See also tapish. Fay.

tapit hen. A 3 quart wine bottle. Dodd.


tape-triangulation method. A mine roadway area measurement method in which the tape is stretched diagonally across the roadway. Offsets to the roof, floor, and sides are taken at right angles to the tape and on both sides of it. Alternatively, the floor of the cross section is divided into equal increments and vertical offsets to the roof are made at each division. Horizontal offsets to the sidewalks are made from the nearest vertical offsets. The measurements so obtained are plotted to scale and the area of the resulting diagram determined from the plot. Roberts, 1, p. 59.

taphophylax. Imprints of dead animal bodies. Pettijohn.

tapish. a. In mineralogy, the thin film of color, different from that of a fracture, which gives the outer surface of some minerals a color. Fay. b. To break in “at unawares” with his horse. Fay. c. In a puddling furnace, a slag坝 that is allowed to form at the top of the charge.Webster 3d.

tappet. a. A sliding member working in a guide, interposed between a cam and the push rod or valve system which it operates, to change side thrust on the latter. C.T.D. The collar under which the cam is inserted so as to lift the stamp. Fay. b. Removal of molten metal from a furnace, ASM Gliss. b. Melting metal from a furnace. ASM Gliss.

target. a. Sliding weight on leveling rod used in surveying to enable staffman to read the staff reading being recorded by the line of collimation. In underground leveling, head on hanging plumbline used for the base and wearing courses of rods, consisting of graduated broken stone or gravel coated with tar or asphaltum mixture. A type of leveling staff provided with a sliding target, which can be moved by the staffman, under direction from the leveller, to a position in which it is in line with the line of sight of the level, the staff reading being recorded by the staffman. C.T.D.

target strength. Measure of reflecting power of the target. Ratio, in decibels, of the target echo to the echo from a 6 foot diameter perfectly reflecting sphere at the same range and depth. H. W. R. E.

tarmac. a. Asphalt that is made artificially from grit or crushed stone and bonded with tar. See also bituminous macadam; premix. Benson.

tarmac. b. Material used for the surface and wearing courses of roads, consisting of graduated broken stone or gravel coated with tar or asphaltum mixture. See also tar pavier. Ham.

tarmac. c. A small round-rimmed lake in an ice-gouged basin on the floor of a cirque or in a glaciated valley. Mathes.

tarmac. d. A reddish-brown glaucophane metasilicate of barium and iron, {Ba,Co,Na} 2 [(Fe 3+Fe 2+) 2Ti(SiO 4)] (OH) 2, with a little Ti replacing Si; apparently to be considered as a sorosilicate. Radiating, fibrous aggregates; orthorhombic. From Can- dogna, Piedmont, Italy. English.

tarmakite. Described as a massive yellowish-white, toothed, sometimes wavy, hydrous Al phosphate with iron and potash. Dana 6d, p. 846.

tarnish. a. Colorless to pale yellow basic phosphate of zinc, Zn 3 (PO 4 ) 2 (OH) 2. Rounded crystals often aggregated into sheaves. Tschirch, From Broken Hill, Northern Rhodesia. English.

tar-chaser. See chaser, tar.


tar distillate. A fraction in petroleum refining containing heavy oils and paraffin. H. H. N. E.

tare. a. The weight of a mine car when empty. B.C.I. b. To weigh mine cars when empty in order to determine the weight of coal in a car when the loaded car is weighed, done at specific intervals in order that a tonnage basis may receive proper credit for coal which they have loaded. B.C.I. c. Al- lowed weight for weight rating in which goods are moved. The difference between gross and net weight. Pryor, 3.

tar gun. a. Sliding weight on a rotating rod used in surveying to enable staffman to read line of collimation. In underground leveling, head on hanging plumbline used for the base and wearing courses of rods, consisting of graduated broken stone or gravel coated with tar or asphaltum mixture. A type of leveling staff provided with a sliding target, which can be moved by the staffman, under direction from the leveller, to a position in which it is in line with the line of sight of the level, the staff reading being recorded by the staffman. C.T.D.

tarnish. a. The reflecting power of the target. Ratio, in decibels, of the target echo to the echo from a 6 foot diameter perfectly reflecting sphere at the same range and depth. H. W. R. E.

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target strength. Measure of reflecting power of the target. Ratio, in decibels, of the target echo to the echo from a 6 foot diameter perfectly reflecting sphere at the same range and depth. H. W. R. E.

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tarmac. b. Material used for the surface and wearing courses of roads, consisting of graduated broken stone or gravel coated with tar or asphaltum mixture. See also tar pavier. Ham.
Tarnish. Trade name for a mullite super refractory sand. See also tautomer.

Tauriscite. A doubtful mineral possibly epsomite. Hey, M.M., 1964; Fleischer, C12(OH)2.31/21120; massive, in anhydrite.


Taylorite. A dense iron oxide; a variety of epidote, Cr2O3, 11.16 percent. Massicot, p. 103.


T-bolt. A bolt with a T-shaped head, made to fit into a T-shaped slot in a drill

ferrous and nonferrous metal melting and heat treating, linings and crowns for high temperature furnaces and kilns firing all kinds of fuel, kiln furniture. CCD 6d, 1961.

task. The number of tons or the amount of ore or material to be loaded either by mechanical loaders or by hand loaders. Also called score. Bur-Mines Bull. 231, 1966.

Tasmanian alexandrite. A trade name for the counter of Tasmania. Shipley.


Tasmanian topar. Colorless to light blue topaz from Tasmania. Shipley.

Tasmanian zircons. Yellow-brown to dark red zircons from Tasmania, the former becoming colorless by heating. Shipley.

tasmanite. A reddish-brown, resinous mineral, disseminated in scales through a laminated shale or slate; it has a specific gravity of 1.18 and yields oil on distillation. Also called resiniferous shale and yeast shale. Shipley.

tasmanite shale. Same as tasmanite. Tomkeieff, 1934.

tassette. Fr. A small, sharp-pointed infusion of tannin, soluble in water. Chief constituents are complex phenols; also present are turpentine, resin, toluene, xylene, and other hydrocarbons. Used in oil flotation and in asphaltic compositions. CCD 6d, 1961.


tailing. a. The coating of piles used for permanent work with prepared acid-free tar. The tar is obtained from the high temperature carbonization of coal in horizontal retortors. Nelson, b. The act of coating (or, as a pipe) with tar. Bureau of Mines Staff.

tar runner. See chaser. tar, D.O.T. 3 Supp. 1965, p. 120.

tar sand. a. Barbedo name for sand impregnated with petroleum which dries up to viscous or solid bitumen. Tomkeieff, 1934. b. These consist of heavy petroleum oils, or bitumen, impregnating sand or clay near the surface of the earth. Vast quantities exist, notably at Athabasca in North Alberta, Canada, and in Iran. Franci, 1965, v. 1, p. 320.

tar sprayer. A member of a team of skilled hands responsible for the various operations of spraying tar on a road. Hamm.

tasco. A fire clay from which melting pots are made. Also spelled taesco. Standard, 1964.

Tassie. Trade name for a mullite super refractory sand. See also tautomer. Descriptive term for amphoteric substances, or substances that can react as acids or bases, or both. Schaller.


tavorite. Hydrous lithium ferric phosphate, LiFe(PO4)OH2, as yellow fine-grained aggregates from Brazil. Spencer 26, M.M., 1935.

tawlite. A granular igneous rock composed essentially of soda and pyroxene. Fay.


taxite. Having separated, during cooling, into small portions differing in texture, color, or composition, and hence having a false appearance of being elastic; said of some volcanic rocks, especially if banded. Fay.

taxite. Serpentine from Chester County, Pa. Schallier.

Taycor. Trade name for a corundum base super-refractory made of sintered high purity alumina. Al2O3, 98.0 to 99.0 percent. Available in bonded brick and shapes and also heat, air setting and hydraulic setting cements, patches and ramming mixes. Outstanding resistance to abrasion, load and iron oxide slag attack at high temperatures. Used as rills in boiler heating furnaces and 20 to 24 hour sulfur service where iron oxide slag is a problem; lining for ferrous melting in electric furnaces, direct arc and induction types; high temperature furnaces of all types including crowns, linings, kiln furnishing, and mantles. CCD 6d, 1961.

Taylorite. A dense iron oxide; a variety of epidote, Cr2O3, 11.16 percent. Massicot, p. 103.

Taylor producer. A furnace used for the manufacture of producer gas. Fay.

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T-bolt

swivel head; by means of it the swivel head can be turned to any angle of inclination to drill a borehole. Also, a similar bolt made to fit into a T-slot in the bed of a machine, for the purpose of holding a piece of metal to be machined or to fasten a machine to its base. Long.

tc Abbreviation for thermocouple. Zimmerman, p. 108.


Tef Abbreviation for trillion cubic feet. Divallum.

tchernohblite. An algal sapropelic deposit found in the vicinity of Chernomkho, and which has been interpreted as an aggregation of peaty matter washed from other deposits. A.G.I.

tchernozem. Literally, black mold; the local name for the black earth that covers the whole of the Aralo-Caspian plain, and much of the South of Russia in Europe; interesting from its close resemblance to the regur or so-called cotton soil of India. It is evidently one of the most recent deposits, and of alluvial origin. Synonym for tchernoshem; chernozem. A.G.I.


tch. Abbreviation for technical cohesive strength. Webster 3d.

technical language. Webster 3d. b. The terminology of a particular subject; technical language. Webster 3d.

technical cohesive strength. Fracture stress in a notch tenile test. Often used instead of merely cohesive strength to avoid confusion among the several definitions of cohesive strength. ASM Gloss.

technique. The manner of handling details in the execution of an undertaking. Kinsey.

technologist. A specialist in technology. Webster 3d.

technology. a. The science of the application of knowledge to practical purposes; and general science. Webster 3d. b. The terminology of a particular subject; technical language. Webster 3d.

tectogene. A. A deeply downfaulted belt of sediments within a eugeosyncline. A.G.I. b. A large downfold of the granitic crust (sial) beneath an orogenic belt. A.G.I.
tectogenesis. A term sometimes used instead of orogenesis for folding and thrusting, to avoid any implication that actual mountains were necessarily formed. Challinor. tectonic. Applied to deformed angular constituents of a rock whose shapes have been modified by magmatic corrosion. Schieferdecker.
tectonics. Pertaining to rock structures and topographic features resulting from deformation of the earth's crust; also earthquakes not caused by volcanic action, landslides, or collapse of caverns. Mather.
tectonic. A term used to include angular coarse rocks formed as the result of tectonic movement. Included in this category are fault breccias, especially those associated with great overthrust sheets, and fold breccias or rieubreccia. A.G.I.


tectonic conglomerate. A coarse clastic rock produced by deformation of brittle closely jointed rocks. Rotation of the joint block and granulation and crushing sometimes produce a rock that closely simulates a normal conglomerate. Synonym for crush conglomerate. A.G.I.
tectonic earthquake. Earthquakes caused by faulting within the upper layers of the earth's crust, usually at depths of 5 to 30 miles. Hooe and Long.
tectonic geology. Used more or less synonymously with structural geology. On the whole, these terms have a stronger tendency to restrict this term to rock deformation during earth movements; the latter is apparent in the use of the term structural geology, even if the use is not
telescoping conveyor

A type of conveyor, the length of which may be varied by telescoping frame members. See also extendible conveyor.

telemeter. Zone or environment of ore deposition characterized by lesser intensity than epidemal and generalized by retronotes from an igneous source. McKinsty.

telemetric deposits. Ore deposits produced at or near the surface from ascending hydrothermal solutions and representing the terminal phase of its activity. AGI.

televised or radio-transmitted communication system. Pryor, 3.

telford. Being or related to a road pavement having a surface of small stone rolled hard and smooth and distinguished from macadam road by its firm foundation of large stones wedged tightly in the interstices. Webster 3d.

telfore. To furnish (a road) with a telefroid pavement. Webster 3d.

telfon process. See metallizing. Dodd.

tellinite. This term was proposed by W. J. Telfordize to furnish (a road) with a telnottellante. A simple device, perhaps fabricated from a strok of stone wedged tightly in the interstices. Webster 3d.

telforite. To furnish (a road) with a telfordite. Webster 3d.

telfoonkeen process. See metallizing. Dodd.

tellite. This term was proposed by W. J. Telfordize to dignitate a vitrinite showing cellular structure. The Nomenclature Sub-committee of the International Committee for Coal Petrology decided in 1957 to use the term telinite only for the cell walls seen in vitrinite. Only in this manner can it be reliably included among the macerals. Telinite shows more or less clearly defined cell structure (wood, periderm, etc.) sometimes deformed. The cells are generally filled with collinite, but the structure is better shown when the cells are either empty or filled by material such as resinite, fine micritine, clay minerals, etc. I.H.C.P., 1963, part 1.

tellite. Same as provitrain. See also telain. Tomkiesie, 1954.

teller. See tab. Marion.

telinite. a. A simple device, perhaps fabricated on site, for indicating selected conditions of loading, flow, etc., in a plant. Flashing light, hooter, bell, meter moving along scale are among such arrangements showing height of liquid in a tank, loading on conveyor belt, location in bin, failure of slotted, or failure of sealing tanks. Pryor, 3. b. A device for keeping a check on employees (as factory hands, driver, check takers), especially the time clock. Webster 3d. c. A wind direction indicator in the form of a ribbon or similar piece of material. Webster 3d. d. A device serving as a warning on a railroad. Webster 3d. e. A small overflow device serving as a warning on a railroad. Webster 3d. f. A small overflow device serving as a warning on a railroad. Webster 3d. g. A small overflow device serving as a warning on a railroad. Webster 3d. h. A device serving as a warning on a railroad. Webster 3d. i. A device serving as a warning on a railroad. Webster 3d. j. A device serving as a warning on a railroad. Webster 3d. k. A device serving as a warning on a railroad. Webster 3d.


teluric-current prospecting. A geophysical prospecting technique utilizing natural telluric currents as a source instead of artificial current. Steel is sent into the ground. Dobrin, p. 8.

teluric current. Natural electric currents that flow from the telluric zones in large sheets. Methods have been developed for using these currents to make resistivity surveys. Synonym for earth currents. AGI.


telurite. A binary compound of tellurium usually with a more electropositive ele-

ment or radical. Webster 3d. Often rich in gold and silver. Fay.

telluric ocher. The mineral tellurite, TeO₃. Fay.

tellurides. Ores of the precious metals (chiefly gold) containing telluride. Gordon.

telluriferous. Yielding or containing tellur-


tellurite. A mineral, TeO₃, that consists of tellurium dioxide and occurs sparingly in tufts of white or yellowish crystals. Webster 3d.

tellurium. An element in group VI of the periodic system. Silvery-white; metallic lustre; metallic characteristics; orthorhombic or hexagonal; Mohs' hardness, 2.3; specific gravity, 6.24 (at 20° C); melting point, 499.5° ± 0.3° C; boiling point, 909° or 989.9° ± 3° C; soluble in sulfuric acid, in nitric acid, in potassium hydroxide, and in potassium cyanide solution; and insoluble in water. Occasionally found in native form. Obtained from anode slime produced in the electrolytic refining of concentrate lead. Used as a coloring agent in glass and ceramics. Symbol, Te; valences, 2, 4, and 6; atomic number, 52; and atomic weight, 127.60. Symbol, Te; valences, 2, 4, and 6; atomic number, 52; and atomic weight, 127.60. Standard, 1964.

telluric currents. Natural electric currents that flow on or near the earth's surface and are used for using these currents to make earth currents as a source instead of artificial current. Standard, 1964.

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telluric currents. Natural electric currents that flow on or near the earth's surface and are used for using these currents to make earth currents as a source instead of artificial current. Standard, 1964.
tempered more than strain disks. See also strain disk, ASTM C162-66. I. Term sometimes employed in referring to tempered glass. See also: ASTM C1041; glass.

**temper.** a. Degree of hotness or of coldness measured on one of several arbitrary scales based on some observable phenomenon, as the expansion of mercury on heating, for example. The degree of a material substance that is a linear function of the kinetic energy of the random motion of its molecules. The degree of a vacuum that depends upon the density of the radiant energy within it. Abbreviations and symbols, temp; T; t; T. t. Compare absolute zero. See also absolute temperature; Celsius; centigrade; critical temperature; Fahrenheit; Kelvin temperature scale; Rankine scale. Webster 3d. b. The heat content of a body as measured on a definite scale. In oceanography both the centigrade and Fahrenheit scales are used. Temperature of seawater usually is determined to an accuracy of ±0.02° C. Hy.

**temperature coefficient.** A numerical value indicating the relation between a change in temperature and a simultaneous change in some other property (for example, solubility). Specifically, the factor a in the equation Rc = RO (1 + at) in which Rc equals the resistance of a constant at t° C, and RO equals its resistance at 0° C. Webster 3d. b. The change in reactor reactivity occurring when the operating temperature changes. The coefficient is positive when an increase in temperature increases the reactivity and negative when an increase in temperature decreases the reactivity. Negative temperature coefficients are desirable because they help to stabilize reactor power excursions. L.R.

**temperature colors.** Colors shown to the eye by incandescent bodies at different temperatures. Bureau of Mines Staff.

**temperature dew point.** Temperature at which condensation of water occurs; a saturation temperature. Measured in degrees F. Hartman, p. 9.

**temperature, dry bulb.** Temperature indicative of the dry thermometric temperature; a measure of the sensible heat content of air. Hartman, p. 9.

**temperature gradient.** a. The rate of change of temperature with distance in a specified direction. Also called lapse rate. A.O.I. b. A curve showing the temperature at different distances from the hot face, in refractory wall. Bureau of Mines Staff.

**temperature gradient furnace.** A laboratory electric resistance furnace in which the heating element is wound around the furnace tube in such a manner that there is a steady temperature gradient along the axis of the furnace. Such a furnace is useful in the ceramic laboratory in that it will expose a long test piece placed within the furnace to different temperatures at different points, so that the effect of various firing temperatures can be studied in a single operation. Dodd.

**temperature logging.** The measurement of temperature in boreholes by use of a delicate thermometer that will record temperature differentials of as much as 0.01°F for thin coal seams in coal mines according to the thermal conductivity of the rocks concerned. This type logging has proved useful in discriminating between coal and sandstone and also in cased holes in conjunction with gamma-ray logging. Sinclair, III, p. 105. Also widely used in oil fields for locating position of water bearing zones, casing leaks, etc. Bureau of Mines Staff.

**temperature profile recorder.** A portable unit consisting of a recording element, 6-volt power supply, amplifier, and a recording. The recorder is geared to a drum containing an electrical cable to which the feed is fastened. When the feed is lowered into the water, the paper on the recorder is set in motion accordingly. Depth is measured by the amount of wire paid out. This device is used in shallow water, particularly in lakes. HOG.

**temperature recorder.** In an explosive copper sulfate (CuSO4·5H2O), magnesium sulfate (MgSO4·7H2O), sodium chloride (NaCl), and ammonium chloride (NH4Cl), all of which act as cooling agents either by giving off water or by volatilizing. They also tend to reduce the sensitivity of the explosive. Cooper, p. 345.

**temperature-regulating equipment.** Any equipment used for heating and cooling the rectifier together with the devices for controlling and indicating its temperature. Cool Age, 1.

**temperature-saturation (t-s) diagram.** This is the plot of temperature vs. salinity data of a water samples. The result is a diagram which makes it possible to identify the water masses within the column, its stability, to read off its value and to estimate the accuracy of the temperature and salinity measurements. Hy.

**temperature standards.** For normal measurement 0° C (regarding gas properties). For thermodynamics and physical properties either 18° C or 25° C as defined in each stated case. L.R.

**temperature steel.** Reinforcement which is introduced into a concrete slab or other member in order to minimize any cracks arising from shrinkage or from temperature stresses. Ham.

**temperatures stress.** Stress in a structural member due to a rise or fall of temperature. See also: temperature steel. Ham.

**tempering machine.** A machine for giving the desired consistency of workpieces. B.S. 3552, 1962.

**tempering wheel.** A wheel mounted on a shaft and revolved in a pit after the manner of an arrastre, for kneading and tempering clay, mortar, plaster, or other materials. Standard, 1964.

**tempering.** a. Reheating a quench-hardened or normalized ferritic alloy to a temperature below the transformation range and then cooling at any rate desired. ASM Gloss. b. Thorough mixing of clays with water, etc., to form a plastic paste for molding. C.T.D.

**tempering bar.** See forging. Fay.

**tempering furnace.** A furnace for heating articles in the process of tempering. Standard, 1964.

**tempering oil.** An oil that is used for tempering metal. Shell Oil Co.

**tempering oven.** An oven for heating lath in the process of annealing; a leer. Standard, 1964.

**tempering sand.** Foundry sand wetted to the proper dampness for molding. Bennett 2d, 1962.

**tempering tub.** A combined pan and vertical pug mill for the preparation of clay for brickmaking. The mixing pan is about 7 feet in diameter, a central vertical shaft carrying the mixing blades; the shaft continues downward as the shaft of the pug mill. In some districts of England, this equipment is known as a sludge pan. Dodd.

**tempering unit; tempering pan; cooling unit.** A vessel intermediate between the pug and the press used to regulate the temperature of the charge. B.S. 3552, 1962.

**tempered lead.** Lead hardened by addition of metallic-alkali-earth metals and/or lithium; usually made by electrodeposition the alkali-earth metal into a fused lead cathode. Bureau of Mines Staff.

**tempered safety glass.** A single piece of specially heat-treated glass, with a stress pattern such that the piece when fractured reduces to numerous fragments with no large jagged edges. See also safety glass. ACSG, 1965.

**tempered strain disk.** A disk that has been hardened and subsequently tempered by a second lower heating. Fay.

**temperer.** One who or that which tempers specifically, a machine for mulling and thoroughly working potter's clay, brick clay, mortar, plaster, or other materials. Standard, 1964.

**tempering bars.** See forging. Fay.

**tempering furnace.** A furnace for heating articles in the process of tempering. Standard, 1964.

**tempered steel.** A machine for giving large steel plates a uniform and thorough tempering without permitting them to become hot. A steel plate, usually by pressing them between hot masses of iron, or by firmly clamping them between jaws or plates while immersing them in a tempering bath, Standard, 1964.

**tempering mortar.** Softening mortar by adding water at a rate below the transformation range, and subsequently tempering by a second lower heating. Fay.

**tempering water.** Water used to give the desired consistency of workability to a mix. A.R.I.

**tempering wheel.** A wheel mounted on a shaft and revolved in a pit after the manner of an arrastre, for kneading and tempering clay. Standard, 1964.

**tempered glass.** Glass which has been rapidly cooled from above the annealing point to induce residual compressive stresses in the surface. VV.

**temper screw.**
temper screw


temper time. In resistance welding, that part of the postweld interval during which the current is suitable for tempering or heat treatment. ASM Gloss.

template. a. A form for building tunnel inverts. Steffaur. b. A pattern device used as a guide to mark points at which holes are to be collared in face drilling. Long. c. A full-sized mold, pattern, or frame, shaped to serve as a guide in forming or testing calculus or shape. Taylor. d. A pattern or guide of any of various kinds used in manufacturing as usually thin metal pattern for laying out and scribing a workpiece. Also, a gage or pattern for checking dimensions, locations, or contours as on castings. Webster 3d. e. A pattern plate, cut to the shape or profile required on a finished surface, by which the surface is marked off or indexed during machining or other operation. Also called templet. C.T.D.

temporary adjustment. An adjustment, such as levering or focusing, made to a surveying instrument at each setup. Ham.

temporary baseline. The valley flat (food plain) is a sort of baseline, through which the first flat developed by a stream is necessarily the lowest level to which it may grade into the valley bottom. It is the lowest level to which the stream can bring its valley under the conditions which made the flat is developed. It is, therefore, a temporary baseline, and serves as the limit below which tributary valleys may not cut.

temporary hardness. of water, that which can be removed by boiling out the CO₂, therefore, it is also hard water. Nelson.

temporary hardness. Water hardness which can be destroyed by boiling. See also hard water. Nelson.

temporary installation. An installation made for a limited time only, generally in the area between the loading point and the working face, but also in other locations where portable or mobile equipment is installed for a limited time. A temporary installation is limited to a period of six months. Bureau, Coal-Mine Inspectors Manual, June 1966, pt. 3-B, p. 53.

temporary prop; policeman; safety prop. a. A temporary prop. According to the Federal Mine Safety and Health Administration, a prop shall be used temporarily in the face of a working face, but also in other locations where portable or mobile equipment is mounted on an inclined roadway (with sufficient weights) to move up or down a pulley round which the rope of an end is permitted, but yield strength is the common basis for elastic design. Tensile strength may also be some indication of allowable severity of hot and cold working processes. HBG; b. Tensile strength of a material is usually greater than its breaking strength, but it is below the maximum true stress developed by the material. Tensile strength is a common index for strength comparison of a material. It may be directly used in design where some plastic deformation is permitted, but yield strength is the common basis for elastic design. Tensile strength may also be some indication of allowable severity of hot and cold working processes. HBG.

tension. a. The force or strength with which the particles of a mineral or rock hold together or resist separation. The terms commonly used to describe the tenacity of a mineral are friable, brittle, sectile, malleable, flexible, elastic, and tough. Stokes and Varnes, 1953. b. The adhesion possessed by a substance, or its toughness. Gordon.

tension element. (Eng.) See frontal hammer. Fay.

tender. a. Said of rock that tends to break up or crush under pressure into small fragments, and which will not hold in any span over a few inches. Also called porphyry and porphyritic. Far and Walsh, pp. 36-37. b. The formal offer by the tenderer to carry out the work described in the drawings and/or specification for a certain sum of money. See also agreement; schedule of rates. Nelson.

tendon. A stretched element used in a concrete mixture to act as a system of control to impart pressures to the concrete. Taylor.


tenmol. A plate containing iron compounds sometimes used by studio potters; it is lustrous black except where it is thinned and has oxidized to a red color. Dodd.

tenoufite. A natural sulfarsenide of copper and iron, (Cu₄Fe)₄As₂S₄, found in metallic veins. Isometric. A variety of fahlore. Flint gray to iron black; luster, metallic in scales, dull to strong. Found in Colorado, Idaho, Utah, Montana; Canada; Europe. An important ore of copper and silver. Also called copper ore. H&B. Rock specifically noted for its tenacity in a standard testing machine with special tension grips which allow rock cores to be safely handled. The machine is equipped with the load with the axis of the test piece. The rate of loading is 100 pounds per minute. For rocks of nonuniform nature this test yields erratic results, and tenacity strengths determined from rupture tests are preferred. Lewis, p. 370. See also Brazilian test.

tension. a. In subsidence, the amount of lengthening per unit r, measurement. Nelson. b. In engineering, a pulling force or stress; metals in tension are strong, while concrete and masonry are weak. Nelson. c. A system of forces tending to draw apart the parts of a body, especially of a belt, a line, or a cord, or a sheet, combined with an equal and opposite system of resisting forces of cohesion holding the parts of the body together. The stress caused by pulling; opposite of compression and distinguished from torsion. Standard, 1964. d. Sometimes used in a face system of resisting forces of cohesion holding the parts of the body together. C.T.'s.

tension carriage. A bogie or frame carrying a pulley round which the rope of an endless rope haulage passes to be tensioned or tightened. The bogie moves on rails and may be kept just heavy balance by weight bars or placed on an inclined roadway (with sufficient weights) to move up or down

tensile modulus of elasticity. The tangent or secant modulus of elasticity of a material in the tension test. The relationship between tensile stress and tensile strain. Also called modulus of elasticity in tension and often merely modulus of elasticity. HBG.

tensile strength. a. The ultimate strength of a material subjected to tensile loading. The maximum tensile stress developed by a material in the tension test. It is calculated by determining the tensile stress corresponding to the maximum load observed in the tension test. For ductile metals, tensile strength of a material is usually greater than its breaking strength, but it is below the maximum true stress developed by the material. Tensile strength is a common index for strength comparison of a material. It may be directly used in design where some plastic deformation is permitted, but yield strength is the common basis for elastic design. Tensile strength may also be some indication of allowable severity of hot and cold working processes. HBG.

tension test. a. A test in which specimens are subjected to an increasing tensile pull until they fracture. A stress-strain curve is plotted and the limit of proportionality, proof stress, yield point, ultimate tensile stress, elongation and reduction in area, determined. Red. D. Rock specifically noted for its tenacity in a standard testing machine with special tension grips which allow rock cores to be safely handled. The machine is equipped with the load with the axis of the test piece. The rate of loading is 100 pounds per minute. For rocks of nonuniform nature this test yields erratic results, and tenacity strengths determined from rupture tests are preferred. Lewis, p. 370. See also Brazilian test.

tenacity. a. The force or strength with which the particles of a mineral or rock hold together or resist separation. The terms commonly used to describe the tenacity of a mineral are friable, brittle, sectile, malleable, flexible, elastic, and tough. Stokes and Varnes, 1953. b. The adhesion possessed by a substance, or its toughness. Gordon.

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tension modulus. (Eng.) A prop set temporarily in ad-

temporal shaft support. A timber or steel lining inserted for a limited period until the permanent shaft support is put in to replace it. See also skeleton tubbing. Nelson.

temporal splice. According to the Federal Coal Mine Safety Act, is considered to be one that does not have a rubber or neoprene bearing or bonded over the splice and bonded to the cable jacket. I.C. 8149, 1963, p. 16.

temporary support. a. In striking a shaft or driving a tunnel, one that is erected immediately after breaking the ground to give support; that is, until it is no longer needed or until it is replaced by a permanent support. Stoces, p. 264-972 0-68-72 0.

t. N. of Eng. A certain weight of coal agreed upon between lessor and lessee, upon which a royalty is paid. A ten varies between 48 and 50 tons, or 18% New-

carriage. A bogie or frame carrying a pulley round which the rope of an endless rope haulage passes to be tensioned or tightened. The bogie moves on rails and may be kept just heavy balance by weight bars or placed on an inclined roadway (with sufficient weights) to move up or down

tensile modulus of elasticity. The tangent or secant modulus of elasticity of a material in the tension test. The relationship between tensile stress and tensile strain. Also called modulus of elasticity in tension and often merely modulus of elasticity. HBG.

tensile strength. a. The ultimate strength of a material subjected to tensile loading. The maximum tensile stress developed by a material in the tension test. It is calculated by determining the tensile stress corresponding to the maximum load observed in the tension test. For ductile metals, tensile strength of a material is usually greater than its breaking strength, but it is below the maximum true stress developed by the material. Tensile strength is a common index for strength comparison of materials. It may be directly used in design where some plastic deformation is permitted, but yield strength is the common basis for elastic design. Tensile strength may also be some indication of allowable severity of hot and cold working processes. HBG.
tension carriage

according to the tension in the endless rope. A tension device is necessary to take up any slack rope created in varying loads on the haulage system. Nelson.

tension-control cylinder. A hydraulic piston and cylinder mechanism that can be attached to a drill feed-off line and adjusted to allow the drill stem to feed downward while maintaining a constant pressure on the drill string. See also tension drilling. Long.

tension correction. The correction which must be applied to a tape if it is being used at a tension different from that at which it was standardized. See also tape correction. Ham.

tension drilling. Drilling with part of the weight of the drill string supported by the drill string head or suspended on a drilling line, as opposed to drilling with the entire weight of the string imposed on the bit. Long.

tension end. The tail end or receiving end of a belt conveyor. It consists of a return drum carried in a boxlike structure. A scraper, trough, or brush is attached to remove as much as possible of the spillage on the bottom belt before it passes on to the return drum. The tension end is drawn back by two Sylvesters attached to staking anchor props; this enables adequate and continuous tension to be imparted to the belt. Sinclair, V, p. 287. See also drivehead.

tension fracture. A fracture that is due to tension which separates rock strata; unlike gravity or normal fault, since strata may be uplifted or the block of gap caused by fall of intervening section to lower level when fissure opened. Pryor, 3.

Tension Flange. The side of a beam which is in tension, being the lower side in the general case of a simple beam supported at both ends. Ham.

tension fracture, a. A fracture that is the result of stresses that tend to pull material apart. Billings, 1954, p. 93. b. See subsidiary fracture. Ham.

tensioning device, belt. A device fitted to a belt conveyor which automatically takes up any slack or stretch in the belt. A gravity takeup device is sometimes fitted immediately behind the driving unit, thus eliminating slack which would otherwise occur. The main disadvantage of gravity takeup is that it gives the belt three entire lengths. Nelson.

tension jack. A type of jack equipped with a jack screw for wedging against the roof, which also has a ratchet device for applying tension on a chain to be attached to the tail or foot section of a belt conveyor. The jacks and tension chains pull the tail section back until the belt is at the proper tension. Jones.

tension point. A point that is a tension fracture. See also tension fracture. A.G.I.

tension linkage. A chain application in which linear motion is not continuous in direction. Jones.

tension pulley. Aust. A pulley around which an endless rope passes mounted on a revolving drum. A movable bearing line and that the slack of the rope can be readily taken up by the pull of the weights. Fay.

tension splice. A splice that is reliable. J&M.

tension zone. The surface area affected by tensile strain. See also compression zone; Ham.


tensile strain. A strain caused by a tensile stress. Set also compression zone; Ham.

ten wheeler. See six wheeler.

tenter. Eng. A man who has the control or direction of a knitting machine. Rolfe.

Terne furnace. A modification of the open hearth furnace in which the essential reactions in the refining of scrap steel gradually increase in cross section until they are as large as the hearth itself, thus practically eliminating turbulent flow in the furnace. This is claimed to result in increased output and reduced fuel con-
Terni furnace

terrosin. Same as fichtelite. Tomkiew, 1954.
terp morden. An artificial mound or hill of earth. Schieferdecker.
terrettacite. A mineral made from the carbon of general formula Ca₄(SO₄)₂H₁₀, made from gypsum ground down on one side and downward on the other side. Terraces and their bounding slopes are formed in a variety of ways, some being aggradational and others degradational. Fay, b. A flume in marble, commonly cored out and used up. Webster, d. A raised portion of an ancient riverbed or a bank on which alluvial deposits may be found. Nelson, c. A bench in a quarry or opencasting mining. Nelson, e. A ridge, a ridge and hollow, or a flat bench built along a ground contact. Nichols, f. N.S.W. High level river gravels. New South Wales.
terraced. A. A level or nearly level plain, generally narrow in comparison with its length, from which the surface slopes upward on one side and downward on the other side. Terraces and their bounding slopes are formed in a variety of ways, some being aggradational and others degradational. Fay, b. A flume in marble, commonly cored out and used up. Webster, d. A raised portion of an ancient riverbed or a bank on which alluvial deposits may be found. Nelson, c. A bench in a quarry or opencasting mining. Nelson, e. A ridge, a ridge and hollow, or a flat bench built along a ground contact. Nichols, f. N.S.W. High level river gravels. New South Wales.
terrance. Any clay, usually impure, which underlies a terrace or occurs on the slopes of valleys, basins, or on slopes of other types. ACSB-I.
terraced flute cast. Flute casts with external scaling resembling differentially weathered bedding laminations. In reality, a cast of differentially eroded laminations is produced by undermining shale and unrelated to internal structure of the cast. Petitjohn.
terraced stalagmite. A stalagmite having marginal less horizontal terraces. Schieferdecker.
terrace epoch. In geology, the earlier part of the Recent or Holocene epoch; so-called Terrasian; a time of general formation of terraces in the drift-filled valleys of the region glaciated during the preceding Pleistocene epoch. Fay.
terraces placers. Placer deposits on levels above the present streams. A.G.I.
terrace coefficient. A terrace coefficient is a number expressing the ratio of actual ground displacement by plastic waves to that which the same waves would produce in rock. The terrace coefficient for rock is thus 1; for unconsolidated materials it ranges upward to as high as 30, depending on the thickness of the material. Leet 2, p. 73.
terrace concave. A correction applied to observed values obtained in geophysical surveys in order to remove the effect of variations in the earth's topography in the vicinity of the sites of observation. Synonym for topographic correction. A.G.I.
terrane. A. A group of strata, a zone or a series of rocks; used in the description of rocks in a general, provisional, or nomenclatural sense. Fay, b. A region considered in relation to its fitness for some purpose; an extent of ground or territory. Standard, 1964.
terrae. Of or relating to the earth. Webster 3d.
terrae pooderous. Literally, heavy earth; another name for heavy spar or barite. Fay.
terrae. In the system of strata, a zone or a series of rocks; used in the description of rocks in a general, provisional, or nomenclatural sense. Fay, b. A region considered in relation to its fitness for some purpose; an extent of ground or territory. Standard, 1964. Also spelled terrace. Fay.
terrae althea. See others. Fay.
terrae sigillata. A porous red clayware characterised by moulded decorations of the same colour as the inglazed surface. Originated on the Isle of Samos. ASCG, 1963.
terrae siles. See infusorial earth. Bennett 2d.
terrae. Small chips or pieces of stone, usually marble or limestone, about one-half or three-fourths of an inch in diameter, made by crushing and screening. Terraezo chips are used with portland cement in making floors, which are smoothed down and polished after the cement has hardened. BulIMines Bull. 565, 1960, p. 894.
terrae. A. A land area; the earth; terrain. Webster 3d. b. In surveying, the surface of the ground. Webster 2d.
terrae. An embankment of earth with a broad, level top. Webster 3d.
terrae. A. A broad, level top. Webster 3d. b. A raised portion of an ancient riverbed or a bank on which alluvial deposits may be found. Nelson, c. A bench in a quarry or opencasting mining. Nelson, e. A ridge, a ridge and hollow, or a flat bench built along a ground contact. Nichols, f. N.S.W. High level river gravels. New South Wales.
terrae. Deposits laid down on land, especially the black, often oily, coal or oil containing. Fay. Some geologists also include deposits laid down in lakes and rivers, and hence consider the term to be opposed to marine and not to water in general. Stakes and Varnes, 1955.
terrae. The early of the two geologic periods comprising the Cenozoic era, in the classification generally used. Also, the system of strata deposited during that period. Fay.
terrae. A plastic explosive which consists of the constituents, blasting gelatin + BNT + sodium nitrate + ammonium perchlorate. The explosive has a relatively low rate of detonation and is very insensitive, on which account care must be taken to ensure that its initiation is extremely powerful. It is preferably employed in loose rock. Franck, v. 5, Art. 16:02, p. 25.
terrae. An of stains, usually losing character if mixed with other pigments. Webster 2d.
terrae. Produced from or of the earth; in geology, derived from the land; said of marine deposits formed of material washed from the land, and transported by water, or by wind, to a body of water, or by wind, to a body of water, or to wind or water. Tomkiew, 1954.
terrae. Glauconite, or the similar mineral celadonite, used as a grey pigment by artists. The best preparations are very permanent, but of small intimacy, losing character if mixed with other pigments. Webster 2d.
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terrae. Glauconite, or the similar mineral celadonite, used as a grey pigment by artists. The best preparations are very permanent, but of small intimacy, losing character if mixed with other pigments. Webster 2d.
test cone. A test piece cut or molded from a test borer. See diamond driller. D.O.T. I.
test. a. A cupel, or cupelling hearth, for re-
testeras. Mex. Uprights in a mine, whether
test core. Core removed from a concrete
structure by diamond core drilling and
tested in a laboratory to determine the
strength and other physical properties of
the concrete. Also, core removed from a
borehole drilled in search of oil and used
to determine the quality of the core and
whether oil is present. Long.
test-correction chart. See capillarity-correction
chart. Long.
test cube. A 6- or 4-inch cube of concrete is
used in Great Britain as a specimen to
test the quality of the concrete. A compres-
sive test is generally taken at either 7 or
28 days age, the methods of casting and
testing being described in British Stand-
ard 1681. See also slump test. Ham.
b. A person responsible for carrying out
ventilation, dust or other tests. Nelson.
c. Service company representative who
supervises drill stem testing operations.
Wheel.
testera. A small square stone or tile used in
tessellated. a. A surface divided in squares,
or natural divisions. Fay. b. Composed of
small square stone or tile used in making
glass, or terra cotta variously cofored and
arranged in artistic design: inlaid; mosaic;
tessera. A small square stone or tile used in
making mosaic pavements, walls, etc.
C.D.
tesseral. In crystallography, the same as iso-
tesseral system. Isometric or cubic system.
C.M.D.
tessla. A version of the tenmoku glaze; it is
tessellated as tessellated pavement. Standard,
1964. b. Arranged in artistic design: in-
laid; mosaic; in-plated or enameled. Fay.
tesseract. An apparatus for proving
the physical characteristics of the materials
penetrated can be established as in foundation test-
ing soil and rock from which the physical
characteristics of the sampled formations
can be established. Wheeler 3d.
a. A procedure or a reaction used to identify
a characteristic by heating it to a
sufficiently high temperature at which they evolve
explosive vapors; an oil test. Fay.
test box. Drilling to test oil, gas and rocks
when considering foundations of buildings,
dams and heavy plant. Pryor.
test-borer helper. See diamond-driller helper.
D.O.T. 1.
test borer. A used by foundation
engineers, the act or process of
sinking holes into the overburden
(some-times referred as a test borer),
with rotary or drive sampling equipment
for the purpose of recovering samples from
which information on the physical char-
acteristics of the materials penetrated can
be obtained; also applied to the sample
obtained by the test borer. Long. b. Synonym
for borehole; drill hole; drilling. Long.
test core. A test piece cut or molded from a
sample of refractory material that is to be
tested for refractoriness. Pryor 2.
test core. Core removed from a concrete
diamond core drilling and tested in a labora-
tory to determine the strength and other physical properties of
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b. A person responsible for carrying out
ventilation, dust or other tests. Nelson.
c. Service company representative who
supervises drill stem testing operations.
Wheel.
test tube. a. A tube for simple tests; usu-
ally a plain tube of thin glass closed at one
end, but sometimes having a foot, a
graduated scale, or other modification.
Webster 3d. b. Synonym for acid bottle.

test well. a. One that determines not only the
presence of petroleum oil, but its
commercial value, considering its
performance and accessibility. The
information resulting should be such as a
prudent and experienced investor would desire to
know before expending his capital in
labor, or improvements for the profitable
working of the property. Ricketts, II.
b. An exploratory well for water. Bureau of
Minet Staff.
test zone. The section of the mine loaded
with coal dust for a given explosion test.
It is most frequently used in connection with
the number of the range required by com-
plete symmetry. Webster 3d.
tetradymite; telluric bismuth. A natural tel-
luride of bismuth, BiTeS, frequently contain-
ing sulfur and selenium. Trigonal. Color and streak pale steel gray, luster,
metallic; Mohs' hardness 1.5 to 2; spe-
cific gravity, 7.5. Found in California,
Colorado, Arizona, Montana, New Mexico,
Virginia; Canada; Utah and bismuth. Fay.
A.G.G.; C.D, 64, 1961.
tetraethyllead; lead tetraethyl. a. The impor-
tant constituent of antiknock gasoline; Pb-
(C2115)4. Crispin. b. Colorless; liquid; spe-
ific gravity, 0.444 (at 16°C); boiling point
precious metals. Shipley.
tetrachloroethane. Same as carbon tetra-
chloride, CCl4 containing four atoms of
chlorine. Webster 3d.
tetraclorothane. A chloride
(as carbon tetrachloride, CCl4) containing
four atoms of chlorine. Webster 3d.
tetrazhaimy latticir bismuth. A natural tele-
luride of bismuth, BiTeS, frequently contain-
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tetrachloroethane. Same as carbon tetra-
chloride, CCl4 containing four atoms of
chlorine. Webster 3d.
tetragonal

which crystals have one fourfold symmetry axis. *Habitus.*

tetragonal system. That system of crystals in which the forms are referred to three mutually perpendicular axes, two of which are of equal length and the third either longer or shorter. Fay.

tetrahedral. Pertaining to the tetrahedron, a four-sided form of the cubic system. Schairer.

tetrahedrite. A mineral, the part with Sb greater than As of the tetrahedrite-tennantite series, Cu,Sb(As)3(S). Silver, zinc, iron, and mercury may replace part of the copper. Isometric. An important ore of copper and silver. Color, grayish-black to black; luster, metallic; streak, black to brown; Mohs' hardness, 3 to 4; specific gravity, 4.6 to 5.1. Found in Montana, New Mexico, Arizona, Utah; Mexico; Europe; South America. Synonym for gray copper ore; falsehood. *A.G.I.*; *Fay*; *CCD* 6d, 1961.

tetrahedron. A crystal form, in the isometric system, enclosed by four faces having equal integers for one, three axes. Fay.

tetrahedron, S104. A silicon atom surrounded by four oxygen atoms. Each oxygen must either receive an extra electron or be shared by two tetrahedra. *V.V.*

tetrahexahedron. A crystal form of the isometric system bounded by twenty-four equal triangular faces, four to each face of the cube. Fay.

tetra sodium pyrophosphate. (Na3P2O7) or *tetranitronilin.* C21H11(NO2)4NH2; a nitration product of aniline; melting point, 170° C; explosion point, 187° C; insoluble in water and in sulfuric acid; and slightly soluble in hydrochloric acid. *C.T.D.*; *Fay*; Handbook of Chemistry and Physics, 45th ed., 1964, pp. B-74, B-139, B-229; Malleable; metallic; luster; soft enough to be cut with a knife; toxic; two allotropic forms: (1) a yellow thallium in planar or hexagonal, and stable below 235° C; and (2) beta thallium, isometric, and stable from 235° C to the melting point, 303.5° C; and 20 known isotopes (thallium 191 to thallium 210). Obtained from the roasting of pyrites in the marine products of sea water and from the smelting of lead ores and zinc ores. Used in low-melting glasses and in glazes having a high index of refraction. *Handbook of Chemistry and Physics, 45th ed., 1964, pp. B-74, B-139, B-229; Handbook of Chemistry and Physics, 46th ed., 1964, p. B-229.


thallium acetate. A variety of flint glass of great density and refracting power; made by adding thallium in place of lead. Standard, 1964.


thallous oxide. Of pertaining to, or containing thallium in the univalent state; for example, thallous oxide (TIO); *Webster* 3d.


thallium. a. In physical geography, a term adopted into English usage signifying the line of greatest slope along the bottom of a valley, that is, a line drawn through the lowest point of a valley in a downward slope. It thus marks the natural direction of a watercourse. *A.G.I.* b. In hydrodynamics, the line joining the two banks of a stream channel. *A.G.I.* c. By many geomorphologists, the term is used as a synonym for volcano profile. *A.G.I.* d. The center line of the principal navigational channel of a waterway constituting a boundary between political subdivisions. *H.W.G.*

Thanelian. Lower upper Paleocene. *A.G.I.*


thausnite. A white submetallic fibrous mineral with a trace of cleavage, 3CaO.CO2.
thaumasite

\[ \text{SO}_3\cdot\text{SiO}_2\cdot\text{H}_2\text{O} \]; Mohs' hardness, 3.5; specific gravity, 1.87. *Larsen*, p. 78.

thaw house. A small building, designed for thawing dynamite, of such size as to provide enough thawed dynamite for the day's work. Thawing houses should be heated either with hot water or steam in such a manner that the explosives cannot come in contact with the heated metal or lie directly over the heated metal. *Fay*.

thawing. a. A method of working permanently thaw pipe; thawing pipe. A string of pipe heated with hot water or steam. See also steam thawing. Lewis, pp. 394-395. b. In dynamiting, warming to the point of thawing the frozen material with a supplementary steam thawing plant. Lewis, p. 603.

thaw kettle. A double kettle, built somewhat like a farina boiler, having two compartments, one outer compartment, which is filled with hot water and which entirely surrounds the inner compartment that contains the dynamite to be thawed. It is equipped with a lid for retaining the heat. *Fay*.

thaw pipe; thawing pipe. A string of pipe heated with hot water or steam, that is frozen in a borehole drilled into permafrost, through which water is circulated to thaw the ice and free the drill rods. *Long. See also thawing.*

thaw sheel operator. In the coke plants industry, one who thaws frozen materials in railroad cars by heating sections of sheel where cars are spotted. *D.O.T. Supp. Title 22.* This is a temporary humic degradation matter. *IHCP, 1963, part I.*


The Industrial Revolution. Began during the second half of the eighteenth century. The factors which led to it were the use of coal in the manufacture of iron (developed at Coalbrookdale Foundry in Shropshire, England, in about 1740) and James Watt's great invention the steam engine. *Nelson.*


thenardite, volatile salt. A natural anhydrous sulfate of sodium, Na\(_2\)SO\(_4\), appearing in saline lakes. *Orthorhombic. Color, white to brownish. Found in Arizona, California, Chile, Spain, and Germany. Dana, 17; Sanford; CDC 64, 1961.*

Thenar's blue. See cobalt aluminite.

thenar. The area of skin in which a sighting telescope, equipped with a vertical and a horizontal circular plate graduated in degrees and minutes, together with verniers or other devices giving still finer readings, is mounted so as to rotate about a leveling base, the whole being equipped with spirit level. In (ground) angles between observed points can be read, also slopes from instrument to such points. A graduated scale is mounted between trunnions and can be rotated in the vertical plane, thus facilitating repetition of the observations face-right and face-left, and cancellation of slight errors of axial alignment of the instrument. *see also face right; face left. *Pryor, 3.*

Theoretical. Theoretical. That depression which can be produced by a perfect fan. B.S. 3610, 1963, sec. 2.

Theoretical yield. The maximum yield (as shown by the washability curve) of a product with a specified percentage of ash. B.S. 3610, 1963, sec. 2.

Theory of machine. Comprises the study of the relative motion between the parts of a machine and the study of the forces which act on those parts. *See also machine design. Nelson.*

Thermal. A granular igneous rock composed essentially of andesine, nepheline, pyroxene, with or without a little hornblende, biotite, or olivine. *Fay.*

Thermal. Hot or warm; applied to springs of andesine. *Fay.*

Thermal. The amount of heat that a clay product will absorb, usually expressed in Btu per °F. *AGC, 1963.*

Thermal conductivity. The quantity of heat which will pass through unit area of a material in unit time, when unit difference in temperatures is maintained across the faces of a unit thickness of it. *Taylor.*

Thermal cutout. A device fitted in hydraulic power systems, which will interrupt the current when it reaches a definite moment of inertia spins and also part of the otherwise of the blades. See also manometric efficiency. *Taylor.*

Thermal acceptance ratio. A physiological method of ascertaining the effect of a given climate upon workers, which is based on the ratio between the heat actually lost by the body via the skin, lungs, etc., and the maximum which can be lost in the prevailing conditions. *Roberts, I., p. 136.*

Thermal agitation. All the constituent atoms (or atomic groups of molecules of a substance at any temperature above absolute zero are in ceaseless motion, and this motion in the form of translation, vibration, and rotation forms the thermal agitation of the substance). *Newton, Joseph. Introduction to Metallurgy, 1938, 15.*

Thermal admittance. A method for determining transformations in a metal by noting the temperatures at which thermal arrests occur. This is manifested by changes in slope of the plotted or mechanically traced heating and cooling curves. When such data are secured under nearly equilibrium conditions of heating and cooling, the method is commonly used for determining certain critical temperatures required for the construction of equilibrium diagrams. *ASM Gloss.*

Thermal barrier. The zone where temperature is hit in the melting end of a glass tank furnace. *Dodg.*

Thermal boring. Use of high-temperature flame to fuse rock in drilling. Heat comes from ignition of kerosene with oxygen or other fuel system, at bottom of drill hole, and waste water around compund air heater may be used to flush out the products. *Pryor, 3.*

Thermal breeder reactor. A breeder reactor in which the fission chain reaction is sustained by thermal neutrons. *See also breeder reactor. LBL.*

Thermal capacity. a. Heat required to raise the temperature of a body one degree centigrade. *Bennett, 24, 1962.* b. The amount of heat that a clay product will absorb, usually expressed in Btu per °F. *AGC, 1963.*

Thermal column. A channel incorporated in some research reactors to supply thermal neutrons for experimental purposes. It consists of a large body of moderator located adjacent to the core or reflector of the reactor. Neutrons escaping from the reactor enter the thermal column where they are slowed down to thermal energies (about 2,000 meters per second). *LBL.*

Thermal conductivity. The quantity of heat which will pass through unit area of a material in unit time, when unit difference in temperatures is maintained across the faces of a unit thickness of it. *Taylor.*

Thermal Diffusion. A method of separating gases by passage of a mixture of those gases through a porous solid. The solid is heated at one end and cooled at the other. *ASM Gloss.*

Thermal emissivity. The property of a body to emit heat energy as a black body. *Fay.*

Thermal efficiency. The ratio of the electric power produced by a powerplant to the thermal input. *Mishell, p. 649. See also McNally-Vissac dryer; multilouvre dryer; Raymond double dryer; cascade coal dryer; flash coal dryer; fluidized bed dryer.*

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Thermoelectric or electromotive force. The electromotive power produced by a powerplant to the thermal input. *Mishell, p. 649. See also McNally-Vissac dryer; multilouvre dryer; Raymond double dryer; cascade coal dryer; flash coal dryer; fluidized bed dryer.*
thermal emissivity

or heat transfer coefficient, of a rock surface is the rate at which heat will flow from the rock to air, per unit area for one degree temperature difference. This varies with color and other surface characteristics. Roberts, I., p. 41.

thermal endurance. The relative ability of glassware to withstand thermal shock. ASTM C162-66.

thermal exhaustion. The underwater swimmer is extremely sensitive to moderate changes in water temperature in both directions because water is a much better heat conductor than air. At present there is no equipment to protect a man against moderately warm water. Heat prostration may occur during exercise in water around 86° F and at rest in water around 96° F. A much commoner stress is water colder than 65° to 72° F. Many types of clothing have been devised to protect against cold water. Unfortunately most have obvious handicaps such as loss of protection when wet inside, limitation of motion, squeeze and chafing of the skin and marked buoyancy changes of depth and lack of mechanism to rid oneself of sweat and excreta. H.G.

thermal expansion. The increase in linear dimensions and volume which occurs when materials are heated and which cannot be balanced by contraction of an equal amount when the materials are cooled. H.W.

thermal expansion factors for glass. Factors that have been proposed to be used for the calculation of the coefficient of linear expansion of a glass on the assumption that this is an additive property. Dodd.

thermal fatigue. Fracture resulting from the presence of temperature gradients which vary with time in such a manner as to produce cyclic stresses in a structure. ASM Gloss.

thermal glass. A glass in which boron oxide replaces silica in excess in ordinary lime soda glass. Has low coefficient of expansion, can be heated and cooled rapidly. See also Pyrex. CCD 64, 1961.

thermal gradient. In the earth, the rate at which temperature increases with depth below the surface. A general average seems to be around 30° C increase per kilometer of depth, or 150° F per mile. Leet.

thermal growth. See thermal ratcheting. VV.

thermal insulating cement. A prepared composition, in dry form, comprising granular, flaky, fibrous, or powdery materials which, when mixed with a suitable proportion of water to develop a plastic consistency, and applied and dried in place, forms a coherent covering that affords substantial resistance to heat transmission. ACSG, 1963.

Thermalite yong. Trade name; a lightweight concrete made from Portland cement, sand, and pulverized fuel ash; the binder is well mixed with water and a small proportion of aluminum powder is then added, which causes gas bubbles to form. Blocks of the cellular material are then autoclaved. The material is a development of the Swedish material yong. Compare yong. Dodd.

thermal metamorphism; thermometamorphism. Thermochemical conversion in which heat is the principal agent causing reconstitution. A.G.I.

thermal neutron; slow neutron. A neutron in thermal equilibrium with its surrounding medium; they have been slowed down by a moderator to about 2,000 meters per second from the much higher initial speeds of neutrons released by fissioning. L&L.

thermal piercing. See fusion piercing; jet piercing.

thermal precipitator. An instrument for obtaining information regarding the number of particles present in unit volume of a dust cloud; the concentration of particles in any given area or volume which, when mixed with a suitable pro-

on the heat of the combustion of methane. H&G.

thermal recovery. A petroleum recovery process. L&L.

thermal reactor. A nuclear reactor in which the fission chain reaction is sustained primarily by thermal neutrons. Most reactors are thermal reactors. L&L.

thermal radiation. Same as resistance. Strock, 10.

thermal separation. The separation of minerals and metals by heat. The method is used, for example, to remove impurities from rock salt. The crude salt is first exposed to radiant heat. The impurities absorb the heat and become warm, while the rock salt transmits the radiant heat and remains cool. The substance particles adhere slightly to a belt covered with heat sensitive resin, while the salt remains free. Separation takes place at the end of the belt. The cool salt is thrown into one container, while the adhering impurities drop directly into another. Nelson.

thermal shield. A dense shield, located just outside a reactor, between the reflector and the biological shield, to reduce radiation to the pressure vessel and biological shield. L&L.

thermal shock. The development of a steep temperature gradient and accompanying high stresses within a structure. Thermal shock (repeated heating and cooling) of a refractory may cause it to break apart or spall. This can be prevented by careful operation to avoid sudden temperature changes. ASM Gloss.; Newton, p. 264.

thermal shock failure. Fractures or crazing produced by sudden cooling (quenching) of the porcelain enamel surface by application of water or other cold liquids. Spot-cooling of a large hot piece is more severe than quenching of the whole area. Bryant.

thermal shock resistance. The ability to withstand sudden heating or cooling, or both without cracking or spalling. Bureau of Mines Staff.

thermal sintering. In metallurgy, molding by sintering, without prior compacting. Gaynor.

thermal spalling. The chipping or spalling of ceramic ware by repeated heating and cooling. Bureau of Mines Staff.

thermal sintering and refracting. The spalling of a refractory unit caused by stresses resulting from nonuniform dimensional changes of the unit produced by a difference in temperature. ASTM C71-64.

thermal spring. A spring that brings warm water to the surface. This is termed a warm spring or hot spring. Temperature usually 15° F or more above the air temperature. Leet.

thermal stresses. Stresses in metal, resulting from nonuniform temperature distribution. ASM Gloss.

thermal structure. The temperature variation with depth of sea water. H.y.

thermal unit. A unit for the comparison or the calculation of quantities of heat. Abbreviation, tu. See also British thermal unit. Compare calorie. Webster 3d.

thermal value (volatile matter); volatile thers. The calorific value in therm per ton of dry coke, of the gas given off when dry coke, ground to pass a 36 mesh U.S. test sieve, is heated under standard conditions. B.S. 1016, 1951, Pt. 16.

thermal water. The mineral-charged water that issues from a hot spring or geyser. A.G.I.

thermal boring. a. A method of boring holes in concrete under the high temperature generated by a burning steel tube, known as a lance. This is packed with steel wool, through which a jet of suitable gas flows to ignite the end of the lance and keep it burning. H.B. "Slate" is the name for jet piercing. Strewfark, p. 153.

thermal drilling. See jet piercing. Nelson.

thermalic conversion. The conversion of heat into electricity by boiling electrons from a hot metal surface and condensing them on a cooler surface. No moving
thermodynamic conversion

thermistor. An electrical resistor made of a material whose resistance varies sharply in a known manner with the temperature. Thermistors are commonly used for shipboard oceanographic temperature measurement, as their resistance response to unit temperature change and their great sensitivity. H.G.

thermouthy. Test. A test to determine the durability of optical glass in contact with molten salts. From broken or polished surfaces, they are together with a quantity of water, are subjected to a series of temperature cycles, each of 12 hour duration, from $15^\circ$ to $60^\circ$ C in air saturated with water vapor for a period of 12 days. Dodd.

thermoelectric conversion. The conversion of heat into electricity by the use of thermocouples. LBL.

thermoelectricity. Electricity involved in thermoelectric phenomena. Specifically, electricity accumulated or put in motion by thermoelectric action. Webster 3d.

thermoelectric metals. Metals or alloys used in thermocouples for measuring high temperatures. Platinized nickel, copper, rhodium, etc., are much used. Crispin.

thermograph. A self-recording thermometer which gives a continuous trace of air temperature on a rotating drum worked by clockwork. It is mainly used for recording variations in temperature rather than actual temperatures. Ham.

thermoluminescence. The property possessed by many minerals of emitting visible light when the released energy stored as electron displacements in the crystal lattice is given off in a flask. This instrument is used at sea! The two sections are connected by an electric cable and flexible shaft, supported between the two junctions. L&L. Abbreviation, TC. Zimmerman, p. 110.

thermocouple. Two conductors of different metals joined together at both ends, producing a loop in which an electric current will flow when there is a difference in temperature between the two junctions. LBL. Abbreviation, thermocouple.

thermodynamics. Study of transformation of energy into other manifested forms and of their practical application. The three laws are: (1) Conservation of energy; energy may be transformed in an isolated system, but its total is constant. See also energy; (2) Heat cannot be transformed directly into work at constant temperature by any cyclic process. See also entropy; and (3) Heat capacity and entropy of every crystalline or solid becomes zero at absolute zero ($0^\circ$ K).

thermodyne test. A test to determine the durability of optical glass in contact with molten salts. From broken or polished surfaces, they are together with a quantity of water, are subjected to a series of temperature cycles, each of 12 hour duration, from $15^\circ$ to $60^\circ$ C in air saturated with water vapor for a period of 12 days. Dodd.

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thick band. A field term that, in accordance with an arbitrary scale established for use in describing banded coal, denotes a vitrinite band ranging in thickness from 3 to 50 millimeters (about 1/2 inch to 2 inches). Compare this band; medium band; very thick band. A.G.I.

thick-bedded. In sandstone quarrying, a term used to describe open-bed seams a few inches to 1 foot in thickness. See also medium thick-bedded.

thickening. a. The process of concentrating or concentrating the proportion of water in a pulp. Nelson. b. As used in commerce, a method of concentrating the solids from ore solutions or water, using thickeners, preparatory to recovery of the metal or minerals by precipitation or other means. Also called millman. D.O.T. Supp.


thick stock. Slabs of stone employed for wainscoting, scotting, flooring, etc. Fay. thic- The iron ring, used for in the Coal Measures. Tomkiewicz. thic. SMO. In flotation process, collector agent of low solubility in water, usually used in copper or galena flotation. Pryor. thic. SMO. In flotation process, collector agent of low solubility in water, usually used in copper or galena flotation. Pryor.
third-class lever

third-class lever. A lever to which force is applied between the fulcrum and the work

thirdband assistant. Aust. A boy who helps the machinist and his assistant with a

third quality fire clay brick. A trade term, usually indicating fire clay brick of the

third Theory of Communition. The Third Theory states that the specific work in-

thixotropic. a. Behavior whereby there is

Thivier earth. A siliceous hydrated iron

this vein. A notice claiming a location upon

thid. a. A cross hole or ventilation passage

Third Theory of Communition. The Third Theory states that the specific work in-

while agitated, but gelling when

certain mineral suspensions in water (for

 irreversible. ASCE P 1826. b. Property

soft consistency or to

by increasing in strength when allowed

weakening when they are remolded and

its flow downward. Crispin.

or pertaining

decoration. Dodd.

contain suspended colloidal solids

agitation. The transformation from gel to

decrease in the apparent viscosity of

been used

2 percent A1203, 1 percent CaO, 1 percent

is:

ide from Thivier, 19 miles northeast of

Upon or in close proximity to a vein or

this vein has only one meaning. It raises

9 inch cube. Dodd.

d. See holing; stenton. B.S. 3618, 1963,

a. A cross hole or ventilation passage

careful survey is made to ensure the ac-

of underground roadways or shafts. A

and to meet each other; the connecting

See also thurl;

b. To cut through from one working into

3 percent A1203, 2 percent CaO, 1 percent

percentage succession. C.T.D.

sandstone, to the Bajocian of the Euro-

one locality, at the contact of limestone with pegmatite. Crosby, p. 46.

thoritane. A variety of unaniite con-

thoritane. A mineral consisting largely of

thorium oxides with oxides of the cer-

con, ilmenite, geikielite, thorite, and other

minerals; also occurs in pegmatites, and in one locality, at the contact of limestone with pegmatite. Crosby, p. 53.

thorites. a. A name proposed for ele-

corrosion by the percolating brine. A. G. I.

crystallized in a magma type or Atlantic series. A.G. I.

rived. Also called nonporphyritic central

phases, have a groundmass with but

of remaining fluid

on agita-

a relatively

process. Conversion of iron to steel in basic-lined Bessemer converter.

Phosphorus slag, with dolomite in this lining to produce basic slag. Pryor, 3.

Thomas slag. The finely powdered basic slag obtained in the Thomas process. It con-

employing a basic slag. ASM Gloss.

Thomas pilot shoulder reamer. Long. Thorite

compound used as a patching mortar to

thorite. A high explosive tiled as a bursting

shells, etc.; important as a source of

 thorium-uranium. This has not received as wide acceptance

the elements beyond thorium in this state

It consists of phosphates and is used as a

Hath's Chem. Dict.

Thomas steel. Steel made in the Bessemer

converter using a basic slag ASM Glass.

Thomas-Gilchrist process. Conversion of iron to steel in basic-lined Bessemer converter.

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Thorium

fill holes and blisters in Masonry surfaces and to prevent further destruction of steel reinforcing. COD 6d, 1961.

thorium. A radioactive, silvery-white, metallic element. COD III of the periodic system. The most stable of its 13 radioactive isotopes (thorium 232) is the lead contained in 52.3 percent of lead 208. NRC-ASA N.1.-1957; Handbook of Chemistry and Physics, 45th ed., 1964, p. 281.

thorium dioxide; thorium oxide; thor; thorionite (uranium-free). White; isometric; ThO₂; molecular weight, 179.18; specific gravity, 6.32 (at 24° C); decomposes slightly in dilute sulfuric acid and in hydrochloric acid; and insoluble in concentrated sulfuric acid. Made of thorium dioxide and magnesium-thorium alloys and in high-temperature ceramics. Handbook of Chem. Eng. 54th ed., 1964, p. B-201; COD 6d, 1961.

thorium minerals. These include monazite, a rare earth of cerium with some thorium; the silicate thorium (Th₂SiO₄); and the oxide thorium (ThO₂). Pryor, 3.

thorium nitride. Three nitrides have been reported: ThN, Th₂N₂, and Th₃AlN. Dodd.


thorium sulfides. Three sulfides have been reported: ThS₀, ThS₁, and ThS₂.

thorium thread; and half-life, 3.64 days. NRC-ASA N.1.-1957; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-82.

thorofare. In geology, a channel cut across a spit or barrier beach. Fay.

thorogoninite. A lead-containing variant of thorium, ThS₀, in which there is a partial substitution of (OH) for (SO₄) with the formula (Th(SO₄))(OH). Instructural with thorium; differs from thorite in being secondary in origin, in being formed by the alteration of primary thorium minerals including thorite itself, in occurring as fine-grained aggregates that are not metamict but crystalline, and in containing essential water. American Mineralogist, vol. 38, No. 12, November-December 1953, p. 1107. b. Altered mackintoshite. Crosby, p. 48.

thorone. A name for radon 220, a member of the thorium disintegration series; symbol, Th; emits alpha particles; and half-life, 5.5 seconds. Also called emanation; thorium emanation. See also emanation. NRC-ASA N.1.-1957; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-81.


thorotungsite. A very rare, moderately to strongly radioactive mineral, possibly 3WO₂. Th₄O₄. H₂O. Found in small deposits of canisterite as an alteration product of wolframite or scheelite; possibly orthorhombic. Crosby, p. 48.


thorough joints; upright joints. Eng. Vertical joints affecting all the strata, as opposed to cracks or loosen, Oölite quarries, Northamptonshire. Arkell.

Thorsteinson. A formula for assessing the probable solubility of a lead frit: the sum of the bases expressed as PbO divided by the sum of the acid oxides expressed as SiO₂ should not exceed 2. Dodd.

thorvite. A silicate mineral belonging to the muscovite group. (K,Na)₂(Ca,Mg,Fe)₃Al₂Si₅O₁₀(OH)₂. It is the only mineral rich in scandium and may contain 42 percent Sc₂O₃. It is a very rare, weakly radioactive, monoclinc mineral; grayish-green when fresh; white to reddish-gray by alteration; found in pegmatites associated with monazite and euxenite; also found with fayalite, stibnite, monazite, and possibly ferganian. Bukines Bull. 585, 1960, p. 715; Crosby, p. 110-111.

Thorwalsen's law. With decreasing geological age, there is an increase in the complexity of the heavy mineral suites. A.G.

Tlouet. A sodium-containing variant of thorite, Th₂SiO₄, in which there is a partial substitution of (OH) for (SO₄) with the formula Th₂(SO₄)(OH). Instructural with thorium; differs from thorite in being secondary in origin, in being formed by the alteration of primary thorium minerals including thorite itself, in occurring as fine-grained aggregates that are not metamict but crystalline, and in containing essential water. American Mineralogist, vol. 38, No. 12, November-December 1953, p. 1107. b. Altered mackintoshite. Crosby, p. 48.

thorite. A name for thorium 208, a member of the thorium disintegration series; symbol, Th; emits alpha particles; and half-life, 1.4 X 10⁵ years. Thorium occurs in radioactive minerals thorite (Th₂SiO₄) and thorite (Th₂(PO₄)₄). Symbol, Th; valence, 4; atomic weight, 232.038; specific gravity, 11.7; often pyrophoric; its tarnishes ignite when heated in air. Measuring point uncertain, variously reported between 1,700° C and 4,845° C, or 1,900° C; boiling point, about 4,000° C or 4,250° C; is soluble in a solution of nuclear power; insoluble in water or slowly attacked by water; readily soluble in hydrochloric acid; soluble in sulfuric acid. Used in maniles for portable gas lights, in high-temperature ceramics, in nonstic optical glass, as nuclear fuel, to control the growth rate of tungsten (thoriated tungsten) as a catalyst, and in electronics. Handbook of Chemistry and Physics, 45th ed., 1964, pp. B-231; B-246; COD 6d, 1961.

Thorite. Has limited use in ceramic bodies and containers for molten Ce. Dodd.

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thread. Long. A. Spiral-shaped groove forming a screw. Long. f. To couple screw-threaded parts. Long. thread cutter. Fig. A tool to cut screw threads on a pipe or bolt. Long. b. A name sometimes applied to a diamond crystal having the shape of an octahedron. Long.

thread grinding. The use of bonded abrasive products to form threads on a piece. ASCG, 1963.

thread guide. Porcelain thread guides are satisfactory for use with cotton, wool, or silk; manmade fibers, for example, rayon and nylon, are more abrasive and stiffer; alumina or synthetic sapphire thread guides are used. Dodd.

thread-lace scoria. Synonym for reticulite. A.G.I.

thread protector. A short-threaded ring to be used in a situation where a couple of threads have to be fastened to the other without damaging the arch. Moreover, it is also a vantage that each half can sink in relation to abutments and at its crown, with the advantage that each half can sink in relation to the other without damaging the arch. Moreover, it is statically determinate. Ham.

three-blanket method. An arrangement used for blacksmithing, in which there are as many layers of blanket between the stretcher and the patient as there are on top of the patient. This method is very effective in underground first aid in keeping the patient warm and reducing the shock while waiting to be transported to the surface. McAdam, pp. 101-102.

three-dimensional dip. In seismic prospecting, the true dip of a reflection or refraction is determined from elevations determined at three fixed points. Ham. c. The problem of determining dip and strike of a plane surface using three known points not in a straight line. Bureau of Mines Staff.

three-product washing. A method in which the cleanest fraction of the coal with an ash content of 1 to 2 percent (for hydrogenation, etc.) is separated; the remainder giving coal with an ash content of 10 to 15 percent (for boiler firing, etc.) and finally incombusitable shale. Nelson.

three-quarter coal. A mixture of lump and nut coal. Fay.

three-shift cyclic mining. A system of cyclic mining on a longwall conveyor face, with coal cutting on one shift, hand filling through and through. Wales. Mining bituminous coal without regard to the size of the lumps. See also through coal. Fay.


througher. a. A tool used to cut screw threads on a pipe or bolt. Long. b. A name sometimes applied to a diamond crystal having the shape of an octahedron. Long.

drilled high voltage for transmission of power, yet the individual circuits provide normal low voltage power. In effect, this is the Edison three-wire system, wherein the rails form the neutral third wire. The third wire (mine track) carries only the unbalance of the loads on the two separate circuits. Kentucky, pp. 220-221.

threshold. a. In geological prospecting: the limiting anomalous value below which variations represent only normal background effects and above which they have significance in terms of possible mineral depositions. Fay. b. In analytical chemistry: the limiting sensitivity of an analytical method. Haukès.

three-sections of drill pipe handled as a unit. Nichols.

throat. a. The part of a blast furnace at the top of the stack. Dodd. b. The zone, decreased cross section found between the port area and the furnace chamber in some designs of open-hearth steel furnace. Dodd. c. The submerged passage connecting the metal to the end of the top of the stack; the refractory blocks forming the sides of the throat are known as throat blocks, deeper blocks, or large blocks, the refractories for the top are the throat cover. Dodd. d. The least thickness of a weld, the calculation of its strength being based on the thickness at the throat. Ham.

throat depth. On a resistance welding machine, the distance from the center line of the electrodes to the throat surface. Ham.

threado-meter. A meter of shock while waiting for one passage cut through a body. Ham.

threado-meter. A meter of shock while waiting for the threado-meter to work. Ham.

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throughput

throughput. Quantity of material (ore or selected fraction) passed through the mill or a section thereof in a given time or at a specified rate.

through wall. A stone passing entirely through the thickness of a wall; a bond stone; a B. I. 1966, pp. 686.

through ventilation. The normal ventilation produced in a mine as the air flows from the intake to the return, as opposed to ventilation produced locally by auxiliary fans. Nelson.

through weld. A weld of appreciable length made either by welding through the unbroken surface of one member of a lap or tee joint, joining that member to the other. ASM Gloss.


c. The amplitude of shake of a vibratory screen, concentrating table; jigger conveyor, etc. Nelson. d. The projection of broken rock during blasting. See also also flyrock. Nichols.

e. The longest straight-line distance moved in the strike or circle of a reciprocating or rotary part. Nichols.

f. The moisture content of a freshly dug coal face. Nichols.

g. The distance from air supply opening measured in the direction of air flow, from the opening to the point where the air velocity is 50 feet per minute. Stock, 1966. h. A fault; a dislocation. Fay. i. The amount of vertical displacement up (upthrow) or down (downthrow) produced by a fault; sometimes, loosely, a dislocation not vertical, the direction being specified by a fault plane; some fault planes have a nearly vertical throw component and a horizontal throw component; striatigraphic throw. Fay. j. Synonym for deviation. Long. k. Lateral displacement, also throw or slip, of a section as a result of faulting. See also bedding displacement, also throw or slip.

throw away bit. A bit that is discarded when worn. a. Faulted or broken up by a fault. Nichols. b. A bearing that permits a clutch throwout collar to slide along the clutch shaft without rotating with it. Nichols.


thrust. a. A thrusting fault that is characterized by a low angle of inclination with respect to a horizontal plane. A.G.I. b. A reversed fault heading at a high angle. B. J. Th. c. The length of a throw fault in which the fault plane is horizontal, or nearly so, are called long-throw faults, or if the translation of the thrust blocks is very great, thrust nappes. Stokes and Varnes, 1955.

thrust plate. The plane of a thrust or reversed fault. Fay.

thrust plate, a. The upper and/or the lower race parts of the thrust bearing in the thrust block or cage on the drive rod in a diamond-drill swivel head. Long. b. Incorrectly used as a synonym for thrust wheel; Long.

thrust race. See thrust plate. Long.

thrust washer. A washer that holds a rotating part from moving in an axial direction. Long.

thrust yoke. The part connecting the piston rod of the feed mechanism on a hydraulic-feed diamond-drill swivel head to the thrust block, which forms the connecting link between the yoke and the drive rod, by means of which link the longitudinal movements of the feed mechanism are transmitted to the swivel-head drive rod. Also called back end, cage, thrusting house, thrust wheel, etc. Nelson. See also thrust block, thrust yoke.

thrusting house. A building in which clay is molded. Also called clay warehouse. Standard, 1964.


c. The amplitude of shake of a vibratory screen, concentrating table; jigger conveyor, etc. Nelson. d. The projection of broken rock during blasting. See also flyrock. Nichols.

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thrust bearing. a. A bearing, sliding on a clutch jacket that carries the engine and disengagement mechanism. Nichols. b. A bearing that permits a clutch throwout collar to slide along the clutch shaft without rotating with it. Nichols.

thrust block. The antifriction part of the thrust yoke attached to the drive rod in the sixteen known isotopes (thulium 161 to thulium 176). Handbook of Chemistry and Physics, 45th ed., 1964, p. B-60, 1966. See also thulium 170.

thrust block or cage on the drive rod in the sixteen known isotopes (thulium 161 to thulium 176). Handbook of Chemistry and Physics, 45th ed., 1964, p. B-60, 1966. See also thulium 170.

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thwacker. One that thwacks; specifically, a wooden implement with which the half-dried pantile is beaten into thwacking knife. A knife used for trimming tiles are given their final curved shape.
thwack. To beat (a half-dried pantile) into thwacking. One process for the removal of hydrogen sulphide (H2S) and the recovery of sulphur from artificial gas in which the gas is scrubbed with a solution of soda ash whose alkalinity is partly neutralized; 96 percent of H2S is said to be thus removed and the gas is then passed through boxes containing iron hydroxide to remove the other 2 percent H2S. The foul scrubbing liquid is passed through boxes containing iron hydron cement which contains winning lamine. Shipley.
thumb marks. In gemmology, the rhythmic or rippled markings or fractured surfaces of monoclinic plates which may be of various colors. It has been cut as ornamentals or curio stones. From U.S.S.R. Shipley.
tick. Credit. Korson.
tickell roundness number. An index of the shape of a particle in terms of the ratio of the actual value of the projection of the grain to the area of the smallest circumscribing circle. Dodd.
ticket. a. Scot. An old measure for coal. The Campbelltown ticket weighs about 300 pounds. Fay. b. A sealed bid for ore to be sold. Webster 3d. c. The numbered check which the miner puts on his loaded car to inform the weighmaster to whom the coal belongs. See also tag; tally. Fay. d. Can. Slang: the cost of a mining property or enterprise. Hofman.
ticketing. a. In mining districts, a periodical sale of ore to the highest bidder by ticket. Standard, 1964. b. See Teth. 1146.
ticket hole. A small cavity in a rock; a vug. Fay.
tidal air whistle. A small whistle used for training operators in the various methods of artificial respiration. The air whistle is inserted in the patient's mouth and sounds when the patient is exhaling or inhaling. In this way the movements of artificial respiration are timed by the patient's respiratory reactions, and the operator quickly develops the required slow, steady, and smooth rhythm of operations. McDamp, pp. 92-93.
tidal basin. Portion of a tidal-flat area, drained by ebb tides by the channel system of a tidal flat. The tidal basin as a single tidal unit. Schierdecker.
tidal bedding. Deposits produced by tides especially where currents of high tides are stronger than those of low tides flowing in the opposite direction. Thus, high tide deposits a layer of coarse sediments that the low tide destroys. Hett.
tidal bore. As a tide wave approaches the shore it becomes steeper. If this occurs in an estuary in which the tide ebbs and flows, this happens the tide wave sweeps up the river. This is the tidal bore which bears the characteristics of a shock wave. Hett.
tidal channel. A major channel followed by the tides. Schierdecker.
tidal (force) correction. Correction for the effect on gravity of the sun and the moon, including the effect of the tides of the solid earth. Schierdecker.
tidal current. The periodic horizontal movement of water accompanying the rise and fall of the tide and due to the tide producing forces. Schierdecker.
tidal current eyes. The complete oscillation of the flood and ebb through all phases of the tide from high water to the next succeeding high. The generation of semidiurnal tide approximates 12.42 hours, while that of a diurnal tide approximates 24.84 hours.
tidal difference. Difference in time or height of a high or low water between a subordinate station and a reference station.
tidal divide. Divide between two adjacent channel systems. Schierdecker.
tidal dock. A dock having no gates to segregate it from outside tides. Ham.
tidal flat. A flat, soggy area, which emerges during low tide and is characterized by the simultaneous deposition of clay and sand by tidal waters. Ham.
tidal flat area. A relatively extensive area of unconsolidated sediments, the greater part of which is alternately covered and uncovered by the tides. Schierdecker.
tidal inlet. a. A natural inlet maintained by tidal flow. A.G.I. b. Loosely, any inlet in which the tides flow and flow. Also called tidal outlet. A.G.I.
tidal lag. The delay between high tide or low tide in an estuary and the subsequent level of adjacent ground water. Ham.
tidal lamination. A lamination in channel, tidal-flat, and deposits caused by the tides. Schierdecker.
tidal marsh. See tidal flat. A.G.I.
tidal prediction. The calculation of times and heights of high and low water. Tidal predictions generally are published by the hydrographic departments of various countries for various reference stations throughout the world. In the United States they are published by the U.S. Department of Commerce, Coast and Geodetic Survey. Ham.
tidal prism. The volume of water required on the flooding tide to produce the rise of water level in a bay, estuary, fiord, etc. Ham.
tidal range. The differences in height between consecutive high and low waters. Ham.
tidal river. A river up the course of which the tides are noticeable for a considerable distance. Schierdecker.
tidal water. a. In astronomical usage, restricted to the periodic variations of sea level produced by the gravitational attractions of the sun and the moon. A.G.I. b. A tidal wave caused by a submarine earthquake or volcanic eruption, properly called a tsunami; a tidal wave. c. Sometimes used for a large sea wave caused by a hurricane wind or a severe gale, properly called a storm surge. Ham.
tidal wedge. Tidal channel, narrowing or shallowing at downstream end, in which either the ebb or the flood current dominates. Schierdecker.
tide. Rise and fall of the surface of the sea due to the gravitational pull of the moon, generally taking tidal predictions. Schierdecker. In the open sea, this rise may not exceed 2 feet, whereas in the shallow seas bordering continents it may be more than 20 feet and in narrow tidal estuaries from 40 to 50 feet. Since the moon travels in its orbit in the same direction as the earth, a period of about 24 hours, 25 minutes will elapse between successive occurrences when the moon is vertical above a given meridian. The interval between successive high tides will therefore be 12% hours longer than this. Schierdecker.
tide crack. Line of junction between an immovable ice foot and fast ice, the latter being subject to rise and fall of the tide. Schierdecker.
tide curve. A graphic representation of the rise and fall of tide in which time is
tide curb

represented by the abscissas and the heights by the ordinates. For a normal tide curve there approximates a sine or cosine curve. Hy.

tide gage. An apparatus used for predicting the rise and fall of the sea, or the ebb and flow of channels. tidal lands. Technically lands overflowed during flood tide, but the term, by reason of the ease with which the latter can be used to describe that portion of the continental shelf between the shore and the limit of normal high water. A.C.S.G.

tide irrigation. A method of raising water to where it can be utilized by artificial means, such as by use of pumps. A.C.S.G.

tide line. See mean tide level, a.

tide pumping. When track is not adequately drained and water enters rails through cracks in the tie plates. A metal plate used under rails to hold them to gage. Webster 3d.

tie. a. A beam serving the purpose similar to a fend-off beam, but fixed at the opposite side of the shaft or inclined road. Fay. b. The stone ties or stay rods that are sometimes used on the side of the tower opposite the hoisting engine, in place of, or to reinforce the engine braces. Fay.

tie band. Eng. A piece of rope used in securing long timbers or rails when being sent down in the cage. Fay.

tie bar. a. A bar used as a tie rod. Webster 3d. b. A rod between two railway switch rails to hold them to gage. Webster 3d.

tie casing. A covering wall rock or mine opening. Fay.

tie demarcation. A metal plate used under rails to hold them to gage. Webster 3d. c. A bar used as a tie rod. Webster 3d. d. A rod between two railway switch rails to hold them to gage. Webster 3d.

tie detent. A metal plate used under rails to hold them to gage. Webster 3d.

tie plate. A metal plate used under rails where they rest on ties. The rail is spiked down in the cage. Fay.

tie point. Point of closure of a survey either on itself or on another survey. Seeley, 2.

tie pumping. When track is not adequately drained and water enters rails through cracks in the tie plates. A metal plate used under rails to hold them to gage. Webster 3d.

tie rod. a. A tie, taking the form of a steel rod, often provided with a screw thread at each end to engage with a member subjected to thrust. Ham. b. A round or square iron rod passing through or over a furnace brick and having buckles at each end to assist in binding the furnace together. Fay. c. For forging or forming presses, the same as strain rods. A.M. Glass.

tier of pumps. See tyer. Fay.

tier. a. Sp. Earth, land, soil, ground; t. arcillas, clay ground. Fay. b. Sp. Region of the earth; t. adentro, the interior of a country. Fay. c. Sp. Any rock or mineral; t. blanca (Mex.), a calcareous tufa; t. de balut, fullers earth; t. de fluor (Ven.), a bed of reddish clayey earth; t. de porcelana, china clay; t. pesada, heavy spar. Fay. d. Mex. heavy ore. Fay.


tie plate. A metal plate used under rails to hold them to gage. Webster 3d.


tier saw. A saw for giving bricks curved out in a construction. Weaver 3d.

tier of ore. See tyer. Fay.

tier, fights. A turbulent water body produced on the opposite side of the shaft or inclined road. Fay.

tier race. A very rapid tidal current in a narrow channel or passage. Hy.

tier level. See mean tide level, a.

tier race. A very rapid tidal current in a narrow channel or passage. Hy.

tier rip. A turbulent water body produced on the opposite side of the shaft or inclined road. Fay.

tier rip race. A very rapid tidal current in a narrow channel or passage. Hy.

tier gage. An apparatus used for predicting the rise and fall of the sea, or the ebb and flow of channels. tidal lands. Technically lands overflowed during flood tide, but the term, by reason of the ease with which the latter can be used to describe that portion of the continental shelf between the shore and the limit of normal high water. A.C.S.G.


tier saw. A saw for giving bricks curved out in a construction. Weaver 3d.


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tile. a. A flat or curved piece of fired clay, stone, concrete, or other material used especially for roofs, floors, or walls and often for such work of an ornamental nature. Webster 3d. b. A small, flat piece of dried earth or earthenware, used to cover vessels in which metals are fused. Webster 3d. c. Rectangular refractory shapes in sizes larger than brick and usually typified by thinness with respect to length and width. A.R.I. d. A ceramic surfacing unit, usually relatively thin in relation to its thickness, fired from clay or a mixture of clay and other ceramic materials, called the body of the tile, having either a glazed or unglazed materials, called the body of the tile, having either a glazed or unglazed exterior surface. A.R.I.

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tile
tiles and characteristics. See also structural clay tile. ASTM C242-60T.
tile copper. Obtained by roasting and refining the metal bottoms that collect under the regular wash in smelting certain impure ores; usually cast in flat, rectangular plates, hence its name. See also bottoms, b. Standard, 1964, Fay.
tile designer. One who designs individual tiles and layouts designs for tile walls and floors. D.O.T. 1.
tile field. A field or yard, as at a pottery, for keeping earth. A compact clay soil. Standard, 1964.
tile designer. One who designs individual tiles and lays out designs for tile walls and floors. D.O.T. 1.
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timber

timberline. The upper limit of aboreal growth in mountains or in high latitudes. Webster 3d.

timberman. a. In mining, one who frames timbers; timber boss; timber foreman. D.O.T. 1.
b. The craft of the worker who is skilled in notching, erecting, and securing timbers sets in mine workings. The craft of the timberman is gradually becoming extinct with the advent of power tools, and steel as a support. See also repairer. Nelson. c. See timberer. Fay. d. See roof bole. D.O.T. Supp. e. One who installs precut timbers. Bureau of Mines Staff.

timber pickling. A method to assist timber in gaining moisture. Various pre-servatives are used such as creosote, zinc chloride, sodium fluoride, and other chemicals. See also brush treatment; guniting; b; open-tank method; pressure process; full impregnation process; seasoning timber. Lewis, p. 71.

timber puller. a. A piece of equipment used in removing subterranean posts or timbers in a mine. The timber puller should be constructed so that the operator will be under safe roof while removing the timbers. A Syntliner is an example of this type appliance. Also called timber drawer. Kentucky, p. 151.

timber rights. The right to cut timber on the public domain for use in the mining industry. Fay.

timber rooker. A chemical used to assist the timber in gaining moisture. Also called timber pickler. D.O.T. 1.

timber trolley. A strong carriage of low height for the purpose of carrying timber and other materials to the face. Jones.


timber treater. The upper limit of aboreal growth in mountains or in high latitudes. Webster 3d.

timber bending machine. A machine to raise and hold timbers in place while supporting posts are being set after cut to length by the miner's power- saws. And, A.M.R.24(1956).

timber setting. A tunnel support consisting of a roof beam or arch, and two posts. Nelson.

timber jack. A jack to raise and hold crossbars against the roof while props are being inserted. A.M.R.24(1956).

timber ladder. In metal mining, one who loads on a cage timbers, lagging, timber, track ties, and sand, ordered from underground. D.O.T. 1.
time-distance curve

time signal. A signal sent by telegraph or radio indicating an exact instant of time; in geophysics, the time signal is used to indicate the time of explosion in a shot-hole. Compare time break. A signal sent from the Naval Observatory to regulate timepieces. A.G.I.

time scale. An important member of the Precambrian succession in the Canadian Shield, in Ontario, and in the Pontiac series. G.T.D.

Time-distance graph. In refraction seismic computations, a plot of the arrival times of refracted events against the shot point to detector distance. The reciprocal slopes of the segments plotted are the refraction velocities. If the refraction bed is dipping, the time-distance graph may be constructed. If it is possible to extrapolate this graph to the origin on the time and distance coordinates, it becomes a travel time curve. A.G.I.

Time scale. A Clerk who records all details of payment of surface and underground wages. A.G.I.

Time signal. A small, shallow flutes de-veloped on flat surfaces of limestone, southwest of Minn. A.G.I.

Time study. A detailed investigation under-ground, in shafts, or on the surface, in which the average time taken to do each operation of a complete cycle is recorded. Time studies will disclose whether face, haulage, or winding operations can be improved by reducing idle times and whether the equipment and power services are adequate at all times to provide for the full employment of machines throughout the shift. See also motion study. A.G.I.

Timber. Any dry inflammable material such as might be used for kindling a fire. A.G.I.

Tinder. Any impure variety of jasenomite. A.G.I.

Tin. A soft, ductile, silvery-white metallic element in the 4th group of the periodic system, Na20.2/3203.5H20. Lar.

Tin bath. Molten tin into which sheets of iron are dipped in order to form tinplate. A.G.I.

Tinbride. See stannic chloride. A.G.I.

Tin. A colorless or white mineral without cleavage, Na0.2BO2.5H2O. Lar., p. 68. A pulverulent variety of borax, with 32 percent water. Same as natural borax; moh's. Fay.

Tin-cany safety lamp. A Davy lamp placed inside a tin can or cylinder having a glass in front, airholes near the bottom, and open-top. Fay.

Tin. See stannic chloride. A.G.I.

Tin. A special alarm clock which can be set as a coating, to protect iron and copper, and in solder, bronze, and tin-bronze. Corn. A sloping table used in tin frame. Corn. A thin flat mass of tinstone or, common tin, must. Fay.

Tin disease. See tin pest. A.G.I.

Tinder ore. An impure variety of jamesonite. A.G.I.

Tin dewatering. The extraction of tin-bearing ore from placers by means of dredges. In large-scale operations, tin or gold dredges may handle up to 30 cubic yards of gravel per 24 hours and dig 135 feet below pond level. A.G.I.

Tin. The actual excavating tool or point of a grab bucket, scraper loader, dragline or excavator bucket. A.G.I.


Tin. A color designation. A faint trace of a hue which modifies another hue, as a coat with tin, as to tin iron; tinplate. A.G.I.

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Tin.
blue with a tinge of green, that is, blue tinged with green or, stated differently, very slightly greenish-blue. Shipley.
tin glass. A name formerly applied to bis-
tin glaze. An opaque glaze of stannic oxide,
tingualite. A dike rock composed of alkalic feldspar, nepheline, alkaline pyroxene, and amphibole. The rock is commonly porphyritic and the mafic constituents have a characteristic cruciform orientation in a textural variety of phonolite. A.G.I.
tingualite. Applied to the texture of tingua-
tin hat. A head covering made of reinforced

Also incorrectly used synonymously with the term tin cut. Shipley.
tin mill. Plant for manufacturing tin and

of cassiterite comes from alluvial work-
tinnel. a. The point at which loaded mine cars

tipped solid cutters. Cutters having a body of

tippler. a. Scot. The covering on rock in a

tipped, d. See slate picker. B.C.I. b. The dump; a cradle dump. Fay. c. Aust. The tracks, trestles, screens, etc., at the entrance to a colliery where coal is creened and loaded. See also tipper, b; tip. Fay.
tipple boss. In bituminous coal mining, a

the term tin cut. Shipley.
tin pot. a. A vessel for holding molten tin in the

of cassiterite comes from alluvial work-
tin, roofing. Terneplate made with a 25 per-
tin telluride. Gray; isometric; SnTe; nifilecu-
tint. a. The act, operation, or process of

corrosion. Zern.
tin sweat. See sweat, d. ASM Gloss.
tin telluride. Gray; isometric; SnTe; molecular

tin spar. Synonym for cassiterite. Fay.
tin telluride. Gray; isometric; SnTe; nifilecu-
tin telluride. Gray; isometric; SnTe; nifilecu-
tin sweat. See sweat, d. ASM Gloss.
tin telluride. Gray; isometric; SnTe; nifilecu-

Titanate. A. Titanium. Standard, 1964, b. Titanate. Any of various compounds (as titanate (titane) that are multiple oxides of titanium. Standard, 1964. A. Titanate. A. Any of a group of electroceramic materials generally based on the compound barium titanate but often with the addition of other titanates, zirconates, stannates, or niobates. These ceramics are notable for their high dielectric constant (360 to 600, including over 10,000 compared with a value of 5 to 10 for the more common ceramic materials); because of this property they find use in capacitors. Titanate ceramics are also used where piezoelectric properties are needed, that is in transducers. Does not contain titanium metal.

Tin hydride. Gray-black; metallic; TiH2; hexagonal, stable below 980° C; and (2) beta titanium, isometric, stable from 880° C to the melting point. The metal occurs in rutile, ilmenite, and for titanium dioxide. A compound produced by fusing titanium dioxide with carbon or calcium carbonate. Has a melting point in the range of 3140 to 3160° C. This very hard refractory is used for wear-resistant applications and where good thermal shock resistance is needed, as in bearings, nozzles, and special refractories under extreme neutral or reducing conditions. See also Goliat crane. Hom.


Titanium. A very hard metal; white, yellowish, or yellowish red; a very widespread mineral constituent of the earth's crust. Used in shipbuilding. A. Titanium. Gray-black; metallic; TiH2; hexagonal, stable below 980° C; and (2) beta titanium, isometric, stable from 880° C to the melting point. The metal occurs in rutile, ilmenite, and in the form of titanate (titane) primarily and it is the ninth most abundant element in the crust of the earth. Used as an alloying agent with aluminum, molybdenum, manganese, iron, and other metals. Alloys of titanium are used as aircraft and missile parts because it have weight, strength, and the ability to withstand temperature extremes, and in ship parts because it resistant to seawater corrosion. C.T.D.; Handbook of Chemistry and Physics, 45th ed., 1964, pp. B-241, B-233. Titanomagnetite. See titanium dioxide. C.D. 6d, 1961.

Titanium carbide. A compound produced by fusing titanium dioxide with carbon or calcium carbonate. Has a melting point in the range of 3140 to 3160° C. This very hard refractory is used for wear-resistant applications and where good thermal shock resistance is needed, as in bearings, nozzles, and special refractories under extreme neutral or reducing conditions. See also Goliat crane. Hom.

Titanium dioxide. Tetragonal; refractive indexes, 2.493 and 4.17; and ranges from 3.82 to 3.95; Mohs' hardness, 5.5 to 6.0; insoluble in water in most acids; and soluble in hot concentrated sulfuric acid and in alkalies. Handbook of Chemistry and Physics, 45th ed., 1964, pp. B-233, B-245. Titanium dioxide is said to contain or octahedrite: Brown, blue, and black; tetragonal; refractive indexes, 2.493 and 4.17; and ranges from 3.82 to 3.95; Mohs' hardness, 5.5 to 6.0; insoluble in water in most acids; and soluble in hot concentrated sulfuric acid and in alkalies. Handbook of Chemistry and Physics, 45th ed., 1964, pp. B-233, B-245.

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titanium metal

weight 47.9; specific gravity 4.5. Bureau of Mines Staff.

titanium minerals. Main commercial ones are rutile (TiO₂) and ilmenite (FeTiO₃). Used in paints, pigments, fillers for plastics, steel metallurgy, welding, enamels, smelting and other uses. Titanium metal where strength, lightness and corrosion-resistance justify cost. Pryor, 3.

titanium oxide. TiO₂; used as an opacifier, particularly in vitreous enamels, and as a constituent of some ceramic colors. Titania and titinate electroceramics, for use in the radio-frequency field, are based on this oxide and its compounds. Titania occurs in three crystalline forms: anatase, brookite, and rutile. Dodd.

titanium peroxide. See titanium trioxide.

CCD 6d, 1961.

titanium silicide. TiSi₂; 2.120 C, specific gravity 4.2. This special ceramic has good resistance to attack by basic and oxidizing atmospheres but not to thermal shock. Dodd.

titanium sponge. The metal product from reduced titanium tetrachloride with magnesium in the Kroll process. It is called sponge because of its sponge-like appearance. Sodium reduced metal also is referred to as sponge. BuMines Bull. 630, 1965, p. 976.


titanium trioxide; titanium peroxide. Yellow; TiO₂; and is soluble in acids. Used in dental porcelain and in dental cements and in yellow tile. CCD 6d, 1961.

titanium magnetite. A titaniferous magnetite (titanomagnetite) containing TiO₂ in solid solution, as distinct from limonematite with exsolution ilmenite. See also mogenenate. Spencer 21, M.M., 1958.


titanous. Of, pertaining to, containing, or derived from titanium. Used especially for compounds in which titanium is trivalent. Webster 3d.

titan process. A process of concentrating iron ore which comprises the steps of effecting a dry, thermal partial reduction of the iron in the ore to the metallic state to a degree or reduction of between 50 and 80 percent, subjecting the reduced product to a magnetic separation and recovering the iron-oxide concentrate. Odhner.

tiffle. The solidifying range of a liquid fatty acid. Pryor, 3.

tiffy (of soap). The melting point of the fatty acids derived from a fat or oil. Lounenheim.

tiffy ore. A portion of ore set aside for the payment of rental or royalty on mineral lands. Fay.


tide. The right to enter, develop and work a claim on mineral deposit. See also claim; lease. Nelson.

titration. a. A determination of the reactive capacity, usually of a solution. Especially, the analytical procedure of successively drawing from a burette measured amounts of a reagent (as a standard solution) to a desired point (as a color change or a large change in potential of the solution) reached. Webster 3d. b. The operation of taking base or volume analysis. See also volumetric analysis. Nelson.

TIV. Abbreviation for total indicator variation. ASM Gloss.


tizan. Mex. A bond in a monastery. See also diente, b. Fay.

TKP Abbreviation for tetratiosilicic pyrophosphate. See also potassium pyrophosphate. CCD 6d, 1961.


TNT Abbrreviation for trinitrotoluene. CCD 6d, 1961.


tm Abbreviation for ton. Zimmerman, p. 110.

TNA Abbreviation for tetrantinoline. CCD 6d, 1961.

TTT Abbreviation for trinitrotoluene. CCD 6d, 1961.

TNT Abbreviation for trinitrotoluene. CCD 6d, 1961.

TNT ammonium nitrate explosive. An explosive containing ammonium nitrate sensitized with trinitrotoluene. A proportion of aluminium powder or calcium silicide may be added to increase power and sensitivity. It is susceptible to moisture, and under wet conditions, is used only in a watertight container. See also A.N., fuel oil explosive. Nelson.

tofback mark. Eng. Unlaminated marl with lumpy fractures in contrast to bleefheat marl, Lancashire. Arkell.

toefrock. See toefstone. Fay.

toef-eye. Eng. Shelly pink limestone in the Corbula Beds of the Purbeck Beds at Durlston Bay. So called because full of the small gastropods Fascichilus manelli which resemble eyes when seen in transverse section. Compare rabbit-eye. Arkell.


toefstone. a. Eng. A kind of traprock. Fay. b. A term used in mining to distinguish ore samples from others or to indicate the passage over a certain ore body. Fay. c. A term used in the Kroll process. It is called sponge because of its sponge-like appearance. Nelson.

toefin. A quarry term for the wedging-in of the end of a granite sheet under an overhanging joint, probably in consequence of the faulting of the sheets along the joint. It is also applied to the overlapping of lenticular sheets. Fay.

toefilite. A biotite-hornblende porphyryite, with garnets, that forms dikes in mica schist and gneiss near Meran, Tirol, Austria. Fay.

toe-in. A tcphoid term for the wedging-in of the end of a granite sheet under an overhanging joint, probably in consequence of the faulting of the sheets along the joint. It is also applied to the overlapping of lenticular sheets. Fay.

toefoearth. In geology, cold joints intersecting the sheet stratically or that portion of the sheet striking with the sheet, in some different from them in strike 45° or more. Fay.

toefooearth. A name given by Brögger to certain feldspath syenitic rocks, from Tönberg, Norway, that are close relatives of the anorthosites. They differ from the anorthosites in their smaller percentage of lime and higher percentage of alkalies. Fay.

toefoo soil. The distance from the inner end of the hole to the adjacent free face measured at right angles to the direction of the hole; or that part of the hole which is filled with powder; or that part of the team to be broken lying between the powder and a free face. Zerr, p. 608.

toefoo tool. The junction between the face of a weld and the base metal. ASM Gloss.

toefoo tool. The forward, lower end of a tangential forest bed. Name derived from depo- sition at the toe of a tangential forest. Fay.

toe-to-toe drilling. The cutting of large diam- ter blasting holes in quarries and open- cast pits. They are put down vertically from top to bottom of the quarry face. Deck loading is often adopted with half to two-thirds of the total charge at the toe of the hole or that portion of the hole containing wall adjacent to various stones or stonelike objects likened in color or shape to toads (batrachites, bafonites, crapoidus). Arkell.

toe-to-toe drilling. A process of concentrating iron ore which comprises the steps of effecting a dry, thermal partial reduction of the iron in the ore to the metallic state to a degree or reduction of between 50 and 80 percent, subjecting the reduced product to a magnetic separation and recovering the iron-oxide concentrate. Odhner.

toe-toe drilling. The drilling of large diameter blasting holes in quarries and open- cast pits. They are put down vertically from top to bottom of the quarry face. Deck loading is often adopted with half to two-thirds of the total charge at the toe of the hole or that portion of the hole containing wall adjacent to various stones or stonelike objects likened in color or shape to toads (batrachites, bafonites, crapoidus). Arkell.
tofo


tofu a. Made to gage, or a size as specified, especially as applied to the outside surface of a vessel, and naming both the number of shells and the inside diameter of a borehole. Long. b. To determine, by measurement of the capacity, quantity, or dimension. Long.

toggle action. Application of crushing force so that the distance moved diminishes, without change of input strength, between gage and set. Thus greatest speed of movement of the approaching faces is applied with weakest thrust and vice versa. Pryor, 4.

toggle joint. A joint having a central hinge like an elbow, and operated by applying the power at the junction of motion, as from horizontal to vertical, and giving enormous mechanical advantage; a mechanism common in many forms of presses, and in stone crushers. Standard, 1964.

toggle mechanism. A mechanism utilized to apply heavy pressure from a small applied force, such as in a jaw breaker, and other machinery. Hams.

toggle press. A mechanical press in which the slide is actuated by one or more toggle links or mechanisms. ASM Gloss.

tola. A unit of length used in early geodetic surveys and equal to about 6.4 English feet; became the legal standard of length in France, and from it was derived the French meter. A.G.I.

token. a. Aust. A metal or leather ticket stamped with a distinctive number, fastened to a skip so as to indicate to the weighman who mined the coal. A ticket; tally. Fay. b. Wales. A thin bed of coal. A ticket; tally. Fay.

tolite. A variety of algal coal the name of which was later changed to sppromyrite. Tomassi, 1954.

tommy bar. A short rod used as a lever or handle for turning a jackscrew or a spanner by being inserted loosely in the hole provided for the purpose. Long.

tommy dodd. Aust. A series of small pulleys, with vertical axes placed between the rails at a curve, so as to keep an endless rope in place. Fay.

tonomography. A division of radiography dealing with the photography of a particular plane in an object while leaving out undesired detail in other planes. Although this technique was developed for medical radiography, it is recommended for certain purposes in work with metals where it is essential that the location of faults be exactly known. Osborn.

ton. a. Any of various units of weight: (1) a unit that approximates 2,000 pounds avoirdupois; (2) a unit used chiefly in England; (3) a unit used in the United States, Canada, and the Republic of South Africa; (4) a unit of interest in shipping for ships that equals 100 cubic feet; (5) a unit of volume for cargo freight usually considered to be 40 cubic feet; also called a freight ton; a measurement ton. Webster 3d, b. A unit of weight for large quantities. In Great Britain, the short ton is used in metal mining; the long ton in coal mining; and the metric ton in foods and to avoid confusion the short ton. C.T.D. Usually not abbreviated, but abbreviations are t and tn. BuMin Style Guide, p. 67; Webster 3d.

tonalite. A coarse-grained igneous rock, quartz-mica diorite. Two varieties are distinguished: soda tonalite, with albite in excess of anorthite, and lime tonalite, with anorthite in excess of albite. Compare adammellite. C.T.D.

Tonnawanda. Middle Middle Silurian. A.G.I. Supp.

tonca copper-molybdenum iron. See pure iron. Mercureau, 4th, p. 482.


tone. That attribute of a color which determines its position in a scale from light to dark. Thus white, and also light gray, are light tones, and dark gray the dark tone of the same color sensation; pink is a light tone of red, and maroon a dark tone. A light tone is usually known as a tint, a dark tone as a shade. Shipley.

tonelada. Sp. Term meaning ton. The ton of Castile equals 2,022.2 pounds avoirdupois; the Mexican and Spanish American ton equals 2,038.88 pounds avoirdupois; the metric ton, 1,000 kilograms equals 2,046.5 pounds avoirdupois. Fay.

tongue. A hand, repeatable, serrated metal insert in pipe tongs, which comes in contact with and grips the outside of a pipe, casing, or drill rod. Also called tong key. Loomis, 2.

tonguld. The portion of a forging billet, usually on one end, that is gripped by the operator's tongs. It is removed from the part at the end of the forging operation. Common to drop-hammer and press-type forging. Standard, 1964.

tong key. Synonym for tong long. Die.

tongue outcrop clay. A fire clay associated with the better bed coal, Yorkshire, England. The raw clay contains about 65 percent SiO2, 22 percent Al2O3, 1.5 percent Fe2O3, and 1.6 percent MgO. Standard, 1964.


tongue outcrop clay. A fire clay associated with the better bed coal, Yorkshire, England. The raw clay contains about 65 percent SiO2, 22 percent Al2O3, 1.5 percent Fe2O3, and 1.6 percent MgO. Standard, 1964.

tongue. a. A pair of curved arms pivoted to each other, scissor fashion, so that a pull will grip an object between them. Nicholas. See also pipe grip; pipe tongs; pipe wrench. Fay. b. A two-legged instrument used for picking something up or for holding material while it is being worked. Also called a pair of tongs. Crispis. c. One of the various tools or wrench devices that can be made to fit and grasp drill rods, casing, or drivepipe. Compare chain tongs. Long. d. Any of the various tools consisting to two pivoted or hinged legs designed to grasp hot metal, such as a hammer-drill bit, while it is being worked. They are made in several sizes and forms essential to a toolie or a blacksmith. Long. e. In gum cutting, a set of jaws by which the dop is firmly held in order to press the stone against the wheel. Standard, 1964.

tongue. Drawbar of a towed vehicle. Nicholas, 2. b. A piece of iron or steel
tongue
projecting from the stem of a stamp head. Fay.
c. A long narrow strip of land, project-
ing into a body of water. Schier-

from a body of water. Schier-
tongue joint. In welding, a split joint formed
by inserting a wedge-shaped piece into a
corresponding split piece and welding
the edges together. Long. tooler. a. The operator on a cable
tool. A tool holder. Compare descri-
er. Long. c. A toolstone-grade diamond
inset in a metal shank and used to trim
the face of a grinding wheel. Long.
tongue plate. An adjustable plate which con-
trols the quantity of feed entrapped by the
rolls of a double-roll press. B.S. 3552,
1962.
tongue test. A test by which crystals or crys-
talline gemstones, all of which are
genuine or synthetic, can be distinguished
from glass which feels warmer in com-
parison, when held to the tongue. Shipley.
tongue tile. In a port, the projection partition
between gas and air streams. ASTM
C162-66.
tong up. To couple lengths of drill rod, pipe,
or casing, using tongs to grip and screw
the members together. Long.
ton br. Abbreviation for tons per hour. Bu-
tool. A blasting explosive consisting of a
mixture of nitrocellulose with a nitrate and
sometimes a nitro compound. Webster 3d.
ton-kilometer. A unit of measurement often
used for the work done in transport. The
number of ton-kilometers is the weight in
tons of material transported multiplied by
the distance in kilometers driven. Stoes.
1. p. 156.
ton mile. In railroading, a standard measure of
traffic, based on the rate of carriage
per mile of each passenger or ton of
ton MPH. A system recently developed that
permits calculating how hard an earth-
moving tire should work and how much
work it is doing. The Ton MPH for any
tire is determined by multiplying the mean
load and average speed. The resulting
figure provides an index to the work a
tire can do. The operator determines which type of tires
he should use to get top performance
within his means. Coal Age, v. 71, No.
8, August 1966, p. 234.
tonnage. The amount of ore handled per day.
The amount of ore in sight. Fay.
tongue notch. Ceramic tool bits for use in the
machining of metals of various types: car-

for correlation. B.S. 2618, 1964, sec. 5.
tool box. The same as powder box. Korion.
tool box. A key miner, specifically one
who rests on his tool box while his laborer
does his work. Korion.
tool dresser. a. The driller's helper on a cable
A churn driller's helper. Compare descri-
er. Long. c. A toolstone-grade diamond
inset in a metal shank and used to trim
the face of a grinding wheel. Long.
tool surface. Term used to describe the
surface finish of building limestone that
has fine parallel grooves. AIME, p. 330.
tooler. A stonemason's chisel 2 to 4 inches
broad. Stoces v. 1, p. 166.
tool extractor. An implement for grasping
and withdrawing drilling tools when
broken, detached, or lost in a borehole.
A fishing tool. Also called tool grab. Long.
tool grab. See tool extractor. Long.
tool grinders. In a stone-cutting industry, one
who grinds the cutting tools for stone-cutting
machines and lathes to a keen edge of the
tools desired that the Rock. Long.
tool heat treater. One who hardens and
charges tools, dies, and fixtures. Bureau
of Mines Staff.
toolmaker. A workman skilled in the making
of jigs, fixtures, gages, etc. Cripin.
tool marks. a. Sole marks produced by en-
teracting with the point of the drill. Long.
tooling. A process of shaping or forming a
metal object. Long. tool point. The point at
which drill-stem is transferred to the
bottom of the mine and to bring down tools
and instruments. J&M.
tool post. The space between two sprocket'
tooth. J&M.
tool post. The space between two sprocket'
tooth. J&M.
tooling. Leaving a section of brickwork
after the other is finished so that the
brickwork to follow can be bonded into it. It consists of allow-
ing alternate courses to project a sufficient
distance to assure a good bond with the
portion to be built later. Cripin.
tool post. On a face mill, the chamfered
cutting edge of the blade, to which the flat
is sometimes added to produce a shaving
effect and improve the finish. ASM Gloss.
tool profile. The outline of a sprocket tooth
as projected on a plane through the
sprocket axis and the center of the tooth.
J&M.
tooth. A projection on a tooth, such as a
saw tooth. Cripin.
tooth. A projection on a tool, such as a
saw or file, designed to provide a cutting
action. ASM Gloss. b. A projection on the
circumference of a wheel, designed to engage corresponding projections on an-
other wheel and thereby transmitting
force. ASM Gloss. c. Roughness in a clay;
corne, grain, structure. ACSG, 1963.
tooth base. a. The inner part of a two-piece
tooth on a digging bucket. Nichols.
b. Occasionally, the socket in which a tooth
fits. Nichols.
tooth brake. Jaw brake. A brake used to hold
a shaft by means of a tooth or teeth
engaging with fixed sprockets. Not used for
slowing or stopping. Nichols.
toothed roller bit. Synonym for roller bit.
toothed-shoe cutter. A drivepipe or casing
shoe with a serrated or toothed cutting
edge. Long.
toolmaker. A person whose duty it is to carry
powder, drills, and tools to the various
levels of the mine and to bring such tools
and drills as have been purchased by use
for the surface. See also nipper, a. Fay.
toothed. A masonry unit projecting from the
face of a mortar joint with a special tool other
than a trowel. ACSG.
toothed. The point at which drill-stem
or tooth. J&M.
toother. A man who sharpens churn-drill bits;
b. A churn driller's helper. Compare descri-
er. Long.
tooth plate. An adjustable plate which con-
trols the quantity of feed entrapped by the
rolls of a double-roll press. B.S. 3552,
1962.
tongue test. A test by which crystals or crys-
talline gemstones, all of which are
genuine or synthetic, can be distinguished
from glass which feels warmer in com-
parison, when held to the tongue. Shipley.
tongue tile. In a port, the projection partition
between gas and air streams. ASTM
C162-66.
top and apex

of the miner's terminology prior to the adoption of the federal mining law, but were words used by legislators to convey the intent of the formulators of that law.

Top and bottom process. See Orford process.


topaz cat’s eye. Yellow gisarolite (often chemically incorrectly) which theoretically can exhibit a more or less well-defined light line, or chatoyancy.

Shipley.

topazelles. See. A brecciated, contact rock near granite contact, and formed of topaz, tourmaline, quartz, and some rarer accessory minerals, also called topazz rock.

Topaz. A rock resulting from contact metamorphism, made up of an aggregate of fragments of quartz and tourmaline, cemented by a mixture of quartz and topaz. Also called topaziz rock. Fay.

Topaz glass. Topaz-colored glass. One variety of this glass is then lowered. Dodd.

Topaz opalescence. A light which is then lowered. Dodd.


Topaz topography. A. The science of surveying the surface of the earth, its relief, and the art of delineating them on maps. Standards, 1964.

Topaz topography. A. The science of surveying the surface of the earth, its relief, and the art of delineating them on maps. Standards, 1964.


Topping a. The contents of a loaded mine, as undertaken by the land surveyor. Ham.

Topographic correction. See terrain correction.

Topographic deserts. Deserts deficient in rainfall either because they are located far from the oceans or are the center of continents, or because they are cut off from rain-bearing winds by high mountains.

Topographic high. Frequently used in the oilfields to indicate the higher elevations, regardless of age; opposite of topographic low, which indicates a lower elevation. Compare geologic high. Fay.

Topographic influence. In geology, a features stage characterized by a smooth, nearly level surface of deposits, lakes abounding in slight depressions, shallow streams, and drainage systems not well established. Standard, 1964.

Topographic low. See topographic high. Fay.

Topographic map. A. A representation on paper that is designed to portray certain selected features of a section of the earth's surface plotted on some form of projection and to a certain scale that primarily depicts the relief of the country mapped but shows also, its drainage and cultural features, and that delineates all features in true latitude and longitude and therefore, all parts in a right, vertical, relative position. Stokes and Barnes, 1935. b. A map showing the topographic features of a land surface generally by means of contour lines. A.G.I. 1964.

Topographic maturity. In geology, a stage of maximum diversity of form when valleys have greatly increased, and the river channels are widely opened. Standard, 1964.

Topographic old age. A geologic stage in which there is a featureless surface differing from the earliest stage in having a system of drainage streams, separated by the physical features of a district swelling hill. Standard, 1964.

Topographic quadrangle. Map upon which is shown a small portion of land with elevations indicated by a series of contour lines each passing through a specified altitude; the curvature and crowding together of the contour lines indicates the nature of the terrain. Sinkens.

Topographic unconformity. If the invading glaciers disappear before they carry their erosion beyond youth, the area will show two kinds of topography: (1) the mature upland incised by (2) the new glacial valleys, and these two topographic phases will be out of harmony with one another, that is, they will be topographically unconformable. Their relation will be that of topographic unconformity. A.G.I.

Topography. A. The science of surveying the physical features of a district or region and the art of delineating them on maps. Fay. b. The physical features of a distinct or region, such as are represented on maps, taken collectively; especially, the relief and contour of the land. Fay. c. The configuration of a surface including its relief. May be applied to a surface such as the sea bottom or a surface of given characteristics within the water mass. Hy.

Topper crude petroleum. A residual product remaining after the removal of oil, gasoline, and some of the volatile components of crude petroleum. ASTM D288-57.

Topping a. The contents of a loaded mine
topple. S. Wales. From tophole. A working toppling. Eng. The first top rod. Scot. The rod connecting the upper-top-reef deposits. Deposits on the reef flats. top pouring. See direct teeming. ZIodd. top ply; top leaf; tops. Scot. The uppermost topset bed. Gently inclined strata deposited top slid* A method of stoping in which the ing for a road or grade. Nichols. d. A top sliding and cover caving. A mining method that entails the working of the ore body from the top down; panel slicing; prop slicing; and transverse slicing with caving. top slicing combined with ore caving. A method in which the ore body is worked from the top down; panel slicing; prop slicing; removing pillars and allowing roof to cave; slicing under mine of timber in panels; square-set slicing; top slicing and caving; and transverse slicing with caving. top strata. A timber mat is used in almost all cases. Other terms used for this system are: slicing system; crosscut method (combined with removal of pillars); horizontal slicing (designed to leave ore from top down); panel slicing; prop slicing; removing pillars and allowing roof to cave; slicing under mine of timber in panels; square-set slicing; top slicing and caving; and transverse slicing with caving. top技术人员. See headman. D.O.T. 1. toptop slicing. A method of stoping in which the ore is extracted by excavating a series of horizontal rooms. The ore is removed by blasting out the timbers, bringing the capping or overburden down upon the broken ore. The slices which have been previously covered with a floor or mat of timber to separate the caved material from the solid ore beneath. Succeedingly lower slices are mined in a similar manner up to the overlying mat or roof, which consists of an accumulation of broken timbers and lagging from the upper slices of caved capping. After removing the slices and caved this mat follows the mining downward, filling the space occupied previously by the ore. * Bull.Mines Bull. 290, 1936, p. 15. Much timber is required for top slicing, and a low-cost, adequate supply of low-priced timber is necessary. Top slicing is also applied to the extraction of pillars between stopes and for cleaning operations in caved ore by hand. Lewis, pp. 465, 502-503. See also block caving.

tor. Eng. a. A rounded mass of rock left in an elevated position by the decay of surrounding parts. Sometimes called boulder. Fay. b. A rocky pinnacle or peak; a high peak. Fay.
tor. Eng. a. A rounded mass of rock left in an elevated position by the decay of surrounding parts. Sometimes called boulder. Fay. b. A rocky pinnacle or peak; a high peak. Fay.
with the grain, producing the most desirable cubical product. *Fit and Quarry*, 53rd, Sec. B, p. 35.
tornado
torcho, torc&utm.
torhode occlusion. A rare, weakly radioactive, possibly monomineral, gem 3 to olive mineral, R/Fe(OH) (SiO4), where R=Co, (La,Nd), Al,Fs,Mn,Mg,Ca. Found in contact zones at Bastnas, Sweden. *Crosby* p. 112; *Hep* 2d, 1855.
torlose load cast. A sole mark formed by elongate ridges which pinch and swell along their trends; unlike flute casts, the downcurrent terminations are bulbous or tear-drop shaped. *Petitjohn*.
torpedo. a. An encased explosive charge slid, lowered, or dropped into a borehole and exploded to clear the hole of obstructions or to open communications with an oil or water supply. Also called bullet. b. A charge of explosive contained in a narrow cylinder, which is lowered into an oil well to the required depth and then fired. The object is to fracture the oil-bearing rock and thus increase the flow of oil. *Nelson*. c. A core barrel containing explosives, which is lowered by a line into a quarry blasthole which has been bored into the ground. It is permitted to be used in place on a line, and exploded when crushed under a locomotive wheel; used as a signal. *Webster 3d*.
torpedo crown. A torpedo or noncoring bit. *Long*.
torque. a. An engineering term defined as the product of a force times its lever arm. It is usually made by plotting the twisting moment of a given section of a structure, that section rotates about some point in its plane. This point, which does not move during rotation, is the torsional center of that section. It is sometimes defined as though identical with the flexural center, but the two points do not always coincide. *Coin*.
b. A measure of the ability to produce a twist in the wire, thereby showing its ductility. *Zero*.
torsional center; center of twist; center of torsion. See *Reec* torsion anemometer. *See Reec* torsion anemometer.
torsional shear test. A shear test in which the relative twist specimen of solid circular or annular cross section, usually confined between two bearings, is subjected to an axial load and to shear in torsion. *Inplace* torsion shear tests may be performed by pressing a device to the drive or annular plate against the soil and measuring its resistance to rotation under a given shear load. *Nelson*.
torsional anemometer. See *Reec* torsion anemometer. *Torsional bar. A geophysical prospecting instrument for locating gravity anomalies, and its use is generally confined to shallow and local gravity investigations. See also graviometer. *Nelson*.
torsion break. A break in the drill core caused by an accumulation of chips at the bit face. When drilling is stopped to rechuck, these chips grip the core, and the core is twisted and broken. *Compare torsion fracture. Long*.
torsion fracture. A spiralized crack in a drill core caused by a local torque in a blocked bit or core barrel. *Compare torsion break. Long*.
torsion anemometer. A seismograph with a torsion anemometer. *See Reec's torsion anemometer.*
torsion anemometer. A torsion anemometer. *See Reec's torsion anemometer.*
torsional shear test. A shear test in which the Georgia terrane is uplifted. *Webster 3d*.
torso. A decorative effect produced on a lead glaze by dusting metal oxides (MnO2,CoO, or CuO) over the surface and firing. *Bod*.
tortal. Mex. The flat circular heap of ore spread out on the floor of the patio in a circle about fifty feet in diameter and a few inches in thickness, ready for amalgamation in the patio process. *T. rendida*, *T. para* may be washed. *Fay*.
tortoise. A term sometimes applied by miners to such structures as pods, bolls, kettles, and other rocks that tend to fail easily from the roof of a coal mine. *See also camel back. A.G.I.*
tortolleshell. A term sometimes applied by miners to such structures as pods, bolls, kettles, and other rocks that tend to fail easily from the roof of a coal mine. *See also camel back. A.G.I.*
tortuous flow. See turbulent flow. *Nelson torbybile. A light-colored igneous rock that is a nepheline type containing albite. Related to *white. Hes*.
toscanite. Proposed by Hathaway for a group of cations, effusive rocks in Tuscany, Italy, that are characterized mineralogically by the presence of basic plagioclase, as well as orthoclase, and by occasional quartz. They range from 62 to 75 percent of anorthite and are inclined to have leucitic and dacite. *Compare detritalite. Fay*.
tossing. See *tossing. Fay*.
tossetting. t. The operation of raising the grade or purity of a concentrate by violent stirring, followed by packing, in a kieve or open dolly tub. Chimming is a similar process on a smaller scale. *C.T.D.; Fay*.
b. An operation in tin refining in which the molten metal is lifted in a ladle and poured back in a fine stream to oxidize impurities. *Webster 3d*.
tossetting, tin. Oxidizing impurities in molten tin by pouring it from one vessel to another in air, forming a process that is mechanically separable. *A.G.I. Tossetting, tin. See torsing.
total acidity. A measure of the capacity of water to produce chemical change by acid reaction. It is the total amount of acid held in solution or the sum of the quantities of both the ionized and the un-ionized portions of actual acid and the potential quantity of acid that can be formed from mineral salts held in solution. Total acidity is customarily reported in equivalent parts per million (ppm) by weight of calcium carbonate. The indicated total acidity of mine water found by currently accepted methods of analysis generally is greater than the actual total acidity. *T. P. 710, 1947, p. 2.*
total analysis of coal. See ultimate analysis, c.
total bit load. A drilling term describing the total amount of any load or pressure, whether it be anticipated or not, that is applied to a bit when it is in use. *Long*.
total bit pressure. See total bit load. *Long*.
total cap lag. A blasting term describing the
total energy. The total energy at any section is the sum of the static, kinetic, and potential energies at that section. Hartman, p. 74.

total hardness of water. All waters contain two forms of hardness, that is, temporary (or carbonate) hardness and permanent (non-carbonate) hardness. The combination of the two is referred to as total hardness. See also hard water. Nelson.

total head. a. Energy lost by friction of water in a moving fluid consists of the sum of the kinetic and potential energies at any section. Hartman, p. 74.

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touchup man

toughness. The toughness of a material is a measure of its ability to absorb energy before fracturing. It is often determined by testing the material in a process known as fracture toughness testing, where a sharp crack is introduced into a specimen and the material is subjected to tensile stress. As the stress increases, the crack grows until the material fails. The toughness is then determined by the amount of energy absorbed during the process. Hartman, p. 123.

total heat. The total heat of atmospheric air is the heat contained in the same amount of dry air (known as sensible heat) plus the latent heat of the contained water vapor. Hartman, p. 125.

total load. The total load on a pump is the sum of the dynamic head (the suction and discharge heads), the static head, and the friction head. Lewis, p. 687.

total lung capacity. The total lung capacity of a person is the maximum volume of air that can be exhaled after a maximum inspiration. It is the sum of the residual volume, the tidal volume, and the inspiratory capacity. Lewis, p. 687.

See also modified Atkinson formula. Nelson.

total sediment load. All the sediment being moved by the stream, that is, suspended and bedload. USGS Prof Pap 462-P.

See total ventilation power. The water gage reading in the fan house, which can be converted into pound pressure per square foot by multiplying by 0.2. Nelson.

total ventilation pressure. The water gage reading in the fan house, which can be converted into pound pressure per square foot by multiplying by 0.2. Nelson.

tough, pise (archeol.). Walls built of straw-tempered, sun-dried clay without forming clay into bricks; this type of construction, used in ancient times in the Near East, is now being used today; it is similar to some forms of adobe construction. ACG, 1963.

tough. The exact state or quality of texture and consistency of well-reduced and refined copper. Fay. b. Copper of the above quality; also called tough cake. Fay. c. Having the quality of being strong or firm in texture, but flexible and not brittle; yielding to force without breaking; capable of resisting great strain without coming apart. Webster 3d.

tough alumina. A relatively impure regular alumina (90 to 96 percent alumina) of blocky shape. ACG, 1963.

tough cake. Refined or commercial copper. See also tough; a. Fay.

toughen. To remove the last remaining quantities of foreign metals from copper in refining, as by polishing. Standard, 1964.

toughened glass. Glass that has been rapidly cooled so that the surface layers are in compression, and which therefore has increased mechanical endurance and, if the glass does break, it will shatter into small, granular fragments rather than into large and dangerously jagged pieces. Dodd. See also tempered glass.

tough underpinning. A material is tough when it strongly resists a tearing stress (muscovite, the native metals, such as gold and copper). Stokes and Varnes, 1955, p. 149.

toughness. a. A property of a material that denotes, nominally, an intermediate value between softness and brittleness. Tenacity tests show a tough material to have a fairly high tensile strength accompanied by moderate values of elongation and reduction of area. Generally, a tough material also shows high values in the notched bar impact test. Henderson. b. The amount of force required to deform a body to its rupture point. A.G.I. c. All diamonds, including carbides, are brittle, and fractures that indicate resistance to pressure are apt to be broken under vibration or sudden shocks. Toughness can be used to measure the resistance to shock; the most resistant is greatest in carbons, ballas, borons, and corungos in No. 1 grades, in that descending order. See also hardness. Cummins.

toughness index. The ratio between the index of plasticity and the flow index of a soil. Hem.

toughness of refractories. Resistance to crumbling, abrasion, or to coarse particles being dislodged from the brick structure. Bureau of Mines Staff.

tough pitch. a. A term applied to electrolytic copper refining to designate copper which has set, from the molten condition, with a level surface. See also underpooled; overpooled. Fay. b. A term applied to copper in which the oxygen content has been correctly adjusted at 0.03 to 0.06 percent by polishing, underpooled, and overpooled copper. C.T.D.

tough pitch copper. Copper containing from 0.03 to 0.05 percent oxygen, obtained by refining copper in a reverberatory furnace. ASM G7.


tough way. a. A quarryman's term to denote the direction in rock opposite to the rift and along which the rock is hard to break. Ham. b. Hardway; head. Akeel. c. A work-shift. Sometimes incorrectly spelled tower. Long.


tourmaline. A complex aluminum silicate of hexagonal crystallization containing boron and in some varieties, lithium and other elements. Xy[AlBO3Si3O12], of various colors; the clear pink, blue, and green varieties are used as gems. It occurs in long, usually striated, prisms in the ancient crystalline rocks. Khomohedral. Also called schorl. Sanford; Dana 17; Fay.

tourmaline-cordierite rocks. Very hard and fine-grained rocks of blue-black color, having the mineral composition indicated by their name. Under the microscope, they show olidic structure and usually have a very low index of refraction. Bogue 1928.

tourneaud. a. A peak rising with precipitous slopes from an elevated tableland; a towerlike formation. Local in the Northwest, 44.01. c. A mis-spelling of tower. Long.

tourneaud: mum arch. A channel section of a river, characterized by its winding form. See also hardness. Cummins.

tournette. Fr. In ceramics, a rotating tablet, resembling a small potter's wheel, used in decorating the finer wares with lines. Standard, 1964.


tows. See also hardness. Cummins.

tows. a. To follow the line of a plant or other surface and especially with a plane of projection. Webster 3d. c. To follow the line of a plant or other surface and especially with a plane of projection. Webster 3d. c. To follow the line of a plant or other surface and especially with a plane of projection. Webster 3d.
trace

long pits. Fay, d. Recording on the seis-
mogram of a single seismometer station.
Schiefdecker.

trace plotting. A procedure used in seismic
reflection where reflection times from all
traces, or sometimes alternate traces, are
read and plotted on a graph paper (midway
between shot and detector). When no correction
has been made for normal movement, the plotted
data appear to lie along areas which are
convex upward and straddle the shot
positions symmetrically. Compare center-
trace time. Dobrin, p. 132.

trace elements. Elements present in minor
amount in the earth's crust; all elements
except the eight abudant rock-forming
elements: oxygen, silicon, aluminum, iron,
calcium, sodium, potassium, and mag-
nesium. Synonym for minor elements;
accessory elements. A.G.I.

trace element salt. Table salt or cattle salt
which contains trace elements equivalent to
those found in seawater. Kaufmann.

trace hole. A small horizontal passage or flue
in masonry, or a small opening in a kiln to
facilitate the movement of hot gases.
Dodd.

trace mineral salt. Livestock salt with added
trace elements to supplement mineral
deficiencies. Kaufmann.

tracer: a. An employee who makes tracings,
advancing on transparent paper or cloth. In
Dodd.

tracing. a. The making of tracings, or the
transfer of designs from paper or cloth
to marble or granite.

tracing paper. Paper of high quality suitable
for duplicating by the process of

tracing. a. An employee who makes tracings,
advancing on transparent paper or cloth. In
Dodd.

tracing. a. The making of tracings, or the
transfer of designs from paper or cloth
to marble or granite.

tracing paper. Paper of high quality suitable
for duplicating by the process of

trace by:trace plotting. A procedure used in
tracer gas. A gas introduced in small quan-
tities into the main body of the ar to
track bolts in the crown of a bit. I. o

track bolt. A chair bolt or coach screw used
in fastening cars. Hoffm. h.

track brakings. Track brakes, similar to those
used on surface tramways, may be installed
on heavy downgrades underground to sup-
plement other braking systems; they apply
blocks to the rails from the brakeman's pneu-
matic, or electromagnetic power. The
normal shoe brake must be designed to
work in conjunction with the track brakes
so that the wheels cannot be skidded when
the track brakes utilize part of the weight
of the locomotive. Electromagnetic track
brakes may utilize the braking currents
produced in rheostatic braking to excite
the electromagnets, which are then pulled
down onto the rails and produce a strong

track cable. Steel wire rope, usually a locked
coiled rope which supports the trucks of
the carriers of a cableway.

track cable scraper. This type of excavator
cableway operates in general the slackwire
except that it uses a bottomless scraper bucket which must convey its
load upward from the ground instead of through
the air. Like the slackline cableway, this ma-
chine is operated by a two-drum hoist which
controls the means of suspending an area and a
haulage cable that leads to the front of the bucket.
Both cables are reeved through the hoist and
are attached to a high guyed mast or tower at
the head end of the installation. When
the bucket comes in with a load it reaches
the desired dumping point, a few
rotations of the rear drum of the hoist
serve to tighten the track cable and lift
the bucket off its load; then the brake
is released on the front drum which
controls the haulage cable, permitting the empty
bucket and carrier to slide back down the
inclined track cable. Pit and Quarry, 35rd,
Sec. A, p. 100.

track channelers. In quarrying, a rock chan-
neler designed to operate from a track on
which it is mounted; frequently a com-
plete locomotive and channeling machine.
Steadman, 1964.

track cleaners. In mining, a laborer who
does track maintenance and switches by shoveling
coal, ore, rock, mud, and refuse, and
throwing to one side or loading it into
a train or a crane travels or to the single
track cleaners. A chair bolt or coach screw used
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trace cleaning. A process used in seismic
reflection where reflection times from all
traces, or sometimes alternate traces, are
read and plotted on a graph paper (midway
between shot and detector). When no correction
has been made for normal movement, the plotted
data appear to lie along areas which are
convex upward and straddle the shot
positions symmetrically. Compare center-
trace time. Dobrin, p. 132.

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coke, ore, rock, mud, and refuse, and
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a train or a crane travels or to the single

track cleaners

the towing motor and observes the dig- 
gging, while another controls the digger. The plate height, adjusts wing plows, and observes loading. Best, p. 372.

track frame. In a crawler mounting, a side 
frame to which the track roller and idler are attached. Also called track frame. 

Nichols.

track gauge. a. The distance between the inside edges of installed railway rails. B.C.I. 
b. The minimum track gage which should be used on a modern haulage system is 3 feet 6 inches. This page has been established as a standard by the American Mining Congress as a result of the 196 

track haulage. Movement or transportation of excavated or mined materials in cars or trucks running on rails. Bureau of Mines Staff.

tracklayer. a. Iron or wooden tramrails. Fay. 
b. Lines of wear on a road surface caused by vehicles following in each other's 

tracting through. N. of Eng. Clearing a path 
along the whole length of the face through the overburden. Fay.

tracklayer; trackman. A workman engaged in 
work involved in putting railway rails in place. Webster 3rd. Also, one employed at mines to lay or repair tracks. Fay.

track laying machine operator. See track 

tracklaying tractor. A tractor moving on 
crawler tracks. Ham. See also halftrack.

tracks. A mine with no rails. In these mines, rubber-tired vehicles operating 

tract, a book maintained in the District Land Office of the Bureau of Land Man-

tracking. Tunneling by means of loaders mounted on caterpillars, with a 

traction, the act of drawing a vehicle 
over a surface and the force exerted in 
doing. Tractiion is the friction developed 
between tracks or tires and the surface of 
the ground on which they are moving. 

traction factors. Also called frictional forces. 

traction force. a. The necessary drawbar pull 

traction train. The vehicle which is driven into a wooden sleeper 

traction train, mine. See mine tractor.

traction. A book maintained in the District 

traction. A. A flexible cable designed 

traction cable. A flexible cable designed 
for conveying electricity to a coal cutter, one 

traction. A. A flexible cable designed 
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traction. A. A flexible cable designed 
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trailing cable

a movable machine such as in mining or quarrying. It is usually paid out from a reel as the machine advances. Grove. d. A flexible, rubber-insulated conductor, or set of conductors, capable of carrying electric power to a crane or other moving machine. Ham. e. A flexible insulated cable used for transmitting power from the main power source, such as a trolley wire, nipping station, or junction box, to a mobile machine. It includes cables or wires for the nipping station and distribution center. BuMines Coal-Mine Inspectors' Manual, June 1956, pt. 3, 18a, p. 52.


trailing points. Points which are approached by a train from such a direction that it first meets the heel of the points. Ham.

trailing spit. See tail, f. Schieferdecker.

train. The practice of pushing tubs, mine cars, or trams, by hand. Tramming was an earlier practice in longwall mining. It is now largely obsolete. On the surface, tramming means moving material in skips or wagons running on light railway track. See also hand putting. Nelson.

tramming motor. May refer to an electric locomotive used for hauling loaded trips, or it may refer to the motor in a cutting machine which supplies the power for moving or tramming the machine. Jones.

tram. Synonym for boomer, drifter, or duster, as applied to a drill-crew member who moves often from job to job, usually after payday. Long.

tram iron. a. Stray metal objects, such as coal-cutter picks or bolts, which have become mixed with the run-of-mine coal or ore. To remove this iron before it damages the crushers or other machines, various types of magnets are widely used. See also magnetic separator. Nelson. b. Any local piece of metal in a borehole. Long.


tram oversize. a. Ore which should not have been released from the previous section at the delivery size. Pryor, p. 818. b. Ore undergoing treatment which is larger than the maximum particle size that can be handled efficiently by the machine into which it is fed. Fay. 1933.

tramroad. a. A mine haulage road. Jones. b. Generally to mean a piece of equipment other than a locomotive; tram car. B.C.I. c. A small wagon, tub, cocoa pan, corf, or hutch for carrying coal or other material in mining. C.T.D. d. S. Wales. A tub. In general, a tram is larger than a tub with a capacity ranging from about 1 to 1 1/2 tons. Nelson. e. A four-wheeled truck to carry a tub, corve, or hutch. Fay. f. The rails of a typical tramroad. See also tram road. Fay. g. A boxlike wagon, now often of steel, running on a tramway or railway track, to carry ore. Weiser, 3d. h. To haul or push trams or cars about in a mine. Fay.

tramcar. Eng. A car used in coal mines; same as at, a. and g. Fay.


tram driver. In mining, one who drives a draft animal to haul coal, ore, or rock in a tram (car) along tracks underground or at the surface of a mine. D.O.T. 1.

tramness. a. An overall appearance as two parallel lines on rolled bars. Osborne. b. Long, straight marks due to drawn out fronts at right angles. Schieferdecker.

tran. Several types of magnets are widely used. See also magnetic separator. Nelson.

transcurrent fault. 1. A fault resulting from movement that is superimposed along one of the fault's planes or fractures, the plane of fracture being vertical or approximately even with the horizontal. Schieferdecker.
transcurrent fault


transcritical. The two phase actuated by one transmission system and supplying related related to another transmission system. The proportion of the transmission system be of different forms. Ultrasonic actuate electrical waves and deliver ultrasonic waves, the reverse also being true. ASL Gloss. A device which measures quantities in a system, that is, pressure, current, voltage, and converts them into related or proportional units. NCB.

transducer loss. The transducer loss of a transducer connecting an energy source and an energy load is the transmission loss measured by the ratio of the source power of the source to the load power of the load. H&G.

transducer. Magnetic amplifier. A device consisting of one or more ferromagnetic cores with winding by means of which an alternating voltage or current can be varied by an independent voltage or current, utilizing phenomena in the magnetic circuit or circuits. NCB. Transfer. a. A vertical or inclined connection between two or more levels and used as an ore pass. Nelson. b. The action of transferring load in prestressing tendons to concrete. Taylor. c. A printed decoration which is applied and burned into the enamel surface. Stove names, trademarks, borders, and heat-control workings are applied in this way, the transfers being made from ceramic inks or overglazes which will fuse at temperatures between 1,200° and 1,500° F. Hansen.

transfer admittance. The transfer admittance of a network made up of an energy source and an energy load connected by a loss is the quotient obtained by dividing the phasor representing the source voltage of the source by the phasor representing the load voltage of the load. H&G.

transfer car. A. A quarry car provided with transverse tracks on which the gang car may be conveyed to or from the saw gang or carriage. B. A car equipped with rails, used to transfer a drier or kiln car from one set of tracks to another. C. A car equipped with rails, used to transfer a drier or kiln car from one set of tracks to another. D. A car equipped with rails, used to transfer a drier or kiln car from one set of tracks to another. E. A car equipped with rails, used to transfer a drier or kiln car from one set of tracks to another. F. A car equipped with rails, used to transfer a drier or kiln car from one set of tracks to another. G. A car equipped with rails, used to transfer a drier or kiln car from one set of tracks to another. H. A car equipped with rails, used to transfer a drier or kiln car from one set of tracks to another. I. A car equipped with rails, used to transfer a drier or kiln car from one set of tracks to another. J. A car equipped with rails, used to transfer a drier or kiln car from one set of tracks to another. K. A car equipped with rails, used to transfer a drier or kiln car from one set of tracks to another. L. A car equipped with rails, used to transfer a drier or kiln car from one set of tracks to another. M. A car equipped with rails, used to transfer a drier or kiln car from one set of tracks to another. N. A car equipped with rails, used to transfer a drier or kiln car from one set of tracks to another. O. A car equipped with rails, used to transfer a drier or kiln car from one set of tracks to another. P. A car equipped with rails, used to transfer a drier or kiln car from one set of tracks to another. Q. A car equipped with rails, used to transfer a drier or kiln car from one set of tracks to another. R. A car equipped with rails, used to transfer a drier or kiln car from one set of tracks to another. S. A car equipped with rails, used to transfer a drier or kiln car from one set of tracks to another. T. A car equipped with rails, used to transfer a drier or kiln car from one set of tracks to another. U. A car equipped with rails, used to transfer a drier or kiln car from one set of tracks to another. V. A car equipped with rails, used to transfer a drier or kiln car from one set of tracks to another. W. A car equipped with rails, used to transfer a drier or kiln car from one set of tracks to another. X. A car equipped with rails, used to transfer a drier or kiln car from one set of tracks to another. Y. A car equipped with rails, used to transfer a drier or kiln car from one set of tracks to another. Z. A car equipped with rails, used to transfer a drier or kiln car from one set of tracks to another.

transfer carriage. A movable platform or track used to transfer mine cars from one track to another. Zern.

transfer case. A transmission or gearbox that provides drive to secondary drives, winches, etc. Bureau of Mines Staff.

transfer chute. A chute used at a transfer point in a conveyor system. The chute is designed with a curved base or some other feature so that the load can be discharged in a centralized stream and in the same direction as the receiving conveyor. Nelson.

transferring. Generally 50 to 300 feet in length. It is used to transport material only from one conveyor to another. NE-MA MIB-1961.

transferring member. The proportion of the total current carried by the ion of a given kind. Also called transport number. ASL Gloss.

transferring-gang-car system. A system used in quaries in order to save time in handling stone blocks and slabs. In this system, a transfer car which runs on a de-pressed track, to which the gang car is provided with a short section of track across the top. A gang car loaded with marble, etc., is placed on this track and when moved to proper position is shifted beneath the gangsaw. Similarly, a gan car loaded with sawed slabs may be quickly moved from beneath the saws to the transfer car for transportation to the shops. ASL Gloss. p. 322.

transfer gear. Self-acting mechanism at shaft head by which skip is emptied and its contents are transferred to the next stage of handling. Pryor, 3.

transfer glass. Optical glass cooled in the pot in which it is melted. ASTM C152-68.

transfer grinding. In ceramics, a transfer of a pattern in gold, as from paper to un-glassed ware, usually done either by direct transfer of the gold in reverse, or by stamping the pattern in oil and dusting with gold powder. See yard, 1964.

transfer impedance. The transfer impedance of a network made up of a given source and a given load connected by a given load is the quotient obtained by dividing the phasor representing the source voltage of the source by the phasor representing the load current of the load. H&G.

transfer ladle. A large ladle lined with refractory material (usually fire clay bricks) for the transport of molten pig iron from a blast furnace to a hot-metal mixer or to a steelmaking furnace. See also hot-metal ladle. Dodd.

transfer order. A statement in which an invoice of goods is transferred from one position to another. See also invoice of goods.

transfer point. a. The point where coal or mineral is transferred from one conveyor to another. See also loading point, b. Nelson. b. Turning point. Nichols.

transfer printing. An intaglio process of decoration, particularly used for the decoration of pottery ware; a single-colored pattern is transferred directly from a printing plate or roller by means of a paper. The color used is generally dispersed in lined oil; soft soap is the traditional size for the transfer paper but various synthetics have also been used. Dodd.

transfer ring. See holding ring. Dodd.

transfer table. A table connected with rolling mills for transferring work from one mill to the other laterly. Mersenneau, 4th, p. 427.

transformation. A constitutional change in a solid metal; for example, the change from gamma to alpha iron, or the formation of pearlite from austenite. C.T.D.

transformation points. Temperatures at which the coefficient of thermal expansion of a glass changes; for any one glass, there are normally two such points known respectively as the Tg point and the Mg point; the Tg point is the first temperature at which there is a sudden change in expansion when the glass is heated at 4°C per minute is the temperature at which the thermal expansion curve reaches a maximum and is usually equal to the softening temperature. Dodd.

transformation ranges (transformation tem- perature ranges). Those ranges of temperature within which austenite forms during heating and transforms during cooling. The two ranges are distinct, sometimes overlapping but never coinciding. The limiting temperatures of the ranges depend on the composition of the alloy and on the rate of change of temperature, particularly during cooling. See also transformation temperature. ASM Gloss.

transformation temperature. The temperature at which a change in phase occurs. The term is sometimes used to denote the limiting temperature of a transformation range. The following symbols are used for iron and steels: Ac_
_1—_hypereutectoid steel, the temperature at which the solution of cementite in austenite is completed during heating; Ac_
_1—_the temperature at which austenite begins to form during heating; Ac_
_1—_the temperature at which transformation of ferrite to austenite is completed during heating; Ac_
_1—_the temperature at which austenite transforms to delta ferrite during heating; Ac_
_1—_the temperatures of phase changes at equilibrium; Ar_
_1—_hypereutectoid steel, the temperature at which precipitation of cementite starts during cooling; Ar_
_1—_the temperature at which transformation of austenite to ferrite or to ferrite plus cementite is completed during cooling; Ar_
_1—_the temperature at which austenite begins to form during cooling; Ar_
_1—_the temperature at which martensite starts during cooling; Ms—the temperature at which martensite formation finishes during cooling. NOTE: All these changes except the formation of martensite occur at lower temperatures during cooling than during heating, and depend on the rate of change of temperature. ASM Gloss.

transformed flow net. A flow net whose boundaries have been properly modified (transformed) so that a family of orthogonal or curvilinear squares can be constructed to represent flow conditions in an anisotropic porous medium. C.T.D.

transformer. A device which, through electromagnetic induction but without use of moving parts, transforms alternating or intermittent electric energy in one circuit into energy of similar type in another circuit, commonly with altered values of voltage and current. Transformers are frequently classified as stepdown, step-up, radio-frequency, input, output, push-pull, power, etc. A.G.I. Gloss.

transformer oil. A special type of oil of high dielectric strength, forming the cooling medium of electric power transformers. C.T.D.

transformer station. A transformer station is any installation of one or more transformers, either portable or stationary, used for power or lighting service, for increasing or decreasing voltage, or for converting different potential, or for isolation. ASA M2.1-1963.

transformal. One who believes that all granites had a metamorphic or palenegetic origin. Compare magmatist. A.G.I. Supp.

transforma. A term proposed for a process in which a highly leached medium of emanations, rich in alkalis, etc., moves
transference
transfusion
transfusion loss
into the crustal rocks from below and reacts with them to produce either solid altered rocks or even completely liquid material. This is called "transgression." This term is applied in the geologic record when the boundary lines of parallel strata are not conformable, and the unconformity is the result of differential movements of the crustal rocks from below and above. In this process, different phases of matter are capable of existing together in equilibrium. Also called "transition." Webster 3d.

transition elements. The elements that transition from the lanthanum to the mercuric in the periodic table. This includes the transition metals, which are used in alloys and other applications.

transmission point. A single point at which different phases of matter are capable of existing together in equilibrium. Also called "inversion point." Webster 3d.

transmission rocks. See "transition rocks."

transition zone. The area where two opposing currents are manifested by eddies, rippling, and similar turbulent conditions occurring either vertically or horizontally; or a zone between two water masses of differing physical characteristics such as temperature and/or salinity. Hy. transitman. One who operates a surveyor's instrument. Crispin.

translation twinning texture. A texture consisting of the combination of glass and/or plastic residual organic matter, exclusive of the micropore plant entities (phytorels) such as spores, cuticles, resins, and waxes. May also be associated with organic detritus. In bright coal containing little anthracylon it may be the predominant constituent. In semiplastic and split coal, particularly the latter, it is generally a minor constituent. IHC, 1963, part 1.

transmutation. Term used to describe the ability of a system either to amplify or to suppress an input vibration. It is the ratio of the corresponding output voltage or power to that of the input. APQ, 1953. Gloss.translation anomaly. The difference, in decibels, between the total transmission loss in intensity and the reduction in intensity due to an assumed inverse square divergence. Hy.

transmission loss. The level at which the energy at any point in an energy transmission system is the rate of flow of electric energy supplied to a load. This term is often used in connection with (1) a specified reference rate of flow and (2) the transmission loss by which the actual rate of flow is reduced to equal the reference rate. Hy.

transmission lines. Power transmission lines are those that transport electric energy from a source to a load. They are usually overhead lines, although underground cables are also used. Power transmission lines can be divided into two main categories: transmission lines and distribution lines.

transmitting. A device for amplifying alternating electric current by the controlled movement of a crystal of silicon or germanium, of electrons and holes.

transmitting anode. A device for amplifying alternating electric current by the controlled movement of a crystal of silicon or germanium, of electrons and holes.
transpiration. The process by which water vapor is released from a living plant and enters the atmosphere. Led.

transporter. An automated receiver/transporter for transmitting signals when triggered by an interrogating signal. Hy.

transport. A mining term used to cover various means of transporting an mineral to the surface, whether by air, water, or road. Nelson.

transportation. A mining term used to cover various means of transporting an mineral to the surface, whether by air, water, or road. Nelson.

transporter crane. A long lattice girder supported on rails which is used for transporting a load. ASCE P1826.

transverse arch kiln. An annular kiln that is divided into a series of chambers by fixed walls (hence the alternative name continuous chamber kiln). The axis of the arched roof of each chamber is transverse to the length of the kiln. This type of kiln finds use in the heavy clay industry. Dodd.

transverse arch. A arch that is transverse to the direction of working. A.G.I. Sapp.

transverse basin. Synonym of planar basin. Dodd.

transverse fault. A fault whose strike is transverse to the general strike of the structure. Dodd.

transverse to the general strike. See also crossbedding. Maltreat, 4th, p. 329.

transverse reinforcement. Links or helical reinforcement at right angles to the main reinforcement. Taylor.
traverse ripples. See Hungarian ripples.

traverse ripple mark. A ripple mark or- iented at approximate right angles to cur- rent.

traverse scour marks. Scour marks with long axes transverse to main current direc- tion. Scour marks tend to confuse with ordinary transverse ripples; have been called current ripple casts. Pettijohn.

traverse sifting with care. See top slic- ing and covering vane. Fay.

traverse strength. a. A measure of the capability of a bar of stone (or beam) sup- ported at its ends, to bear a weight or load at its center. Fay. b. The strength of a specimen tested in transverse bend- ing; normally synonymous with modulus of rupture but also used to refer to break- ing load. Taylor.

traverse water. See peripheral ven- tilation. Storer, n. 1. p. 528.

traverse wave. a. In seismology, a wave motion in which the motion of the parti- cles, or the entity that vibrates, is per- pendicular to the direction of prog- ression of the wave. b. In geophysics, a body seismic wave advancing by shear- ing displacements. a. c. A wave in which the direction of propagation of the wave is normal to the displacements of the medium, for example, a vibrating string. d. A gravity wave in which fluid parcels move in circular orbits is an ex- ample of a mixed transverse-longitudinal wave. This wave also may persist except in the case of zero current speed, when it is a transverse wave. Also called distourial wave. Hen.

traverse with lipping. See overhead stoping, b. Fay.

trap. a. A door used for cutting off a ventilat- ing current, which is occasionally opened for haulage or passage; guarded by a trapper. Fay. b. Scot. A traveling winch or in- road for miners in edge coal-driven on a tramway. Fay. d. A device in- troduced in the shafts of deep mines to align ladders in a shaft. Fay. e. A natural sub- stance, with specific properties, which is walled on top of permeable rock which is walled on top of impermeable rock, and which is known as trap. The term has no very significant, as rocks such as diabase, bot- tonic, and dacite have been included under it. Pettijohn.

trapdoor. a. A door in a mine passage to regulate or direct the ventilating current. Also called weather door. See also trap, a. Fay. b. Another term for mine door. B.C.I. c. See air door, a. B.S. 3618, 1963, sec. 2.


trapesium. A plane figure contained by four straight lines, no two of which are parallel.

trapezoidal rule. A rule for estimating the area of an irregular figure, by dividing it into parallel strips of equal width, each strip being a trapezium. See also Simpson's rule, Ham.

trap maw. See crusher feeder.

trap maw. A. An employee, normally an ap- prentice, formerly used to open and close mine doors such doors are now some- times needlessly called B.C.I. A door trapper boy; nipper; door tender. Fay. b. An employee who assists the dis- patcher by throwing signals and attend- ing the sight rails. Hem. c. Same as door boy. Kerson, d See door- man, D.O.T. 1.


trappist. A. An employee, normally an ap- prentice, formerly used to open and close mine doors such doors are now some- times needlessly called B.C.I. Also called trapper boy; nipper; door tender. Fay. c. An employee who assists the dis- patcher by throwing signals and attend- ing the sight rails. Hem. d. Same as door boy. Kerson, d See door- man, D.O.T. 1.

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A traverse survey. A survey used especially for traverser systems. The basic idea of this system is to confine the mine-car circuit to the smallest possible compass near the mine shaft. This avoids locking up cars on the surface which are better employed underground and reduces manpower requirements. In this system, instead of the use of shunt backs on car circuits, the direction of car travel is changed by running onto a portable platform which then moves the car bodily in a transverse direction. It can be applied, in conjunction with the necessary links, to multideck cars. Such trains may be operated electrically, hydraulically, or pneumatically. Sinclair, V., pp. 77-78.

A traverse survey. A survey used especially for long narrow strips of country in which a series of lines joined end to end are completely determined as to length and azi-
muth and are often used as a basis for triangulation. Webster 3d. Also used for underground surveys. Fay.

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method very similar to the Foraky system.

Trench. 1. A formation in the arrangement of the boring cable or rope, which is taken in a loop around a central pulley.

Trench. S. Afr. The act of drawing (or hauling; traction; also, the state of the roads; as, the trench was heavy. Standard, 1964.

Trench wagon. A large six-wheeled covered wagon used especially in southern Africa in trekking and designed to provide lodging and storage. It is usually seen as a means for trekkers. Webster 3d.

Trenched drainage. This arrangement of parallel brooks, which swell the volume of a creek, generally flowing at right angles to their courses, resembles a vine from whose central stem branches are trained on a trellis. It is sometimes called the trellis or grapevine system. Synonym for grapevine drainage. A.G.I. Supp.

Trench. To treat or work lots or tin slimes; to toss. An obsolete term. Standard, 1964.

trench. Stom. Shirring the "soins" (tin) in water, so that the lighter mud may run off. Fay.


trench. A box or frame of wood or metal used for depositing concrete underwater. Its upper part forms a hopper above water to receive the concrete, and it may be moved laterally or vertically by any suitable means, as a traveling crane. Standard, 1964.

Trench. An amphibole. Ca,Mg,Si(OH) - (OIII) - (OH)_{2}.

Trench. A heavy tool consisting of vertical chisels fixed to a horizontal bar and used by geologists, or of topographic features that are consequent on the geologic structure. (As used in either sense the term may or may not coincide with the strike, depending on the structural relationships at the place of observation.) Fay. E. c. All mineral deposits have a trend in occurrence of valuable minerals. That is, the ore varies from being fresh to wall and gradually or abruptly from ore to subore grade. A trend is a nonrandom factor and becomes manifest only by a statistical analysis. Lewis, p. 320.

trench agitator. An agitator with arms of the paddle wheel type, but they are hollow, and the pulp solution or air is discharged from nozzles on these arms, thus causing the stirrer to rotate. Liddell 2d, p. 392.

Trenton. A subdivision of the American Ordovician sometimes considered as the equivalent of the whole Middle Ordovician and sometimes restricted to a portion of this series. Webster 3d. b. Formerly, a division of the lower Silurian. Bureau of Mines Staff.


Trench. a. An elongated but proportionally narrow depression, with steeply sloping longitudinal borders, one of which (the continental) rises higher than the other (the oceanic). Trenches are the ends of unsymmetrical basins and lie beside the continental border or island chains. A.G.I. b. A long but narrow depression of the oceanic floor having relatively steep sides. A.G.I. c. A long, narrow, intermontane depression, occupying the center of an area large or more streams (whether expanded into lakes or not) alternately draining the depression in opposite directions. A.G.I.

Trench. An important member of the Ordonvician system in the region of the Adirondack Mountains, lying between the Black River limestone below and the Utica shale above. It is regarded as the highest member of the Chalalmian series; it is typically exposed at Trenton Falls, N.Y., and is used as a standard oil-bearing stratum in the Central States. C.T.D.

Trench process. Agglomeration process sometimes used in coal cleaning and briquetting. Raw coal crushed to 65 mesh is agitated with water and oil. Coal agglomerates and ash-forming fraction is removed in aqueous solution. Pryor, 3.

Trenoc. A large horse used in the Khil-Chandron sinking method. Nelson, b. Fr. A heavy tool consisting of vertical chisels fixed to a horizontal bar and used in boring mine shafts. Webster 3d. c. A boring machine used for shaft sinking known as a trepan. Webster.

Trencher. A cutter loader for continuous mining in longwall faces. Its main cutting unit is the trepanner wheel with cutting arms, one at each end of the machine to enable it to cut in both directions on the face. Also fitted are a vertical, back-shear- ing jib, a floor-cutting jib, duplicated to enable cutting in either direction and, if necessary, a roof-cutting disk. The machine is used in conjunction with an armored flexible conveyor on a prop-free front face, suitable for seams between 3 and 4 feet thick, though it can work in thicker seams if the top coal falls freely.

Trenching. A type of boring where an annular cut is made into a solid material with the coincidental formation of a plug or cylinder. A.G.I. Gloss.

Trench sampler. A new cutter loader in which the trepanner head is incorporated in the shear loader as the principal cutting unit, and the getting medium while the cutting drum is retained to dress the floor and back of the trench.

Trench. a. Working coal from the property or take of another coal mine owner. See also encroachment. Nelson.

Trense. an intrusion upon land occupied by another for the purpose of locating a mining claim is but a naked trespass and initiates no right; although the occupant has no other valid title than possession. Ricketts, 1.

Trench. a. A framework of timbers, carrying tram tracks. Weed, 1922. b. A bridge, usually of timber or steel, that has a number of closely spaced supports, the abutments, Nichols, c. A bent of timber, reinforced concrete, or steel, supporting a temporary or permanent structure. Standard, 1964.

Trench bridge. A bridge supported by trestle piers. Ham.

Trenching. a. The windings of coal cut into shales and slates. Caron, p. 28.

Trenching. The practice of depositing coal underwater. For example, when stockpiled in deep-sea fluor having relatively steep sides.

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trial pit

trichalcite

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trichalcite dihydrate. 3CaO.2SiO2. See also rankinite. Dodd.

trichalcite pseudohydrate. A compound, 3CaO.5Al2O3, formerly believed to be present in high-alumina hydraulic cement. It is now known that a melt of this composition consists of a mixture of CaO·Al2O3, and CaO·Al2O3, the latter compound being responsible for the hydraulic properties. Dodd.


trichalcite silicate. 3CaO.SiO2; associates at approximately 1,900° C to form CaO and 2CaO·SiO2. This compound is the principal cementing constituent of Portland cement, small quantities of MgO and Al2O3 being present in small solution. Trichalcite silicate is also present in stabilized dolomite refractories. Dodd.

trichalcite, Trichalcite (of Hermann, 1858) previously thought to be Cu2(AO)3·5H2O, is sometimes called trihydrate. Trichalcite (of Shannon, 1922) equals the sulphate langite; from Shoshone County,
trichloroethylene, trichloroethene. a. Colorless, low boiling, highly volatile liquid; toxic; liquid; CHCl₃; chloroform odor; will not attack the common metals, even in the presence of moisture; boiling point, 86.7°C; melting point, -73°C; specific gravity, 1.456 to 1.462 (at 25°C), referred to water at 25°C). Refractive index, 1.4735 (at 27°C); and flash point, (ASTM open cup), none at boiling point. CCl₃F, 1961, b. Molecular weight, 131.39; CHCl₃; specific gravity, 1.462 (at 20°C), referred to water at 4°C); boiling point, 88°C; boiling point, 87°C (at 760 mm) slightly soluble in water; and soluble in all proportions in alcohol and in ether. Handbook of Chemistry and Physics, 45th ed., 1964, p. C-314. c. A widely used industrial solvent for fats, resins, bitumens, sulfur compounds, and similar compounds. Used in dry cleaning, in degreasing, and in soap manufacture. Previously commercialized nonflammable, but found to be flammable under combinations of pressures and temperatures often occurring in normal refinery operation. Abbreviation. TCE. Bureau of Mines, Staff.

trichloroform. A property possessed by certain minerals of exhibiting three different colors when viewed in different directions. Fay.

triclorobenzene. A pond overflow pipe set vertically with its open top level with the water surface. Nichols.

tricline scale. Scale which has become detached from a pack of sheets in pack rolling, trickling in between the pack and becoming embedded in the surface of the sheet. Fay.

tricline block. In quarrying, a term applied to a block of stone bounded by 3 pairs of parallel planes, and one or more interfacial angles being right angles. Fay.

tricline crystals. Crystals having no symmetry element, or crystallographic properties of the same. The triclinic crystal has three unequal axes, no two of which are perpendicular. Hendry.

tricline system. That system of crystals in which the forms are referred to three unequal mutually oblique axes. Fay.

trichloroethylene solvent. Solvent, used for the degreasing of steel. They may be applied by immersion of the part, or by vapor or spraying. Osborne.


tricene bit. A roller bit having three cone-shaped cutters in the head of the bit. See also roller bit, b. Long.

triene roller bit. See tricone roller bit. Long.


tritidal mixture. A mixture of trinitrotoluene and di- and tri-nitrophenol used as an explosive in boosting charges. Bennett 2d, 1962.

tritium. A radioactive isotope of hydrogen, like H₂, consisting of silica, SiO₂, but differing in crystallization. In volcanic rocks. Orthorhombic.

Trit process. A process for making concrete with Portland blast furnace cement. The slag is wet ground and fed as a slurry to a concrete mixer together with Portland cement and aggregate. See also Portland blast furnace cement, Dodd. Eng. A spray used to block or stop a wheel or any machinery. Zera.


trolley circuit, trigger. A circuit having a number of states of electrical connection (which are either stable or quasi-stable) or unstable with at least one stable state and so designed that desired transition can be initiated by the application of suitable trigger excitation. By quasi-stable state, is meant a state which persists during the time of interest. NCR.

trigger effect. When rock is subjected to increasing stresses three come into existence, if it is on the point of failure. In some circumstances it may remain at that point for a considerable time. Any small external influence, such as a seismic wave, may then be sufficient to precipitate the failure. This is known as the trigger effect. Spalding.

triggers. Term applied to any number of things which may initiate or trigger rock bursts. Such triggers include explosive charges, changes of temperature, sudden influxes of water, and even rock bursts themselves which sometimes act as a trigger impulse to initiate a second burst. Issacson pp. 164-166.

trigonal. Having, in the ideal or symmetrically developed form, triangular faces; as, the trigonal triclinite. Fay.

trigonometrically. Accordingly to some crystallographers, the trigonal (or rhomboedral) division of the hexagonal system, regarded by some others as a system in itself. Fay.


trigonometrical basis. Basically this method consists of determining the vertical height by measurement of distances and angles of inclination. Angles of inclination are measured either by hand instruments, fixed on survey monuments, from which they Abney level is the best known, or more accurately by theodolite. Mason, c. Eng. A piece of bent wire by which the size of the flame of a safety lamp is regulated without removing the wire by which the size of the flame of a safety lamp is regulated. Webster 3d. D.O.T. 1. b. A short hose bored slowly outwards to trim the drivage to the shape required. Mason. d. N. of Eng.; S. Wales. One who attaches coal in the hold of a vessel (miner- ship) as the coal is discharged into it from bins. Fay, e. Scot. One who cleans miner’s lamps. Fay, i. An apparatus for trimming a pile of coal into a regular form (as a cone or prism). Webster 3d.

trigonometrical arch. An arch, usually of brickwork and of low rise used for supporting the fireplace hearth. A.C.S.C.

trigonometrical arch. A self-contained, light-weight portable conveyor, usually of the belt type, for use in unloading and delivering bulk materials from railway cars or holds of ships and barges during or after loading, using a shovel. May be designated according to material trimmed, as cog trimmer. D.O.T. 1. b. A shothole bored slightly outwards to trim the drivage to the shape required. Mason, c. Eng. A piece of bent wire by which the size of the flame of a safety lamp is regulated. Webster 3d. A piece of bent wire by which the size of the flame of a safety lamp is regulated. Webster 3d. A piece of bent wire by which the size of the flame of a safety lamp is regulated. Webster 3d. One who cleans miner’s lamps. Mason, e. Scot. One who cleans miner’s lamps. Mason, f. Apparatus for trimming a pile of coal into a regular form (as a cone or prism). Webster 3d.

trimming. a. One who distributes loose material, such as coal, rubbish, sand, or other substances in railroad cars or holds of ships and barges during or after loading, using a shovel. May be designated according to material trimmed, as coal trimmer. D.O.T. 1. b. A shothole bored slightly outwards to trim the drivage to the shape required. Mason, c. Eng. A piece of bent wire by which the size of the flame of a safety lamp is regulated. Webster 3d. D.O.T. 1. b. A short hose bored slowly outwards to trim the drivage to the shape required. Mason, d. N. of Eng.; S. Wales. One who attaches coal in the hold of a vessel (miner- ship) as the coal is discharged into it from bins. Fay, e. Scot. One who cleans miner’s lamps. Fay, f. Apparatus for trimming a pile of coal into a regular form (as a cone or prism). Webster 3d.

triquetral relief holes. Unloaded drill holes closely spaced along a line to limit the breakage of a blast. Nichols.

triquetral, a. Firs to a six-rayed twinned crystals, consisting of three individuals, which occur in chrysotyle. Shipley.

triquetral. A primitive, extinct crustacean, occurring throughout the Paleozoic and abundant in the earlier Paleozoic periods, characterized by segmented bodies divided by longitudinal grooves into three lobes. One of the Trilobita, A.G.I.


trimmable. Coal microtectone consisting of a mass of triangles, characterized by its flakey character, and by longitundinal grooves into three lobes. A.C.S.C.

trim. A rare mineral consisting of the silicates of beryllium, manganese, and calcium. Fay.

trimetric. A solid figure in which the three axes are all unequal, such as a hexagonal prism, another at right angles; orthorhombic. Gordon.

trimmer. A station used in surveying by triangulation on a large scale. Ham.

trim boles. A shothole bored slightly outwards to trim the drivage to the shape required. Mason, c. Eng. A piece of bent wire by which the size of the flame of a safety lamp is regulated. Webster 3d.


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trimmer. A station used in surveying by triangulation on a large scale. Ham.
of holes in a tunnel face. Stanfip. c. Using shapes consisting of such items as bases, caps, corn-rs, moldings, and angles, necessary or desirable to make a composite object. E.g., concrete is used in building and structural sanc-
tary purposes as well as architectural design for all types of tilework. ASTM C242-60T. See also fittings, g.

trimming. a. In drawing, shearing the ir-
regular edge of the drawn part. A.S.M. Gloss. b. In forg- ing or die casting, re-
moving the parting-line flash and gates from the part by shearing. A.S.M. Gloss. c. In casting, the removal of gates, risers, and fins. A.S.M. Gloss. d. The finishing work on the surface of an earthwork. Hem. e. The process of removing broken and jagged edges, plus a variety of imperfections from rifted mica. Trimming may be accomplished by fingers, sicle, knife, shear, or guillotine and is then named for the implement; for example, thumb-trimmed mica. Also called dressing.

trimming shed. See mica house. skew.

Trimmed. A. mixture of trinitrophenol and 
mononitrotoluene, employed in 
explosives in mining.

trimorphic. Having the property of crystal-
lizing in three different forms with the 
same chemical composition. a.g.i. sup.

trinaphthalene. Dene asphaltic petro-
leum containing 9 percent sulfur. Tomkert, 1954.

Trinidad asphalt. Same as Trinidad 
petroleum. A natural asphalt removed 
from the natural deposits in Trinidad. API Glossary.

Trinidad pitch. Same as Trinidad asphalt. The 
material is a mixture of three or more 

Trinidad tar. A. Middle Lower Cretaceous. a.g.i. sup.

trinitrotoluene; tnt. A yellow to dark brown 
crystalline substance, C6H2(NO2)3, which melts at approximately 80.9° C and has 
a specific gravity of 1.654. Insoluble in water; soluble in ethyl alcohol, etc.; boils at 205° C, decom-
poses readily at 305° and 320° C. One of the most powerful explosives, having an 
explosive wave of 23,500 feet per second in the open. Used in the 
ammunition of the armored services; some-
times used as a constituent of propelled 
explosives in mining. Cooper, pp. 343-
344; CcD 64, 1961. Yields a very 
powerful gas, and forms a black smoke upon 
boiling. Trinitrotoluene is manufactured 
by nitration of toluene. Nelson.

Trinitrovermiculite. The triad of the three 
divisions into which the Comanchean is divid-
ed. These beds are limestones, and marine orga-
nic strata in Zacatecas, Mex.; they cover half of Texas and part 
of Arizona, where a limestone member (the Glen Rose Limestone) rests upon 
continental Comanchean beds. C.T.D

tripsdrill. A resinsous substance occurring in large 
amounts of masses of a hyacinth-red to 
light yellow color in brown coal near Albana, Istria. Resembles tanasite in composition. a.g.i.

trisalicyl. a. Refers to the structure of 
layered clay minerals in which all possible 
octahedral positions of aluminum are oc-
cupied by magnesium, iron, chromium, or 
zinc. A.G.I. supp. b. Atoms filling all 
of the octahedral positions.

Triolites. A proprietary mixture of 55 per-
cent sodium fluoride, 35 percent sodium 
dichromate, and 10 percent dinitrilotriphenol. This water soluble preservative is used in 
timber preservation. Highman, p. 113.

trip. a. A small train of mine cars. Korson. b. The number of cars moved at one time 
by a transportation unit. Hadson. c. A. The cars hauled at one time by a locomotive, or by 
any motor, or at one time on a slope, 

trip change. A term used in mine transportation 
for the period during which the (loads (loaded mine cars) are taken away 
and a fresh trip of empties is brought 
back. This trip is known as trip change in 
contrast to car change. In this interval, a 
great deal of potential loading time can be 
lost, Korson.

trip check. Eng. A check with one of the 
members set a certain distance out of 
line with those above and below it; in a full 
trip check this distance is equal to the 
width of the members; in a half trip 
check it is about half the width of the members. SMIB, Paper No. 61.

trip coil. A device for opening protective 
equipment or a circuit breaker, operated 
by a solenoid. Han.

tripestone. a. Stalactite resembling intes-
stites. Arkell. b. A variety of gypsum form-
ed of crumbling laminar laminae of 
white pure gypsum and grey argillaceous 
gypsum. Arkell. c. A contorted concres-
cionary variety of anhydrite. Fay.

tripsizer. A. A variety of gypsum form-
ed of crumbling laminar laminae of 
white pure gypsum and grey argillaceous 
gypsum. Arkell. c. A contorted concres-
cionary variety of anhydrite. Fay.

trip hammer. A power hammer operated by 
a tripping mechanism which causes the 
hammer to drop. Crispin.

trip lamp. A removable self-contained mine 
explosive. Bennett 2d, 1962. See also mine lamp.

triplicate. a. A system of opening a mine 
that uses three charges of glass and 
some explosive. Bennett 2d, 1962. See also trip, d. Fay.

trip line. A name for colored-embedded 
beads or parts of stringing. A.G.I. sup.

tripod. a. A three-legged support for a rock 
work of wood or metal over a drill and 
platform composed of three principal 
legs (legs) inclined toward, and fas-
tened to, a common head. A joint with a bolt on 
which a clove and attached sheave is

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tripod bolt. A large heavy bolt that pins together the upper ends of the three tripod legs in the tripod. Long. d. A three-legged stand for supporting a theodolite, magnetometer, compass, camera, or any other instrument. G.C.

tripod drill. A reciprocating rock drill mounted on three legs and driven by steam or compressed air. The drill steel is removed and a longer drill inserted about every two feet. Fay.


triplite. An opal. Tripoli; tripoille. An incoherent, jolgitivitily silicate of the siliceous shells of diatoms. See also tripoli.

tripolyte. A very rare, moderately radioactive, yellow, or gray, natrolite, having triangular faces, each with equal intercepts on two axes and a lesser intercept on the third axis; and (2) the tetragonal triactahedron (also called trapelbendrite and icocrysticactahedron), having trapezial faces, each with equal intercepts on two axes and a lesser intercept on the third axis. Fay.

tripolite. A rare, silicate of the siliceous shells of diatoms. See also triplite. Fay.

tripod crane. A crane fitted with tripod legs. Fay.

tripod drill. A device in the run of a conveyor comprising two free drums around which the belt passes S-fashion. Nelson. D. A device having material from a belt conveyed on a conveyor. Nelson. e. A double pulley that turns a short section of a conveyor belt upside down in order to dump its load into a side chute. Nichols. d. One who trips. Webster 3d. e. A device or mechanism that trips, as a device for causing the load on a conveyor to be discharged into a hopper or other receptacle. Webster 2d. f. An automatic car dump. Webster 3d. g. A device for tipping and dumping supporting a charged into a hopper or other receptacle who trips. Webster 3d. e. A device or mechanism that receives and delivers in one stream in the direction of belt movement. Nelson.

trip in. 5th. A trip regulator. Nelson.

tripper. a. The process of pulling and/or lowering drill-string equipment in a borehole. Long. b. To open a latch or locking device, thereby allowing a door or gate to open to empty the contents of a Skip, bailer, etc. Long.

triplet. A blue green mineral, an arsenate of copper with 1 highly perfect and 1 less perfect cleavage permitting crystals to be broken up into flexible astibolites. Fay.

trippler. A blue green mineral, an arsenate of copper with 1 highly perfect and 1 less perfect cleavage permitting crystals to be broken up into flexible astibolites. Fay.

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trolley

truck without a body. The two-wheeled trolley is used in a rolling mill to wheel the work to and from the mill. The four-wheeled trolley is used in buildings and industries. A revolving trolley is used in railroads. A trolley car is a small car used on overhead wires, such as in a factory or a streetcar. A trolley is a part of a railroad track. A trolley is used to move materials in a factory or a warehouse. A trolley is a small car used on overhead wires, such as in a factory or a streetcar. A trolley is a part of a railroad track. A trolley is used to move materials in a factory or a warehouse. A trolley is a small car used on overhead wires, such as in a factory or a streetcar. A trolley is a part of a railroad track. A trolley is used to move materials in a factory or a warehouse.

trump curve. Graph used in float-separation to relate the percentage of a product which floats to the specific gravity of the particles concerned. See also ash curve. Pryor, 3.

trump. See trommel, Fay.

Trooper process. a. The first process to introduce (about 1938) the use of magnetic suspension in dense-medium washers. A magnet is suspended by 1/4 inch. It gives a reasonably accurate three-product separation. Nelson, 5. b. A means of separating solids with high specific gravity at intermediate levels. The process operates within the size range 5.6 to 200 millimeters and in practice is used for raw coal down to 1/4 inch. It gives a reasonably accurate three-product separation. Nelson, 5. c. A means of separating solids with high specific gravity at intermediate levels. The process operates within the size range 5.6 to 200 millimeters and in practice is used for raw coal down to 1/4 inch. It gives a reasonably accurate three-product separation. Nelson, 5. d. A means of separating solids with high specific gravity at intermediate levels. The process operates within the size range 5.6 to 200 millimeters and in practice is used for raw coal down to 1/4 inch. It gives a reasonably accurate three-product separation. Nelson, 5. e. A means of separating solids with high specific gravity at intermediate levels. The process operates within the size range 5.6 to 200 millimeters and in practice is used for raw coal down to 1/4 inch. It gives a reasonably accurate three-product separation. Nelson, 5. f. A means of separating solids with high specific gravity at intermediate levels. The process operates within the size range 5.6 to 200 millimeters and in practice is used for raw coal down to 1/4 inch. It gives a reasonably accurate three-product separation. Nelson, 5. g. A means of separating solids with high specific gravity at intermediate levels. The process operates within the size range 5.6 to 200 millimeters and in practice is used for raw coal down to 1/4 inch. It gives a reasonably accurate three-product separation. Nelson, 5.
tough cross-stratification

curved surface of erosion. See also festoon

cross bedding; festoon cross lamination

Petjioha.

toughed belt. A belt conveyor in which the

carrying side is made to form a shallow

ough by means of troughing idlers.

toughed belt conveyor. A belt conveyor

with the conveyor belt edges elevated on

the running run to form a trough by con-

forming to the shape of the troughed

carrying idlers or other supporting surface.

ASA MH4-1958.

tough fault. In geology, two parallel faults

bounding a dropped mass of rock between

them that has more or less the form of a

wedge. Bureau of Mines Staff.

troughs. A structural formation shaped like

a wide U, riveted or welded to form a

bridge deck with the U-shaped alter-

native. Ham.

b. Making repeated dorser pushes in one

track, so that ridges of spilled material

hold dirt in front of the blade. Nichols.

c. Eng. In Derbyshire, toadstones filling

furrows. Akell.

troughed belt. A belt conveyor

having two rows of rolls set at an angle

to form a trough, over which objects are

conveyed. See also el conveyor. ASA

MH4-1958.

toughing. In geology, two parallel faults

frequently accompanies the abrupt bend-

ing of strata passing through the middle

of the curvature. Fay.

troubleshooting. A system of checking

for the condition:

a. Any wheeled vehicle, usually self-

propelled, used to transport heavy articles

c. material. In mining, usually applied to

dump and/or bottom-dump semitrailers

used to transport 1-ton troy (1 ounce troy:

31.103 grams); 1 ounce avoidoipous ounces:

0.8223 avoirdupois pound, or 373.2599

grams. Fay. Abbreviation, lb t. Zimmer-

man, p. 83.

trow. A wooden channel for air or water.

truck. a. Any wheeled vehicle, usually self-

propelled, used to transport heavy articles

c. material. In mining, usually applied to

dump and/or bottom-dump semitrailers

used to transport 1-ton troy (1 ounce troy:

31.103 grams); 1 ounce avoidoipous ounces:

0.8223 avoirdupois pound, or 373.2599

grams. Fay. Abbreviation, lb t. Zimmer-

man, p. 83.

true crater. In explosion-formed crater no-

true depth. The actual depth of a specific

point in a borehole measured vertically

from the surface in which the borehole

was collared. Also called true vertical

depth. Long.

trucci dip. a. The angle at which veins, strata,

etc., dip, as measured vertically downward

from the horizon along a line at right

angles to the strike of the veins, strata,

etc.; also, the dip of a vein, strata, etc., as
determined on oriented core. See also core

orientation; oriented core. Compare ap-

pendip. Long. b. The maximum angle

excavation which an inclined bed makes with a

horizontal plane. It is the condition which

water would flow if poured on the smooth

upper surface of the bed at the outcrop.

Also called dip. See also apparent dip;

dip level, course. Nelson. c. Synonym

for three-dimension dip. A.G.I.

true emery. A mixture of corundum and

magnetite, with the corundum derived from

the magnetite, such as Greek or Turkish

emery, and usually has a red
dee. Long.

true fissure vein. A fissure vein with promise

of extending to great depth, in contra-

distinction to a gossanized fissure; general-

ized fissures are true fissure veins. Fay.

true folding. Same as flexure folding. A.G.I.

tru Jade. See jadeite.


true marble. The geographical north-south

plane, as distinct from the magnetic meri-

dian which is the direction of the magnetic

needle. Hem.

true middlings; bone coal. Comparatively

high-ash material so nearly homogeneous

that its quality cannot readily be improved

by crushing and cleaning. B.S. 3532, 1962.

true north. The direction from any point

on the earth's surface toward the geo-

graphic North Pole; the northerly direc-

tion along any projection of the earth's

axis upon the earth's surface, for example,

along a longitude line. Except for much

of navigational practice (which uses mag-

netic north), true north is the universal

0° (or 360°) mapping reference. True

north differs from magnetic north by the

magnetic declination at that geographic

location. HBG.

true porcelain. See hard porcelain. Rot n-

thal.

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true porosity

Porosity of open and closed pores. VV. See also porosity.

trace. Fibrous nodular lignite which when struck emits an odor like that of truffles. The horizontal section resembles a normal lignite of Cretaceous age in France. Tomkrief, 1954.


truging. Removal of an outside layer of abrasive grains on a grinding wheel to reduce its face to running true or alter the cutting face for grinding special contours. ASM Gloss.

truing-machine operator. One who grinds the surfaces of refractory blocks to reduce them to standard dimensions, using a truing machine. D.O.T. 1.


trumpet. A fire clay refractory funnel placed at the top of the assembly of guide tubes to receive molten metal from the nozzle of a battle in the bottom of steel. See also bottom pouring; guide tube, b. S.D.C.

true strain; warand; loprithod arab. Ford

true strain. See also strain.

tree. A high-capacity main road for conveying slimes, for further treatment. Webster 2d.

tree strain; watand; drab; loprithod arab. Ford

true strain. See also strain.

tree vela. An occurrence of ore, usually disseminated through a gangue of veinstone. See also porosity.

true specific gravity. The ratio of the mass of a porous solid to the mass of an equal volume of any pores being neglected. Example, a brick. Webster 2d.

true solatios. One which is homogeneous in density and volume of a porous sad, for example, a brick. Webster 2d.

true topaz. Genuine topaz as distinguished especially from citrine or topaz quartz. Shiple.

ttrue-to-scale print. A contact print made with the cutting of the negative in the dark. Especially from citrine or topaz quartz. Shiple.

true vertical depth. See true depth. Long.

true volume. A term used in relation to the density and volume of a porous solid. For example, a brick. It is defined as the volume of the solid material only, the volume of any pores being neglected. Dodd.


true width. a. The width or thickness of a vein, stratum, etc., as measured perpendicular to or normal to the dip and the strike. The true width is always the least width. Compare apparent width. Long. b. The true width of a vein in sampling may be found by the mathematical formula: w = the true hold or volume of the material; h = the angle of dip; then h = w sin a = w/sin a. In this simple formula the angle a is known from previous observations and the horizontal width sampled can be measured by the use of a level. This leaves only w to determine. It is important in the use of this formula that the horizontal width is measured at right angles to the strike. Hooe, p. 11.

true grit. Fibrous nodular lignite which when struck emits an odor like that of truffles. The horizontal section resembles a normal lignite of Cretaceous age in France. Tomkrief, 1954.

true porosity. Porosity of open and closed pores. VV. See also porosity.

true section. Line or cross section drawn with the same scale vertically and horizontally. Ham.

true solution. One which is homogeneous in nature and can be separated by evaporation or distillation. Cooper.

ttrue specific gravity. The ratio of the mass of a material to the mass of a quantity of water that, at 4°C, has a volume equal to the volume of the material at the temperature of measurement. Dodd.

ttrue strain; natural strain; logarithmic strain. The integral, over the whole of a finite interval, of the strain rate divided by the corresponding specific strain. Calculated from the cutter geometry as well as the actual change in area due to loading. Webster 2d.

true strain. See also strain.

ttrue stress. For an axially loaded bar, the load divided by the corresponding cross-section area. It differs from the stress as ordinarily defined because of the change in area due to loading. See also true stress.

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**tischernosem**

mus and carbonates, that forms under cool to temperature, semiarid, climatic condi-
sions. Synonym for tischernosem; t chrono-
term. **A.D.T.**

**tschernosem.** A red pigment consisting of stan-
tsebong. A red pigment consisting of white
tsumebite. An emerald-green basic, hydrous'
tsingtau. A variety of granite porphyry
T.U. Takeup. A mechanism for adjusting
tu. Abbreviation for thermal unit. Also ab-
tsunami. A very long water wave caused by
a submarine earthquake or volcanic erup-
ting area, on which is mounted the revolv-
tubbing. a. The watertight cast-iron lining
rubbing space.

tubbing deals. Sect. Plank put behind tub-
bing in a shaft. Fay.
tubbing plate. Eng. A cast-iron segment of a
tubbing wedge. A small wooden wedge ham-
meder between the joints of tubing plates.
tube. a. A cove with nearly circular

tube blower. A man who cleans boiler tubes.
tubing. a. A cove with nearly circular

tube bottom. One form of bottom for a con-
vertor; it is made of monolithic refractory
material, the air passages being lined with
copper tubes. See also converter. **C286-65.**
tube clamp. a. A clamp or clip for gripping a
tube or pipe; especially, a jawed tool
used in hoisting and lowering well tubes.
**D.O.T.**
tube furnace. A muffle furnace in which com-
bustion occurs within alloy tubes. **ASTM C286-65.**
tube grinder. See grinder, tubes. **D.O.T.**
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tubing deal. Sect. Plank put behind tub-
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and due to automorphic replacement of an
easily replaceable gangue by crystals
showing a strong tendency to automor-
tube reducing. Reducing both the diameter
and wall thickness of tubing with a man-
der and a pair of tapered mandrels. The
Rollite process uses a fixed, tapered mandrel, and the rolls reciprocate
tubbing. a. A cove with nearly circular

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tubing deal. Sect. Plank put behind tub-
bining in a shaft. Fay.
tubing plate. Eng. A cast-iron segment of a
tubbing wedge. A small wooden wedge ham-
meder between the joints of tubing plates.
tucking space

the pulley driven. This space provides for driving the second set of pulley boards. Stauffer.


tuck pointing. Filling in with fresh mortar of cutout or defective mortar joints in old masonry. ACGC.

tuckstone. A shaped refractory block fitting above the tank blocks of a glass furnace. The general purpose of the shelf stones is to protect the top of the tank blocks from the furnace gases and, in some types of tank furnace, to act as a seal between the tank blocks and the side and end walls. The course of tuckstones is sometimes called the tuck wall. Dodd.

tuck wall. See tuckstone.


tufa. A chemical sedimentary rock composed of calcium carbonate or of silica, deposited from solution in the water of a spring or lake, or from percolating ground water. Not to be confused with tuff. Also called calcareous tufa; calc-tufa. See also travertine; sinter. Fay.


tuff. A rock formed of compacted volcanic fragments, generally smaller than 4 millimeters in diameter. A.G.I.

tuffaceous. Characteristic of, pertaining to, containing, or resembling tuff. Not to be confused with tufaceous. Fay.

tuff breccia. A type of volcanic breccia in which the tuffaceous matrix between the blocks is abundant and comprises between 25 and 75 percent by volume. A.G.I.

tuff cone. A volcanic cone made up chiefly or wholly of tuff and other fragmentary explosively ejected material. Fay.


tuffite. An intimate mixture of finely fragmented country rock and finely divided primary volcanic material. A.G.I.

tuffite. Indurated rocks composed of a mixture of pyroclastic and sedimentary debris, especially ash and fine sand. A.G.I.

tuff lava. Applied to consolidated, lava-like tuff composed primarily of lenses of black and gray obidian lying in a tuffaceous matrix that displays a streaky, varicolored banding or eutaxitic structure. Rocks of this sort are generally considered to be the product of ash flows or nuées ardentes. Essentially synonymous with welded tuff.

tuff palagonite. A bedded tuff lava. Applied to consolidated, lava-like tuff composed primarily of lenses of black and gray obidians lying in a tuffaceous matrix that displays a streaky, varicolored banding or eutaxitic structure. Rocks of this sort are generally considered to be the product of ash flows or nuées ardentes. Essentially synonymous with welded tuff.

tufnol. Laminated plastic, light, wear-resistant; and a good insulator. Tensile strength 30,000 psi per square inch upward. Used in bearings of pressurized parts. Pryor, 3.

tuff. Eng. A soft sandstone; also, calcareous deposit. Probably a variation of tufa. Fay.


tug. The iron hook of a hoisting tub to which a tackle is fastened to pull the tub up a mine shaft. Standard, 1964.
tugger block. A useful little air hoist for small or big mines. c. Corn. tenuis. tugger man. See tugger operator. D.O.T. 1. tugger operator. In mining, one who operates a small machine or semiautomatic hoist (tugger), powered by compressed air or electricity, to raise coal, ore, rock, or supplies in a shaft or stope or along an incline inside a mine. Also called tugger man. D.O.T. 1.
tugwith. Derb. A small pole or stick used as a brake on a windlass or turnstile. Fay.
tumlite. A stone occasionally described (Marshall, 1932) as a variety of amphibole, but later (1936) Marshall thought it to be a distinct mineral. C. O. Hutton now redesignes the mineral as Na,K,Fo_4,X(Fe_2^+), etc. See also tremolite; lazurite; olivine. Fay.
tumphy. a. Used in Scotland to describe some types of amphibole, but later (1936) Marshall thought it to be a distinct mineral. C. O. Hutton now redesignes the mineral as Na,K,Fo_4,X(Fe_2^+), etc. See also tremolite; lazurite; olivine. Fay.
tumble. To smooth, clean, polish, burnish, or de- nickle. Webster 3d. Rel. Webster 3d.
tumbling barrel. A revolving barrel, cask, or box, in which objects or materials (as metal parts, castings, plastics, leather, or clothing) undergo a process (as finishing, polishing, coating, softening, or drying) by being tumbled. Then it is brought into vigorous frictional contact. Also called roller; tumble; scouring barrel. Webster 3d.
tumbling box. A tumbler barrel for small objects. Webster 3d.
tumbling crank. A crank on the end of the pump shaft for giving reciprocating motion. Fay.
tumbling mill. Any horizontally mounted cylindrical mill which tumbles its contents when rotating. Name used in foundries in connection with cleaning of castings. Pryor, 3.
tumbling shaft. The camshaft used in stamp mills. Fay.
tumbling tom. Eng. A car-tipping or dumping apparatus that turns completely over. Fay.
tumescence. In volcanology, the swelling or uparching of a volcano during periods of rising magma preceding an eruption. A.G.I.
tumulus. A swelling, or low domelike hill, or mound. Fay. Also called tumulus; tummels. Corn. A great quantity, or heap, as of ore. Fay.
tumulus. a. Used in Scotland to describe a wide range of materials occurring on top of coal seams and which often fall as the coal is worked. See also following stone, a. Eng. A carbonaceous fire clay. Fay.
tumulose. Full of small or large domelike hills in lava flows. Lewis, p. 599.
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tunna. A Wales term for a hoisting bucket; a bowk; a kibble. Fay.

tunnel. a synonym for shaft and often called a tunnel, or a rock tunnel; a. A horizontal or inclined subterranean passageway. ASA MH4.1-1958. b. A horizontal or nearly horizontal underground passage that is open to the atmosphere at both ends. The term is loosely applied in many cases to an adit. Nelson, p. 21. An adit if continued to such a hill would then be a tunnel. Any level or drift in a mine open at one end, or which may serve for adit, is often used as a synonym for adit; drift; gallery. See also adit. Fay. c. A horizontal or inclined stone drivage for development or to connect mine workings, seams, or shafts. It may be open to the surface at one end, and for drainage, ventilation, haulage, or as an egress and man-riding from mine workings. See also tunneling. Nelson, p. 136. d. A chimney flue; a tunnel. Webster 3d.

tunnel blasting. a. A blast effected by the detonation of explosives in small tunnels driven into the face at the level of the quarry floor or at the level of the terrain at the foot of the slope of the deposit. This blasting method is called tunneling. B.S. 3618, 1964, sec. 6. See heading blast. This blasting method is called tapping. Standard, 1964.

tunnel blasting. a. A method of heavy blasting in which a heading is driven into the rock and afterwards filled with explosives in large quantities, similar to a large borehole, except the heading is usually divided in two parts on the same level at right angles to the first heading, forming in plan a T, the ends of which are filled with explosives and the intermediate parts filled with inert material like an ordinary borohole. Similar to

tunnel drilling. a. A system of heading drilling in which a heading is driven into the rock and afterwards filled with explosives in large quantities, similar to a large borehole, except the heading is usually divided in two parts on the same level at right angles to the first heading, forming in plan a T, the ends of which are filled with explosives and the intermediate parts filled with inert material like an ordinary borohole. Similar to

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tunnel blasting.

1178

tunnel blasting.

1179

tunnel blasting.

1180

tunnel blasting.
tunnel blasting

gopher hole blasting. *See also* gopher hole blasting.

tunnel borer. Any boring machine for making a tunnel; often a ram carried with cutting faces operated by compressed air. *Standard*, 1904.

tunnel carriage. A new development in rapid tunneling, consisting of a combined drill carriage and manifold for water and air so that tunneling is done by driving the carriage at the face, drilling may commence with no lost time for connecting up, waiting for drill steel, etc. The car is supplied at pressures of 95 to 100 pounds per square inch. *Nelson*.

tunnel cave. A simple cave composed of one passageway into which a surface stream enters and farther on emerges at a second opening. *A.G.I.*

tunnel claim. This is not a mining claim; it only is a means of exploration and discovery. When a lode or vein is discovered in the tunnel the tunnel owner is called upon to make a location of the ground containing the vein or lode and thus create a claim. *Ricketts*.

tunnel column. A heavy bar used for mounting machine drills in large drifts or tunnels, and usually holding two machines. *Fay*.


tunnel dryer. A continuous dryer through which shaped clayware is transported on cars. It is so controlled that the humidity is high at the entrance and low at the exit. *Dodd*.

tunnel excavation. Excavation carried out completely underground and is limited in width, and in depth or height. *Carson*, p. 28.

tunnel face. The working face in an excavation or tunnel or other working place from which driving is carried out. *Franchel*.

tunneling. The operation of excavating, driving, and lining tunnels. *Nelson*.

tunnel kiln. A high temperature used in mines. *Bennett* 2d, 1962.

tunnel kiln. a. A long tunnel-shaped furnace through which ware is generally moved on cars, passing progressively through zones in which the temperature is maintained for preheating, firing, and cooling. *A.R.I.* b. A lime kiln having a tunnel for the consumption of coal, as distinguished from a flame kiln, where wood is burned. *Standard*, 1904.

tunnel-kiln-car setter. One who loads saggars filled with green ware on automatic-conveyor car that carries ware through tunnel kiln for firing. Also called kiln-car setter. D.O.T.

tunnel kiln drawer. One who unloads saggars filled with fired ware from tunnel-kiln cars, and removes them to proper location by hand truck for reuse. D.O.T. 1.

tunnel kiln operator. One who controls the operation of a tunnel kiln in which bricks are fired, and a preheating chamber in which bricks are heated, prior to firing and after drying. D.O.T. 1.

tunnel lining. a. The timber, brick, concrete, or steel supports erected in a tunnel to maintain dimensions and safe working conditions. Tunnel lining is more correctly applied to a continuous and solid casing such as concrete work. *See also* lining, a.

tunnelman. In anthracite coal mining, one who drives a tunnel in rock from one coal seam to another or through a fault (the movement of the earth having separated a once continuous seam into two sections). D.O.T. 1.

tunnel miner. A hard-headed man. A miner experienced in the use and handling of rock drills, shovel loaders, and in tunneling and blasting methods. He is wholly employed out tunneling and is usually paid a fixed rate per shift with perhaps a bonus payment for high rates of tunnel advance. *Nelson*.

tunnel right. A grant of a tunnel right through a specific piece of ground is a right to enter upon and occupy the ground for the purpose of prosecuting the work in the tunnel, and to extract therefrom waste rock or earth necessary to complete the running of the tunnel, and making the tunnel therewith after completion, as may be necessary to work the mining ground or lode owned by the party running the tunnel. By the grant of such a right a carries with it every incident and appurtenant thereto, including the right to dump the waste rock at the mouth of the tunnel on the land owned by the grantor at the time of the conveyance of the tunnel right; such right or easement being necessary for the full and free enjoyment of the tunnel right. *Rick-lett*, 1.

tunnel set. Timbers 6 to 8 inches in diameter and of sufficient height to support the roof of the tunnel and are sometimes set upon sill and usually capped with short crosspieces. *Fay*.

tunnel shaft. A shaft sunk, as in a hill, to meet a horizontal tunnel. Also called tunnel pit. *Standard*, 1904.

tunnel site. A tunnel site is made to secure an area for a tunnel. The locator of a tunnel site is given the right to all veins cut by the tunnel within 3,000 feet of its portal, and to 1,500 feet on the strike of each blind vein cut, this length may be all on one side of the tunnel or divided as desired. The veins must be blind lodes not previously known to exist. *Lewis*, p. 28. b. There is no distinction between a tunnel claim under which a tunnel is run for the development of veins or lodes already located, and one pursuant to which a tunnel is projected for blind veins or lodes. *Lewis*. (1) See steel tunnel support. *Lewis*, p. 54. See also tunnel lining.

tunnel system. A method of mining in which tunnels or drifts are extended at regular intervals from the floor of the pit into the ore body. The extension of the drift beyond the working face is made great enough to facilitate the handling of several cars at a time. The ore is mined above the drift, and the cars are loaded by lifting short boards which span an opening, through the lagging on and above, the ore; the drift is then driven. This method avoids the construction of raises and chutes, and facilitates the filling of the cars. *Fay*.

tuple. a. Eng. An early custom of covering with lighted candles the last corf of coal sent to the bank at the beginning of the fortnight's height of the vein, when stock was taken and no coal hoisted. This was called "sending away the top." *Fay*. b. In a tunnel, to fall, weight of a piledriver, drophammer, etc.; specifically, the heavy head of a steam hammer in which the upper pallet is secured. *Webster* 2d.

tunnel blaster. A very rare, weakly to moderately radioactive, orthorhombic, olive-green mineral, Cu3(VO4)(OH), found with vanadium and uranium minerals in cavities in limestones; from Tuva Mountains, Fergana, Russian Turkistan; occurs as radiomorphs and spherical concretions with a radiolite structure. *Crosby*, p. 83. A vanadium ore. *Osborne*.

turbine. Sp. Dung mixed with coal and molded into adobe and used as fuel in brickklin. *Fay*.


turbary. a. The ground where turf or peat may be dug especially for fuel; prart bog. *Webster* 3d. b. An easement under English law, the right of a person on a common or another's land. *Webster* 3d. A right of turbary is confined to such quantity of land as is sufficient to form a useful mass, the common which is appendant. *Fay*. c. Peaty. *Gordon*.

turbine. a. A rotary engine actuated by the movement of the earth having separated a once continuous seam into two sections. D.O.T. 1.

turbidity. Determination of concentration of very finely divided and slow-settling particles in a liquid. Made by measurement of interference exerted on ray of light, by means of a photoelectric cell. Turbidity also measures average rate of fall (a diminution of concentration and of interference) of these particles. *Pyor*, 3.


turbidity. The state or condition of having the transparent quality of water impaired, as when sediment in water is stirred up, or when dust, haze, clouds, etc., appear in the atmosphere because of wind or volcanic activity. *HGC*.

turbidity current. A large volume, rapid, down-slope underwater current, usually generated by the movement of sediment or water. Causes a slumping of sediment on the slope and start's a flow of sediment and water. With the increased density of the sediment-water mixture the flow increases and picks up additional sediment and water. Velocities of 55 kts. have been estimated. *Hy*. See also density current.

turbidity size analysis. Size analysis based upon the amount of turbidity in a suspension, the turbidity being due to the size of the particles. *HGC*.

turbidity. A current produced by the reaction or impulse or both of a current of fluid (as water, steam, gas, or mercury) subject to pressure and usually made with a series of curved vanes on a central spindle arranged to rotate with the whole being enclosed by a casing provided with redirecting vanes and passageways which permit the inlet and outlet of the fluid in a desired manner. *Com- 

n 1174

turbine

turbine

a pressure head to water. See also steam turbine. Nelson.

turbine blades. See gas turbine. Dodd.

turbine pump. A centrifugal pump with a shrouded
impeller and receiving the water at its cen-
ter. A diffusion ring containing vanes surrounds the pump and direction the
impeller discharge into a circular casing
which delivers into the eye of the next
impeller in use. The diffusion ring con-
verts the high-velocity discharge of the
impeller into pressure head. The turbine
pump is widely used in mines. See also
diffuser chamber. Nelson.

turbozonal fan. An axial flow fan with a tur-
bine air-type impeller. B.S. 3816, 1963,
sec. 2.

turbocompressor. The type of machine com-
monly installed at collieries where a large volume of compressed air is re-
quired. A single unit can deliver 10,000
cubic feet free air per minute, and the floor space occupied is a mini-
imum for these capacities. It is also ideal-
ly suited for direct drive by a steam tur-
bine, and this combination is commonly found at collieries. The compressor con-
sists essentially of a number of impellers
located one behind another and running in a fixed
 casing with specially shaped passages.
Each impeller is in the form of a hollow wheel,
the two sides being united by curved vanes. Mason, V.2, p. 376.

turbodrill. A drill developed in the U.S.S.R.
for drilling deep oil wells. One type is de-
dsigned as a turbine and driven by the
lifting fluid which is circulated at high
speed as it passes through the turbine.

turbodrilling. A system of drilling in which
the bit is directly driven by a turbine at
the bottom of the hole. B.S. 3816, 1963,
sec. 3.

turboglyph. See flute cast. Pettijohn.

turbojet engine. A thermal jet in which the
air is compressed by a rotating compres-
sor, heated either by fuel combustion at compressor pressure, then
thrown through a gas turbine that drives the compressor and finally, ejected at high
velocity through the rearward exhaust
nozzle. Shell Oil Co.

turbulent. a. Same as peat. There are several vari-
eties, as white, brown, black, stone, gas,
or candle turf. Fay.

turfturf. Same as peat charcoal. Standard,
1964.

turfing. Covering a bare earth surface with
gas turf cut from another site. Turf of
selected grass is very suitable for use as a resement to a slope. Ham.

turfing iron; turfing spade. An implement for
revetment to a slope. Ham.

turf peat. Yellow-brown to wood-brown peat containing distinct plant remains.
Tomkeieff, 1954.

turf spade. A long narrow spade for cutting
digging turf, peat, etc. Standard, 1964.

turgide; hydroermatite. An iron ore interme-
tiate between hematite and limonite, con-
sisting of hydrous basic oxide, 2FeO•3H2O.
It is fibrous and red in the mass, with
an orange tint when powdered. Fay; Dana 17.

turjute. A coarse-grained rock consisting
primarily of melilitite, biotite, and nepheline.
A.C.I.

turkey brown; Turkey umber. Natural earth
which serves as a permanent pigment.
Contains iron oxides, manganese oxides,
and some clay. CCD 64, 1961.

turkey fat. In Missouri, a local name for a
variety of smithsonite, colored yellow by
its shape when powdered. Fay; Dana 17.

turn angles. To measure the angle between
directions with a surveying instrument.
Nichols.

turn barrel. Mid. A hand windlass; also
called jackroll. Fay.

turn bat. A wooden stick used in turning the
long, which holds a hook under the
hammer. Fay.

turn beam. Eng. One of the beams which
support the hoist for a hoisting machine.

turnbuckle. a. A form of coupling to threaded
or swiveled that by turning can be regulated. Zern.
b. See screw shackle. Ham.

turn bolt. A bolt turned in a lathe to a close
tolerance and used in steel-to-steel con-
nections. Ham.

turned vertical shaft. A shaft sunk vertically
in the hanging wall block until it inter-
sects the reef after which it continues
down at an angle in the footwall parallel
of a rope or rod may be regulated. Zern.
b. See screw shackle. Ham.

turning point. A point where workings turn
to a slope. Ham.

turning point. The point between survey lines. See also traverse. Ham.

turns. a. A point on which both a minus sign
(south) and a plus sign (backnight) are
taken on a line of direct levels. Sealy,
2. c. A point whose elevation is
taken from two or more instrument po-

turns. A term used with any device used to turn pulley. A sheave fixed at the inside end
turnover. a. In cyclic mining, the moving
turnout boy. One who removes glassware from
turnoff. a. Aust. The point where a branch
turning vane. Curved strips of short radii
rotary table, a. Long.
top drilling pipe. Pryor, 3. d. A base that
verser. Nelson. c. In oil well drilling, a
or twin track. See also shunt back; tra-
treasure. See treasure. Fay.
turn ree. Derb. A sort of windlass for hoisting
Turoelian. Middle Upper Cretaceous A.G.I.
turpentine substances. Petroleum products
usual intermediate between gasoline and illuminating
Turku archipelago. In the language of the
10.
turnoff. a. Aust. The point where a branch
tramsingle or picking place for skips on a haulage road. A turnout. Fay.
turnout. a. A contrivance for passing from one track to another. The principal parts
are the switch, the frog, and two guard-rails. Zern, p. 477. b. The branching off of one rail track from another. Nelson.
c. A siding. Hudson. d. The movable
turnover of the conveyor in a machine-cut
freight train yard. See also conventional
train yard. See also conventional
truss. A. a. A framework of beams, either
independently, or bonded together to stiffen
a large structure such as a bridge or 
arch. b. A girder bridge. c. A frame or supporting framework of girders used to
support a roof. d. A framed framework of
emptying the hopper. See also hoister.
truck. See car trucks. Fay.
turntable. See rotating platform.
twist. A. Ing. A decorator's tool or brush
for laying pattern in clay. b. A decorativ
design made with a twist brush. c. A
design that appears to have been formed
by twisting. d. A decorative design made by twisting. e. An angular compartment or
section resulting from twisting. f. A
pattern or design formed by twisting.
wad. A. a. A mass of clay or other suitable
material that is thrown between rolls or
plungers. b. A mass of clay or a similar
material used as a seal or for holding the
ends of a rod or a wire. c. A mass of clay
or a similar material used as a seal for
holding the ends of a rod or a wire.
having instead of the points, flat terminations, one parallel to the handle, and the other sometimes oval, the latter generally pointed. Webster 2c, 1956.


twill cloth. Weave used in screens and filters, in which two or more warp threads intersect and form a one wood thread. Pryor, 3.

twin. Two portions of a crystal having a definite crystallographic relationship; one may be regarded as the parent, the other as the twin. The orientation of the twin is either a mirror image of the orientation of a twinning plane, or an orientation that can be derived by rotating the twin portion about a twin axis.

twin-arc welding process. The use of two small diameter electrodes in place of one larger electrode in a single submerged welding head. D.O.T. 1.

twin boy. In bituminous coal mining, one who works along a passing or return rib or through the overhand haulage system. D.O.T. 1.

twin cable. An aerial ropeway which has parallel track cables with carriers running in opposite directions; both rows of carriers are in line with other grooves in the rolls. Ham.


Twin Creek series. Dark calcareous shales and shaly limestones representing a marine intercalation in the continental Jurassic strata of Wyoming. Underlain by edian sandstones and succeeded by the Beekmantown formation. C.T.D.

Twin entry. A pair of parallel entries, one of which is an intake air course and the other the return air course. Rooms can be worked from both entries. Often called double entry. Fay.

twin-gear press. A crank press in which the drive gears are attached to both ends of the crankshaft. ASM Gloss.

twining axis. Any direction in a twin that has the same relation to the lattices of both parts of the twin. It is always normal to a twinning plane, and at least one of these is always rational with respect to the lattices. A.G.I.

Twinning laminae. The laminae or thin plates in rocks. See also twin, 1. Shippy.

twining law. The special and characteristic method according to which twin crystals of any minerals are formed in nature. A.G.I.

twining plane. 1. A twin crystal, a plane normal to the twinning axis. Fay.

twinoiloscope. A type of oiloscope used to detect and mark twinning and determine the sense of orientation in etched sections. AM, 1.

Twinscope. An instrument employing a divided beam to examine etched wafer's for twinning. AM, 1.

twin packer. A packer designed so that a borehole can be sealed simultaneously at two separated points. Long.

twin plate process. A process for the simultaneous grinding and polishing of both faces of a glass, and of any produced ribbon of glass; the complete flow line is nearly 1,300 feet long. Dodd.

twin pressure packer. Synonym for twin packer. Long.

twin seam. Aust. Two seams of coal so close together they can be worked in conjunction, or one following closely on the other. Fay.

twin frame. A pair of parallel entries, one of which is an intake air course and the other the return air course. Rooms can be worked from both entries. Often called double entry. Fay.

twin twist drill. A drill made by twisting a length of steel or rectangular or oval section into a spiral form, hence, the term twist drill. Long.

Many bands of coal and drill holes are of this type and the rotation of the drill spiral removes the cuttings from the hole. See also auxiliary ventilation. Nelson.

twin loop splice. Made by holding the bared wires side by side. Half of their length is then bent back to form a loop at the end. The loop is then twisted around the main shank of wire. Carron, p. 326.


twister operator. In the asbestos products industry, one who twists together two or more strands of wire and asbestos yarn for use in weaving asbestos products, such as brake linings. D.O.T. 1.

Twisting force; turning force. A force, such as the force on the drill string, caused by excessive torsional stress. Long.

twister. A single or double cycle engine having an adjustable or rectangular form. Ham.

two-cycle engine. An engine in which only two strokes of the piston, corresponding to one revolution of the crankshaft, are required to complete the cycle. In a two cycle engine, one explosion occurs each downward stroke of the piston, the fresh charge being admitted and the exhaust gases expelled during the upward stroke. For the same number of revolutions of the crankshaft, there are twice as many explosions as there are cylinders in the cylinder of a two-cycle engine as in that of a four-cycle engine. Zern, p. 332.

two-fan auxiliary ventilation; overlap auxiliary ventilation. An arrangement, using two auxiliary fans, for ventilating a mine tunnel at hard hanging. It consists of an exhausting fan with rigid ducting to within about 100 feet of the face, and a forcing fan using a flexible duct discharging air about 20 feet from the face. The duct of the two units overlaps at least 30 feet to minimize recirculation of air. The air delivered by the forcing fan does not exceed about one-third that removed by the exhaust fan. See also auxiliary ventilation. Nelson.

two-high mill. Contains two horizontal rolls, one above the other. In some two-high mills the direction of rolling can be reversed, and these are known as reversing mills, so that it is possible to pass through the rolls, the rolls are stopped and then rotated in the opposite direction, thus inverting and reversing the operation being repeated until the desired reduction is attained. Between passes, adjustment is made by shifting the height of the top roll, and/or the piece is moved sideways by means of manipulators, to be in line with other grooves in the rolls. Osborne, p. 357.

Two-bended arch. A rigid frame which is hinged at both supports. It may have an arched or rectangular form. Ham.

Two intakes; double intakes. The provision of two intake air courses, generally one side to a ventilizing district of a mine. Nelson.

Two-jaw chuck. A chuck equipped with two movable clamping or gripping jaws by means of which the motion of the chuck is imparted to the drill rod. Long.

two-leg sling. A sling having two chains or ropes which hang from a shimplie. See also three-leg sling. Ham.

Two-liquid differential manometer. Consists of two concentric glass tubes, each expanded into a large bulb at the upper end. The lower end of the outer tube is sealed and the inner tube reaches nearly to the bottom of the outer tube. Two liquids are used and the movement of the interface between the two liquids down the central tube is used as an index against which the change in pressure is measured. It is essential that the two liquids do not mix and that neither is soluble in the other. Roberto, p. 28-29.


Two-minute lighter. See cheese stick. South.
two-piece set

A set of timbers consisting of a cap and a single post. If the ground is loose and must be supported over the side of the shaft, two-inch boards are used. These boards extend from the center line of the post or the center line of the cap to the original center line of the post or cap. If they are placed touching each other, such an arrangement is called tight lagging; if a few inches apart, depending on the nature of the ground to be held back, it is called open lagging. Lewis, p. 40.

two-pipe steam system. A heating system in which one pipe is used for supplying steam to the radiator and another pipe is used to return cooled water or condensate to the boiler. Strock, 10.

two-plane idler. A rolling idler in which the rolling trough rolls are in a vertical plane separate from but parallel to a vertical plane through the shaft of the conveyor rolls. NEMA MBI-1956.

two-point press. A mechanical press in which the slide is actuated by two connections.

ASM Gloss.


type-D drift indicator. A single-shot borehole-surveying instrument that records the compass bearing and inclination of the course of a borehole through the action of a strong beam of light directed through the borehole in one direction, and reflected through a special paper disk. It is similar to, but larger than, a type-D drift indicator. Long.

type metal. A series of alloys containing 14 to 25 percent lead, 2 to 28 percent antimony, and 2 to 20 percent tin, used to make printing type. ASM Gloss.

type mineral. The actual mineral specimen used for study resulting in its being identified as a new species. It is not uncommon to find different species resembling each other closely from the same type locality hence importance of a type mineral. Hess.

type of coal. a. The concept type with the restricted meaning recognized by the U.S. Bureau of Mines provides a means for classifying standard varieties of coal microscopically on the basis of simple proportions of anthraxolphor and anthraxolphor and aromatic and naphthenic oil into bands and non-banded coals. There is no term in the Stoesl-Heerlen nomenclature system precise synonymous with the word type as used by the U.S. Bureau of Mines and no similar type classification. IHCP, 1963, part 1. b. Although the word type has the common meaning of variety, it was applied to coal with restricted significance by D. White (1909). According to D. White, a type of coal is a variety initially determined by the nature of the ingredient matter, the conditions of origin, and the way of operation of the first or biochemical process of coal making. Although every individual coal belongs to one or another type of coal, no systematic and comprehensive classification of coal by type exists. Coals designated as humus coal, resinosous coal, spore coal, leaf coal, bark coal, etc., represent coal types. Some coal chemists, at least since 1848, have used the term type with a meaning similar to that of the term rank but such a meaning of type does not have a basis in fact and is not valid by coal geologists and petrologists. IHCP, 1963, part 1.

types. Soot. Irregularities in a mine roof; also called types. Fay.

Type S hydrated lime; special hydrated lime. An ASTM designation to distinguish a structural hydrate from a normal hydrated lime, designation Type N, that possesses specified plasticity and gradation requirements. It may be dolomitic or high calcium and is more precisely milled than Type N hydrates. Boynton.

type specimen. A specimen or individual designated as a type of a species or lesser group and serving as the final criterion of the characterizations of that group. Webster 3d.

type variety. Variations in coal caused by differences in the physical constitution or makeup of coal, that is, differences in the quality or distribution of the combined ingredients throughout the coal specimen. A.O.I.

Type-W drift indicator. A mechanical single-shot borehole-surveying instrument for determining the compass bearing and inclination of the course of a borehole when a strake, or where two veins cross each other or where two pipes cross obliquely. Fay. c. Corn. An addit or drift indicator. A sluicebox as used for the extraction of the heavy sands in tailings. Sometimes spelled tie. Fay.

tyler of pumps. Corn. A set of pumps of particular size; usually in a factory, the first draws in a fresh charge on one cylinder while the second draws on the other. Strock, 10.

tyler stone. A large clay plug filling an open space in the front jackets of a smelting furnace, through which the taphole passes. Standard, 1964.

tyndall effect. The reflection of strong beam of light by colloids suspended in solution. No such refraction is shown by true solutions. Fay.

tyndallometer; tyndalloscope. An instrument which measures the intensity of the light scattered at an angle from the incident beam by a dust cloud. It correlates well with the concentration determined by the thermal conductivity moisture area calculations. Fay. Standard, 1964.


type. a. Those differences in coals that are due to variations in the kind of plant material of which the coal is composed, whereby such varieties as common banded coals, cannel coal, algal coal, and spinit coal are produced. A.O.I. b. A kind, particularly in petrology (rock type); either general (for example, basalt is a rock type) or particularly (for example, a particular basalt from a particular locality is a unique type specified by a description). Chalimor.

type-D drift indicator. A single-shot borehole-surveying instrument utilizing photographic paper on which is recorded the compass bearing and inclination of the course of a borehole. The type-D instrument, when mounted in a special thin-walled protective container, is small enough to be used in an A.O.I. hole. Long.

type locality. a. The place at which a formation is typically displayed and from which it is named; also, the place at which a fossil or other geologic feature is displayed in typical form. Fay. b. The rock outcropping or mine from which a species or rock of mineral was first obtained. Hess.

type-M drift indicator. A single-shot borehole-surveying instrument that records the compass bearing and inclination of the course of a borehole through the action of a strong beam of light directed through the borehole in one direction, and reflected through a special paper disk. It is similar to, but larger than, a type-D drift indicator. Long.
typhon. Synonym for boss; stock. Fay.

typhonic rocks. Broeniat's name for rocks that have come from the depths of the earth, that is, plutonic and eruptive rocks.

typhomorphic. a. Applied to minerals typically developed in only narrow ranges of pressure and temperature. Baume, 1950, p. 161. b. Applied to minerals characteristic of the particular set of physical conditions within which they are normally found. Holmes, 1928.

typhomorphic minerals. Minerals that are stable in a given metamorphic facies; for example, in Eskola's greenschist facies, typical minerals are albite, sercite, chlorite, tale, serpentine, epidote, calcite, and dolomite. All of these minerals are stable under the conditions of the greenschist facies, but some may also occur in other facies. Compare critical minerals. Schieferdecker.

tyre valve. Adjustable annular ring mode of plastic (or metal) to control aperture area at apex of hydrocyclone. Pryor, 3.

tyrifite. a. A variety of fergusonite found near Arzen, France. Fay. Same as sipyrite. Crosby, p. 21.


U a. Symbol for potential energy; total energy; internal energy or intrinsic energy; total internal energy or total intrinsic energy; internal energy or intrinsic energy per mole; radiant energy. Handbook of Chemistry and Physics, 45th ed., 1964, p. F-101. b. Symbol for overall coefficient of heat transfer. Zimmerman, p. 147.

u-bend die. A die, commonly used in press-brake forming, machined horizontally with a square or rectangular cross-sectional opening which provides two edges over which the material is drawn into a channel shape. ASM Gloss.

U-Bit. A popular type rotary bit used in British mining practice. It has two cutting legs; although some American and German bits employ three legs. A core is formed between the legs which is broken off as cutting proceeds, while some bits have a core cutting device consisting of a tungsten carbide tip in the center. Frankel, v.1, Art. 6.21, p. 21.


ugandite. An extrusive rock containing leucoxene, augite, and much olivine in a sodalite-rich glassy matrix. A dark variety of olivine leucite.

U-Power-Selective process. A direct extrusion process for metals that uses molten glass to insulate the hot billet and to act as a lubricant. ASM Gloss.


Uima formation. Stratigraphic term used to describe a unit that forms rounded masses of extremely fine accicular white crystals. Triclinic. Also called boronortocalcite. Fay. See also natronborocalcite. Hey, 24, 1955.

ulmaninite. Sulfitonitrite of nickel, NiSbS or NiSb; arsenic is often present in small amounts. Also called nickel antimonide. Fay.

Ullrich magnetic separators. Spinning devices that separate magnetic materials from non-magnetic materials using magnetic fields. Stanley, 1964.

ulmin. A subvariety of euvitrite. It is composed of completely jellified plant material that may, for example, lie on the end of a partly jellified stem and be observable microscopically. It differs from collinitc, a. as applicable in special cases for vitrinite devoid of structure. Compare collinitc, a. G.I.

ulmin acids. See ulmin. A.G.I.


ulminite. A variety of euvitrite. The micropetrological constituent or matrix of ulmin. It consists of completely jellified but not precipitated plant material. Approved by the Heerlen Committee of 1935 as applicable in special cases for vitrinite devoid of structure. Compare collinitc, a. G.I.

ulmin. The products of decay of vegetable matter and their prototypes occurring in coal as a gel. In the past, variously termed ulmin acids, humic acids, and humic substances.

urichite. A hyphal rock composed essentially of large phycocysts of alkaline feldspars, sodic pyroxenes, amphibole, and naphthene with smaller phycocysts of accessory of olivine. Feldspar, pyroxene, and amphibole occur in the groundmass. A porphyritic variety of olivine-bearing phonolite. A.G.I.

Urea. Ureine. The Devonian A.G.I. Supp. ultimate analysis. a. The determination of the elements contained in a compound as distinguished from proximate analysis, which is the determination of the compounds contained in a mixture. Standard, 1964.
ultimate analysis

b. In the case of coal and coke, the determination of carbon and hydrogen in the material, as found in the gaseous products of complete combustion, the determination of sulfur, nitrogen, and ash in the material as a whole, and the estimation of oxygen by difference.

ultimate baselevel. A baselevel at or below ultimate bearing capacity. The average load ultimate ca. The percent of CO2 which ultimate compressive strength. That at which ultimate recovery. The quantity of oil or ultimate strength. The ultimate strength of ultrabasic rocks. Igneous rocks containing less silica than the basic rocks (that is, less than 45 percent) and characterized by a high content of mafic constituents, particularly olivine (in the peridotites), and amphiboles and pyroxenes (in the peridotites and picrites). C.T.D. Also called ultrabasites.

ultrabasite. A black-gray, basic sulfantimonite of lead, silver, and germanium, 28Pb1,11AgS3,3GeS3,28SbS6. Orthorhombic. Crystals of tetragonal habit. From Freiberg, Saxony, Germany. English, ultra deep. A. Mining below a depth hitherto warranted by conditions of temperature, etc. On the Witzwatertand ultradepo levels are reached at between 8,000 and 10,000 feet below the surface. See also deep level, 1. Beerman, 1956, p. 249.

ultralite. Trademark name for a red-violet synthetic ultramarine. A. A costly pigment formerly made by powdering the product from calcining essentially from lapis lazuli after the natural ultramarine has been removed. Standard, 1964.


ultramarine yellow. A lemon-yellow pigment consisting of barium chromate. Fay


ultrasonic drilling. A vibration drilling technique which can be used in drilling, cutting, and shaping of hard materials. In this method, ultrasonic vibrations are generated by the compression and extension of a core of electrostrictive or magnetostrictive material in a rapidly alternating electric or magnetic field. The more easily assembled is a magnetostrictive transducer and the most common magnetostrictive materials, which vibrate in dimension when magnetized, are nickel and vanadium perendur. Mining and Minerals Engineering, v. 1, No. 5, January, 1965, p. 176.

ultrasonic inspection. A beam of acoustical radiation with a frequency higher than the frequency range for audible sound. A.S.M. Gloss.

ultrasonic cleaning. Immersion cleaning, aided by ultrasonic waves which cause microagitation. A.S.M. Gloss.

ultrasonic equipment. The word ultrasonic signifies vibration at a frequency greater than the maximum audible frequency, and should not be confused with supersonic, which signifies a velocity greater than that of sound. Ultrasonic vibrations can be generated by piezoelectric ceramics, by magnetostrictive devices, or by whistles in which there is a steel blade vibrated by a high-pressure jet of liquid. Ultrasonic equipment has been used in the ceramic industry for the dispersion of clay slips, for metal cleaning prior to vitreous enameling, and for flaw detection, particularly in large electrical porcelain and for nuclear inspection. A device for producing electronic waves of ultrasonic frequency. A.S.M. Gloss.

ultrasonic inspection; supersonic testing. A nondestructive method based upon the fact that ultrasonic waves are reflected and refracted at the boundaries.
of a solid medium, from which it is possible to obtain the echoes of a wave transmitted from the surface of a test piece. In addition to being reflected from the boundary of the specimen at which they are directed, the waves are also reflected back by any flaws which lie in the path of the wave. 

ultrasonic. The acoustic field involving ultrasonic frequencies. ASM Gloss. See also ultrasonic testing.

ultrasonic tests. Those in which ultrasonics. The acoustic field involving ultrasonic frequencies. ASM Gloss. See also ultrasonic testing.

ultrasonography. A modification of the use of ultrasonic waves for the detection of internal flaws in metals. By using a persistent screen cathode ray tube and causing the echoes to brighten the trace in inverse ratio of depth, an ultrasonic image is produced which can be examined and interpreted like a radiograph. Osborne.

ultraviolet. 1. Of radiation beyond the visible spectrum at its violet end; having a wavelength shorter than that of visible light, yet longer than that of X-rays. Webster 3d. 2. Relating to, producing, or employing ultraviolet radiation. Webber.

ultraviolet absorbing glass. Glasses can be made to absorb ultraviolet light, while transmitting visible light, by the inclusion of CeO2 in the batch. Other elements absorbing ultraviolet light include chromium, cobalt, copper, selenium, neodymium, nickel, titanium, uranium, and vanadium. Dodd.

ultraviolet glass. Glass which allows the passage of ultraviolet light rays. Such glasses are low in ferric oxide and titanium oxide and high in boron oxide and silica seem to be advantageous. Clear fused quartz is the most perfect glass but is too expensive for most uses. Wood's glass containing such a small proportion of the oxides; as luminous porcelain enamels. For cutting at floor level a unbalanced shothole. A shothole in which only one cage in a hoist is used, as opposed to the double cage system. Nelson.

ultraviolet light. Black light. Invisible light rays from the portion of the spectrum that lies beyond the violet on the shorter wavelength side. Used to induce chemical activity and produce fluorescence in many substances, as luminous porcelain enamels. Exem. Diet.

ultraviolet rays. Electromagnetic waves in the wavelength between visible light rays and X-rays. The ultraviolet light field furnishes a quick method of finding and identifying certain metals, for example, tungsten. Nelson.

ultraviolet testing. For high transmittance of ultraviolet light, a glass plate is used. A light filter with deep bottom cut in a thin sheet where the vertical distance from the explosive to the inner end of the cut is shorter than the horizontal distance to the exposed face of the specimen. 

unbalanced stress. A stress that acts on a body and is not balanced by another and opposite stress. Whether the unbalanced stress acts on a body, that body is not in equilibrium, and movement (deformation) ensues. Stokes and Barnes, 1955.

unburned brick. Brick manufactured by processes which do not require kiln burning to develop the strength of the finished product. A.R.I.

unburned refractories. Refractories shaped without burning, by use of high pressures after deaeration to reduce voids between grains. Chemical bonding and metal encasement are also used. C.C.D 6d, 1961.

uncertainty principle. A principle in quantum mechanics. It is impossible to assert in terms of the ordinary conventions of geometrical position, and of motion that a particle (as an electron) is at the same time at a specified point and moving with a specified velocity. Frondel, p. 193.

unbutt. A block to bluish-black, rare secondary mineral, close to (UO2) (MoO3). 4H2O, the only known uranium mineral that contains molybdenum as a constituent; contains 47.4 percent uranium. Monoclinic. Frondel, p. 193.

uncontrollable. A person to whose sole decision a controversy or question between parties is referred. Webster 2d. As one who performs control assays. Fay. As an assay made by a third party to settle a difference found in the results of assays made by the purchaser and seller of ore. Fay. Uncontrollable assay. See assay, b. von Berns. U.M. plate. Universal mill plate, or plate which is rolled to thickness by vertical rolls as well as by rolls rolled to thickness by horizontal rolls. Osborne.

unquenchable. A plutonic rock composed largely of melilitie, with pyroxene, opaque oxides, perovskite, apatite, calcite, anatase, melanite, and occasionally phillogpite. A.G.I.

unconfined compression apparatus. A portable apparatus for carrying out shear tests at the site. It consists of two metal platforms, one being fixed, while the other can be moved vertically and supported in position by a coil spring. By rotating the movable platform the height of the soil specimen is varied. The sample soil is held between two coned endpieces attached to the platforms. An unconfined cylindrical compression apparatus is placed in position so that there is no tension in the coil spring and the automatic recording arm is set. For the compression index test the specimen is rolled vertically until the soil specimen fails either by bulging or collapsing, or by shearing at an angle to the vertical axis. The compressive stress required to cause failure in a clay sample is at least twice the value of the shear stress. The sample must be sufficiently firm to be placed in the apparatus. Nelson.

unconfined compression test. A crushing test carried out on a soil or rock specimen without lateral restraint. See also triaxial compression test, a; compression strength. Ham.


unconformability. See unconformity. Fay.

unconformity by erosion. An erosional unconformity, as an exposure resulting from a persistent, irregular, or undulating surface of the sedimentary deposits, above which the erosional surface of the underlying deposits lies. J. T. S. Foreman.

unconformability of dip. The break in the sequence of formations which lies between the previously uplifted and denuded edges of older rock. Standard, 1964.
undercutting

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unconformability of overlap

Discrepancy in areal extent between two contiguous superimposed strata, even where they have a common dip, the edge of one stratum overlapping that of the other; indicative of gentle subsidence without perceptible movement, as described by European geologists, unconformability of transgression.

See underbreak. See underhand stoping.

undulation. a. A large, wavelike fold in the uncut value; unreduced value. S. Afr. Value.

undulation theory. A theory of mountain building proposed by van Beuningen that assumes that long broad anticlines of basement rock rise like huge waves in the crust. The sedimentary cover and sometimes the basement itself slide off to form the folds and faults observed in orogeny.

unconsolidated. Uncemented and/or конкрет не залегающий по отношению к нижележащему; не совпадающий с ним с разницей в возрасте и параллельностью расположения.

unconformable. Having the relation of unconformity to the underlying rocks: not succeeding the underlying strata in immediate order of age and in parallel position.

unconformable coast. See transverse coast.

unconformity. a. A surface of erosion or nondeposition, usually the former, that separates younger strata from older rocks. See also angular unconformity; disconformity; local unconformity; nonconformity. (1965, p. 422. b. A substantial break in the continuity of deposition, where one rock formation is overlain by another that is not the next in geologic order.) See also B.S. 3618, 1964, sec. 1.

unconsolidated. Uncemented and/or compacted. Bureau of Mines Staff.

unconsolidated deposits. Deposits consisting of uncremented clastic or organic material.

unconsolidated strata. Rocks consisting of loosely coherent or uncremented particles, whether occurring at the surface or at depth. B.S. 3618, 1965, sec. 1.

unconsolidated-untrained test. quick test.

A soil test in which the water content of the test specimen remains practically unchanged during the application of the confining pressure and the additional axial (or shearing) force. ASCE P1826.

uncouple. To uncouple or disconnect. Long.

unctuous. Greasy or sticky to the touch, as certain mineral or organic materials.

uncut. a. A diamond the original shape of which has not been altered artificially. Long. b. Undated. Bureau of Mines Staff.

uncut stone. See uncut. Long.

cut value. See reduced value. S. Afr. Values and widths of reefs as established by the values which are used for the calculation of ore reserves.

undulation. a. A large, wavelike fold in the earth's crust. A.G.I. Suppliers.

undulation theory. A theory of mountain building proposed by van Beuningen that assumes that long broad anticlines of basement rock rise like huge waves in the crust. The sedimentary cover and sometimes the basement itself slide off to form the folds and faults observed in orogeny.

undercut. See underbreak. See underhand stoping.

undercut. a. A machine cut along floor level in a coal seam, to cast its removal by hand, by machine, or by shotfiring. See also hole cutting. Nelson. d. Excavation of ore from beneath a large block of ore to induce its settlement under its weight. Nelson. e. In stopping, removal either of footwall rock or of lower part of a flattish lode, bed, or seam of ore or coal, thus facilitating detachment of portion of ore. See undercut. Nelson. Used in block caving. Also called resuing. Pryor, 3. f. To enlarge borehole below caving. Bureau of Mines Staff.

underclay. A bed of clay, in some cases highly siltaceous, in many others highly aluminous, occurring immediately beneath a coal seam, and representing the soil in which the Carboniferous forest landscape was rooted. Stoces, v. 1, p. 184. Underclay.

underclay limestone. Synonym for freshwater limestone.

undercliff. a. S. Wales. An argillaceous shale forming the floor of many coal seams. Fay, b. Eng. That portion of a cliff which has fallen en masse along a considerable length of coast, and forms a subordinate terrace between the upper cliff and the original shore. Compare tab. A.T.H.

underclay. Soil deposit. A deposit that is not fully consolidated under the existing overburden pressure. ASCE P1826. Not yet in equilibrium with existing physical environment. Still being compacted.

Bureau of Mines Staff.

undercooling. The same as supercooling.

ASGM Gloss.

undercurrent. a. A short sluice much wider than the main sluice, and set on a steeper grade, generally at right angles to the main sluice. It is designed to save fine gold that does not readily settle. A screen or grizzly that does not readily settle. A screen or grizzly that does not readily settle.

undercut. See underbreak. See underhand stoping.

undercutting. a. The making of a cut, by hand or coal cutter, along the floor level in a coal seam to cast its removal by hand or by explosive. See also undercut. Nelson. b. Applied to the process of cutting under the face of the coal with a machine so it can be sheared off in short lengths. Fay. c. A quarrying method that is intermediate between the open pit and the adit. Nelson. d. Excavation of ore from beneath a large block of ore to induce its settlement under its own weight. Nelson. e. In stopping, removal either of footwall rock or of lower part of a flattish lode, bed, or seam of ore or coal, thus facilitating detachment of portion of ore. See undercut. Nelson. Used in block caving. Also called resuing. Pryor, 3. f. To enlarge borehole below caving. Bureau of Mines Staff.

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undercutting

the floor space is enlarged gradually. Wings or buttresses of stone may be left at the sides to support the roof. Eng. 2, p. 325. D. Eng. Usually applied to ma-

cine-cut coal. See also kiving. SMRR, p. 128. Extend the floor of the glass result-

ing in an edge that is oblique to the surface of the glass. Dodd.

undercutting machine. An electrically driven machine used to mine a cut about 6 feet deep near the bottom of the coalfield. Hudson.

undermine of old workings. A method of shaft sinking used in steeplyinclined de-

posits, or in a vein which has been worked out at the surface, in which the shaft is sunk alongside the deposit, with a crosscut being made to the vein at a depth below the previous workings. This is done where it might be dangerous to

pierce the old workings because of in-


underdip. Scot. Coal extending below the haulage level at the bottom of the shaft. Fay.

underdraft. A condition wherein a metal

driven off must pass through the ignited

retort

the fuel up through the bottom of the

or hopper by a feed worm

water-tube, and locomotive types.

underground. A. Situated, done, or operat-

ing beneath the surface of the ground;

therefore, tunnelled. Standard, 1964, b.

The place or space beneath the surface

of the ground; a subterranean space or

channel. Webster 3d. c. Ground or soil

lying beneath the surface of the ground;

or something similar. Webster 3d.

underground bunker. A large capacity hop-

per, of 250 tons or more, to absorb partial

deliveries of feed to main transport systems,

or wind-

ing shaft. See also bunker, underground.

underground cable. A single or multiple con-

ductor cable sheathed in lead or other

waterproof material, carried in ducts or

in a duct beneath the surface of the ground. Cripin.

underground connections. Mines or areas

which are connected underground shall be considered as a single mine if the

underfeed stoker. A mechanical stoker suit-

able for small boilers, such as the vertical,

water-tube, and locomotive types. The coal is conveyed direct from the bunker or hopper by a feed worm which forces the

fuel up through the bottom of the retort in which it is burned. Volatiles

driven off pass through the ignited fuel

thus eliminating smoke. The underfeed stoker operates most successfully on

grated coals with a reasonable size of

ash. Nelson.

underfeed, a. In ceramics, to fire (as brick)

insufficiently. Webster 3d. To fire to

benefit. Webster 3d.

underfloor. a. Firing at a temperature lower than that required to produce a proper degree of vitrification in ceramic products. Bureau of Mines Staff. b. Insufficient firing of porcelain enamel to mature the design is applied to the

interior or decorating pottery, filet terra cotta,

and borings, or obtained by geophysical

methods. Also called subsurface geology.

Challinor.

underground glory-hole method. A method

used in large deposits with a very strong

roof. In this method, the deposit is di-

vided by levels and on every level chutes are raised to the next one. Mining starts

from the mouth of the chutes in such a

way as to develop a funnel-shaped exca-

vation (mill, glory) where the depth of the broken ore falls into the chutes and thus to the cars on the lower level. A sufficiently strong pillar is left for pro-

tection at the higher level. This method is also known as underground mullling. 

underground haulage. The transportation of coal or mineral from the working face to the shaft bottom. Haulage consists

of tramways, tracks, or mine cars drawn by horses, locomotives or ropes, and electric or compressed-air haulage engines. Conveyors

are not generally regarded as a haul-

age method. See also gravity haulage;

haulage; locomotive haulage; main trans-

port; subsidiary transport. Nelson.

underground mining. See underhand stoping. Fay. See also underground glory-hole method. Nelson.

underground mine conveyors. Sectional con-

veyors, usually of the troughed belt type,

capable of being lengthened as mining operations advance or retreat, all as contrasted to above-ground con-

veyors having fixed lengths for reasonable permanent installations. According to lo-

cation in the mine or usage, they may be

known as face, room, gathering, main

haulage, or intermediate haulage con-

veyors. See also belt conveyor; drag chain

conveyor; flight conveyor. ASA MHA-1.

underground openings. Natural or man-


underground ore bin. See measuring chute.

Nelson.

underground shaft. A shaft sunk from an

adit, tunnel, or working level, through which mining operations are conducted. The upper term is underground. A winze or raise becomes an underground

shaft when equipped and used for hoist-

ing and the conduct of other mining op-

erations. Fay.

underground station. a. An enlargement of

an entry, drift, or level which is widened

capable of receiving and discharging cars, men, and material. Fay. b. A pump sta-

tion. Fay. c. An underground station at

any location where a necessary electrical

crater power or processed into chemicals

cryogenic.

underground station

underground. Eng. See shorts, d. Fay.

underglaze. Used in the decoration of pot-

ttery, where it is applied to the ware

before it is glazed. Examples of such
coration are incised decoration, combus-

tion staining, and painting. Colors applied

under the glaze are known as under-

underglaze colors. Finely ground calcined

oxides for colored designs beneath the

glaze on ceramic surfaces. Used for color-

ing or decaling pottery, tile, terra previ-

ously, and similar glazed ceramic surfaces.

CCD 6d, 1967.

underground. Insufficient reduction of par-

ticle size to produce effective liberation

value. Pryor, 4.

underground. a. Situated, done, or operat-

ing beneath the surface of the ground.

b. To fire from underground fires;

iary to underground exploration. Nelso.L

may be driven. A study of the

underground gasification. A method of burn-

ing beneath the surface of the ground;

ing shaft. See also bunker, underground.

underground. Has passed through the

underground transformer. A flameproof air-
underground surveying. Distinctive features of
underhand quarrying of panel cores, Mitchell
underhand. The strata or rock occupying a
underground mining engineer and
underlay shaft. a. A shaft sunk in the foot-
underlay; underlie. a. Corn. The departure
underlay or supported by stulls or pillars. Sometimes called horizontal-cut
underlay shaft. a. A shaft sunk in the foot-
underlooker. Undercover worker. a. Undermanager; overman.
Mason. b. Lanc. One who has the care and
underloading. a. A term used to explain
underlay; underlie. a. Corn. See underlay, a and b. Fay.
underpaid. The strata or rock occupying a
underlying beds. The rocks situated under
underpaid copper
underpierced. A term used in copper refining
dergound mining engineer and
underpierced copper
underreamed. To enlarge or ream a borehole below the casing. Long.

underreamer. A tool or device having cutters that can be expanded or contracted by mechanical or hydraulic means and used to enlarge or ream a borehole below the casing or drivage. Also called expansion reamer. Long.

underreamer bit. The assembled device consisting of the lugs or jaws attached to the expanding mechanism used to enlarge or ream a borehole below a string of casing. See also underreamer. Long.

underreamer cutter. See underreamer lug. Long.

underreamer lug. A diamond set or other type of expandable or contractable jaw on an underreamer bit. Also called underreamer cutter. Long.

underreaming bit. An expanding bit used to enlarge the diameter of the hole below the casing to allow the casing to be lowered further down the borehole. B.S. 3810, 1963, see. 3.

underrope haulage. An endless rope haulage system which runs from the bottom of the drum to the load. Nichols, 2.

undersea mining. The working of economic deposits (usually coal) situated in strata below the seabed. Nelson.

undersea satellites. A string of underwater devices strung between Hawaii and California to serve as unmanned explorer units. Pacific satellite contains a gage to measure tides, a seismometer, and a transmitter. Hy.

underwater workings. See submarine mines. Zern.

undersea mining. The working of economic deposits (usually coal) situated in strata below the seabed. B.S. 3552, 1962.

undersize. a. Part of a crushed material which passes through a screen. Fay. b. Particles in a screen overflow which are smaller than the reference size; may be expressed as a percentage of the product. B.S. 3552, 1962. d. The smaller of two classified products. In the case of ore pulp or fine coal, the undersize is the overflow and the oversize the underflow. See also classifier. b. Nelson. c. A drill hole that is not to size because of gage loss on the bit and/or the reaming shell with which it was drilled. Long. i. A bit or reaming shell the dimensional dimensions of which are less than specified as standard. Long.


undersize core. Core the outside diameter of which is less than standard. Long.

undersized. Said of beds or crests of folds that are unevenly fractured. Nelson.

undersized sample. A sample which is as undisturbed as humanly possible, as distinct from a sample disturbed by boring tools. Special appliances are used to obtain such samples from boreholes, and the material is preserved in its natural state in air-tight containers. Undisturbed samples are required so that the in situ properties of the soil may be determined. It is difficult to obtain undisturbed samples of sandy soils without considerable preparation. See also soil core. Nelson.

undersized sample. See undisturbed sample. Long.

undersized core. Core the outside diameter of which is less than standard. Long.

undersized core. See undisturbed sample. Long.

undersized core. See undisturbed sample. Long.

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undersized core. See undisturbed sample. Long.

undersized core. See undisturbed sample. Long.

undersized core. See undisturbed sample. Long.
monoclinic form is called clinomonomo-
clic. English.
unnatural tile. A hard, dense tile of homog-
one composition throughout, deriving color
and texture from the materials of which
the body is made. The colors and character
istics of the tile are determined by the
materials used in the body, the
method of manufacture, and the thermal
treatment. AS 2426-60.
unbegin. Unworked rock of any kind. Arkel.
unhinged. York. Bordgates or other headings
unglazed tile. A hard, dense tile of homog-
oneous composition throughout, deriving
from the body is made. The colors and
characteristics of the tile are determined
by the materials used in the body, the
method of manufacture, and the thermal
treatment. ASTM C242-60T.
uniform sand. A sand with particles of uni-
form size and shape. See also graded sand. Ham.
uniform strain. The strain occurring prior to
the beginning of localization of strain (necking);
the strain to maximum load in the
tension test. ASTM Gl1o.
Unifrax. A low-density nitroglycerin powder
type of equivalent sheathed explosive. McAdam II, p. 49.
unigex. A semi-gelatinous nitroglycerin equiv-
alent sheathed explosive. McAdam II, p. 49.
unilateral rolling strata. Asymmetrical ripple
or wavy bedding the steeper side of which
indicates the direction of flow. Pettijohn.
unilateral stream. A stream with all tribu-
aries entering from one side. Bureau of
Mines Staff.
unilateral transducer. A transducer which
cannot be actuated at its outputs by waves
in such a manner as to supply related
waves at its inputs. My.
unimolecular layer; monomolecular layer.
Film that is adsorbed deep, absorbed
to surface of solid. Pryor, 3.
union. The usual trade term for a device
used to connect pipes. It commonly con-
sists of three pieces which are: (1) the
thread end fitted with interior threads;
(2) a small exterior shoulder; and (3) the
ring which has an inside flange at
one end while the other end has an in-
side thread and the exterior of the
thread end. A gasket is placed be-
tween the thread and bottom ends, which
are very extensively used, because they
permit connections with little disturbance
of the pipe positions. Strock, 10.
union cell. An cell with a male or female union
at one end. Strock, 3.
unionless. State of substance which has dis-
solved without dissociating into ions;
solute retaining its compound state.
Pryor, 3.
unions. 10th explosions: used in mines.
Bennett 26. 1962.
union shop. A shop or mine run according to
the requirements of a trade union. Com-
pare open shop. Fay.
union fee. A fee with male or female union
at connection on one end of run. Strock, 3.
unique diameter. A line different from any
other in a crystal, for examples, the c
axis in both the tetragonal and hexagonal
systems and the three axes of reference in
the orthorhombic system. American Min-
619.
unfired. A TNT/ammonium nitrate type of
equivalent sheathed explosive. McAdam II, p. 50.
unselective. An electromechanical selector
having only rotary motion. NCB.
unilateral. A salt of ortho-
unit. a. Smelter contracts make frequent use of
the word 'unit' as a term of
percent. Since a ton contains 2,000 pounds, a unit
is equivalent to 20 pounds of ore.
The smelter charge may be sold at
the rate of one dollar per unit,
which is one percent of the
metallic tin would contain 70
per cent metallic tin would contain 70
unions or molecules in their correct spatial
positions. Strock, 3.
unit cell. a. The arrangement of points in
a crystal which forms a single geometrical
figure, with all its points referable to the
axes by which these are conventionally
defined. The orderly repetition of
the unit cell becomes, if sufficiently large, the
visible crystal, while the unit cell itself is
the smallest group of points (as atoms,
ions or molecules in their correct spatial
positions) possible. Pryor, 3. b. Of flotation,
the metals as determined by prizes fixed
by buying authorities, or quotations on the
international metal markets, which vary
time to time. Nelson.
unit bed-material discharge. Discharge
of bed material (material coarser than 0.062
millimeter) per unit width of a stream.
U.S. Geol. Pap. 462-F.
unit cell. a. The arrangement of points in
a crystal which forms a single geometrical
figure, with all its points referable to the
axes by which these are conventionally
defined. The orderly repetition of
the unit cell becomes, if sufficiently large, the
visible crystal, while the unit cell itself is
the smallest group of points (as atoms,
ions or molecules in their correct spatial
positions) possible. Pryor, 3. b. Of flotation,
a single appliance. Pryor, 4.
unit coal. a. Applied to prepared coal as for
analysis, and being the pure coal sub-
stance considered altogether apart from
extraneous or adventitious material (mois-
ture and mineral impurities) which may
be accident or through natural causes
occurring associated with the combu-
table organic substance of the coal. A.G.I.
b. The pure or actual coal substance as
defined from taking into account the
comparative carbon content. The differentiation
between the noncoal substance of a sample being
analyzed and the coal itself is
expressed by the term unit, which again means one-
unit coal
granular material. A.G.I.
uniformly grade(c)ed' soil. A soil with a particu-
lar-size distribution extending over a limit
range with one size predominating. Nel-
son.
uniform sand. A sand with particles of uni-
form size. See also graded sand. Ham.
uniform strain. The strain occurring prior to
the beginning of localization of strain (necking);
the strain to maximum load in the
tension test. ASTM Gl1o.
uniflux. A low-density nitroglycerin powder
type of equivalent sheathed explosive. McAdam II, p. 49.
unigex. A semi-gelatinous nitroglycerin equiv-
alent sheathed explosive. McAdam II, p. 49.
unit die. In die casting, a die block that contains several cavity inserts for making different kinds of castings. *ASM Gloss.*

united veins. Where two or more veins unite, the oldest or prior location takes the vein bounding the point of union, including all the space of intersection. *Ricketts, p. 127.*

unit heater. A forced convection heating device of two types: (1) an assembly of encased heating surface with fan and motor (or turbine) and for connection to a source of steam or hot water; (2) an assembly of the above plus a fuel burner so that the device is for connection to a source of oil or gas (or supplied with coal) and not to steam lines or waterlines. *Strock, 10.*

uniting pressure. The pressure at which the individual particles of a metal powder will unite together to form a solid mass of metal. The following are the uniting pressures of a number of common metal powders: lead, 13 tons per square inch; tin, 19 tons per square inch; copper, 35 tons per square inch; antimony, 40 tons per square inch; zinc, 38 tons per square inch; aluminum, 38 tons per square inch; and bismuth, 36 tons per square inch. *Comm.*

united veins. Where two or more veins unite, the oldest or prior location takes the vein bounding the point of union, including all the space of intersection. *Ricketts, p. 127.*

unite. The number of metal veins. The number of veins that are involved a unique set of principles. *Pryor, 3.*

unit pole. Magnetic repulsive force of 1 dyne acting at distance of 1 centimeter from a pole. *Matson, V. 1, p. 106.*

unit power. The net amount of power required to remove a unit volume of metal in unit time, usually expressed as horsepower per cubic inch per minute. *ASM Gloss.*

unit pressures. The total pressure divided by the number of area units on which the load is imposed, such as the diamonds in a diamond-bit crown, usually expressed as pounds per square inch, tons per square foot, pounds per diamond, etc. *Long.*

unit process. Distinct and roughly self-contained section of series of operations, which can be studied by itself. In mineral processing, unit processes include sections at crushing, grinding, classification, gravity treatment, pulp conditioning, flotation, thickening, leaching, filtration. *Mines Staff.*

unit strain. Unit tensile strain is the elongation per unit length; unit compressive strain is the shortening per unit length; unit shear strain is the change in angle (radians) between two lines originally at right angles to each other. *Ro.*

unit stress. The stress or load per unit area, usually taken per square inch of section. For instance, if a bar is 1 by 2 inches in section the unit stress of the bar will be 1,000 divided by 2 (sectional area). *ASCE P1826.*

unitstrain. A system of ventilation in which each working face is ventilated by a separate air current. B.S. 3618, 1963, sect. 2.

unit ventilator. A unit heater of type (1) but connected to a source of ventilation air and frequently provided with an air filter. *Strock, 10.*

unit water discharge. Water discharge for unit width of a stream. *USGS Prof. Paper 462-F.*

unit weight. Weight per unit volume. *Bureau of Mines Staff.* See also dry unit weight; effective unit weight; maximum unit weight; saturated unit weight; submerged unit weight; unit weight of water; wet unit weight; zero air voids unit weight. *ASCE P1826,* b. The density of a material. *Ham.*

unit weight of water. The weight per unit volume of water; normally equal to 62.4 pounds per cubic foot or 1 gram per cubic centimeter. *ASCE P1826.*

universal clamp. A clamping device used on a drill column by means of which a horizontal arm can be affixed at any point on the vertical section of a drill column. *Long.*

universal coal cutter. A coal cutter with a jib capable of cutting at any height or angle. It may be mounted on crawler tracks. See also turret coal cutter. *Nelson.*

universal coupling. One which joins two driving shafts which rotate about different and slightly slanted axes. *Pryor, 3.*

universal gravity mask. Designed as an all-purpose mask for protection against a variety of toxic gases, vapors, and smokes, including carbon monoxide. It is equipped with an indicator which shows at a glance the remaining service time of the canister for CO. *Ham.*

universal grinding machine. A machine on which cylindrical, internal, or face grinding can be done as required in tool rooms and machine shops. *ACSG, 1965.*

universal joint. a. A connection between two shafts that allows them to turn or swivel at an angle. *Nichols.* b. Articulated joints permitting the transmission of rotary motion from the driving shaft placed at an angle to the driven shaft. *Compare knuckle joint.* *Long.*

universal joint couplings. These couplings are used where a drive is intersected at any angle or where 1 or 2 members must be disconnected. If there is an offset in the two shafts, or if one or both shafts must change location during operation, two of these couplings are used, and one is fitted with a splined joint mating with the connecting intermediate shaft. There is no cut in the shafts for axial movement. *Pit and Quarry, 53rd, Sec. D, p. 68.*


universal machine. A power-driven coal cutter that will not cut horizontal kerfs, but will cut vertical kerfs at any angle, and is designed for operation either on track, caterpillar tracks, or rubber tires. *ASA C42.85:1936. Same as universal cutter.*

universal mill. A rolling mill in which rolls roll the edges of the metal stock between the lamination of the passes through the horizontal rolls. *ASM Gloss.*

universal motor. An electric motor rated at less than 1 horsepower output which operates either on direct or alternating current. See also fractional horsepower motor. *Ham.*

universal pH indicator. Mixture of several indicator dyes, each of which changes color through a specific pH range, so that by reading can be obtained. *Pryor, 3.*

universal plant indicators. Indicator plants with a rotating jib head so that vertical or horizontal cuts can be made in addition to the arcwall cut. *Ham.*

universal shear. A machine with a rotating jib head so that vertical or horizontal cuts can be made in addition to the arcwall cut. *Ham.*

universal arc-shearing machine. A machine with a rotating jib head so that vertical or horizontal cuts can be made in addition to the arcwall cut. *Ham.*

will cut a 12-foot heading to a depth of 6 feet in 10 minutes. Time is required for fitting, so that under good conditions up to twelve places can be cut in one shift. *Matson, V. 1, p. 106.*

universal clamp. A clamping device used on a drill column by means of which a horizontal arm can be affixed at any point on the vertical section of a drill column. *Long.*

universal coal cutter. A coal cutter with a jib capable of cutting at any height or angle. It may be mounted on crawler tracks. See also turret coal cutter. *Nelson.*

universal coupling. One which joins two driving shafts which rotate about differently slanted axes. *Pryor, 3.*

universal gravity mask. Designed as an all-purpose mask for protection against a variety of toxic gases, vapors, and smokes, including carbon monoxide. It is equipped with an indicator which shows at a glance the remaining service time of the canister for CO. *Ham.*

universal grinding machine. A machine on which cylindrical, internal, or face grinding can be done as required in tool rooms and machine shops. *ACSG, 1965.*

universal joint. a. A connection between two shafts that allows them to turn or swivel at an angle. *Nichols.* b. Articulated joints permitting the transmission of rotary motion from the driving shaft placed at an angle to the driven shaft. *Compare knuckle joint.* *Long.*

universal joint couplings. These couplings are used where a drive is intersected at any angle or where 1 or 2 members must be disconnected. If there is an offset in the two shafts, or if one or both shafts must change location during operation, two of these couplings are used, and one is fitted with a splined joint mating with the connecting intermediate shaft. There is no cut in the shafts for axial movement. *Pit and Quarry, 53rd, Sec. D, p. 68.*


universal machine. A power-driven coal cutter that will not cut horizontal kerfs, but will cut vertical kerfs at any angle, and is designed for operation either on track, caterpillar tracks, or rubber tires. *ASA C42.85:1936. Same as universal cutter.*

universal mill. A rolling mill in which rolls roll the edges of the metal stock between the lamination of the passes through the horizontal rolls. *ASM Gloss.*

universal motor. An electric motor rated at less than 1 horsepower output which operates either on direct or alternating current. See also fractional horsepower motor. *Ham.*

universal pH indicator. Mixture of several indicator dyes, each of which changes color through a specific pH range, so that by reading can be obtained. *Pryor, 3.*

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universal plant indicators

not found under any other conditions. Universal plant indicator. These

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unsoundness has set. The principal causes of this fault are the presence of free CaO, excess MgO, or excess sulfates. Dodd.

unstable. a. Readily decomposed liable to spontaneous combustion or oxidation. Pryor, 3. b. The description applied to a structure liable to fail as a whole, usually by overturning or sliding. It also refers to a framework having fewer members than are required to make it a perfect frame. Hem.

unstable equilibrium. A body is said to be in unstable equilibrium if on being slightly disturbed, it tends to move farther and farther away from its original position of equilibrium. Morris and Cooper, p. 167.

untrimmed slate. See slate, rough. L.O.L.

unstable protobitumens. These protobitumens, unstable in equilibrium. Morris and Cooper, p. 167.

unstratified. Not formed or deposited in beds; the random thickening of the material, instead of layer upon layer. Skow.

unsteady flow. See steady flow, b. Roberts, 1, p. 347.

upcast shaft. a. A shaft through which air is forced to the mine. Hess.

upcast shaft hole. b. Same as upthrow; opposite of subsidence. Long. See inside upset; outside upset. Long.

upcast. The opening through which the return air ascends and is removed from the mine. The opposite of downcast or intake. Fay, 1. a. Upward current of air passing through a shaft, or the like. Fay, c. To cast up. Webster 3d. d. Turned or directed upward. Webster 3d. e. Material that has been thrown up by digging. Webster 3d. f. Same as upthrow; opposite of downthrow, downcast; as the upcast side of a fault. Standard, 1964, g. The setting of a seam or bed by a dyke. Also called upper. Fay.

up-brown. Lanc. An inclined plane worked to the mine.

upset. a. The opening through which the return air ascends and is removed from the mine. See also upset. b. The upthrow of certain strata. See also upthrow. c. The upthrow or venting of air currents from the firebox through the setting and then through one or more chimney's in the roof. Such kilns are inefficient and are now little used. Dodd.

updraw. The process of continuously drawing glass of various cross sections, such as cane or tubing, by a method similar to the Fourcault process. ASTM C162-66.

updraft kiln. An intermittent kiln in which the air is blown upward through a vertical drawing of glass rod or tubing from an orifice; to produce tubing, the rod is drawn around a refractory cone. This process has also been called the Schuller process, or Wood's process. Dodd.

updrift. The direction opposite to that of the predominant movement of littoral material. H.O.G.

upgrade. a. To increase the commercial value of a coal by appropriate treatment. B.S. 3552, 1962. b. To increase the quality rating of diamonds beyond or above the rating implied by their particular classification. Long.

upgrading streams. In the case of the lost rivers of the Snake River Plains, instances are furnished of upgrading in which the process has not advanced far enough to permit the streams to emerge in the work to cross the flat tract they invade and reach larger drainage channels. The streams from the southeast, coming from high mountains, are well supplied with material in suspension, and have been enabled to upgrade their courses across the comparatively narrow tract of flat country, and thus reach the main channel of discharge. This is especially evident near the older streams, and thus the area is referred to as the Monongahela group of the Pennsylvanian series. Varnes, 1955.

upheaval. A lifting up, if by some force from below, of stratified or other rocks. Fay.

uphill shaker conveyor. Any shaker conveyor which is so designed as to have the proper stroke for making the maximum amount of coal up a grade. On certain types of conveyor, the entire drive unit. Jones.

uphill teeming. See bottom pouring. Dodd.

up-hole hole. a. A borehole collared in an under ground working place and drilled in a direction parallel with the horizontal plane of the drill-machine swivel head. Long. b. A shot-hole drilled in rock at an upward angle. Also called upper. Fay, 3.

up-hole drilling. See up hole. Long.

up-hole shooting. In seismic exploration, the setting off of successive shots in a shot-hole at varying depths in order to determine velocities and velocity variation of the materials forming the hole walls. A.G.I. Supp.

up-hole time. Used to denote the observed travel time of a seismic wave from the point of generation at a given depth in a shot-hole to a detector at the surface; and is measured time equivalent of the corresponding shot depth. A.G.I.

up-hole velocity. The speed, expressed in feet per minute at which, at the time, the nuclear liquid flows upward in a borehole. Long.

up-jet pipe. A common type of heat-recuperating pipe. Fay.

upland. A highland; ground elevated above the lowlands along river; between hills.

upleap. Mid. A fault that appears as an upthrow. Fay.

uplift. a. Elevation of any extensive part of the earth's surface relative to some other part; opposite of subsidence. Fay, b. The upward water pressure on a structure. ASCE P1826.

up-over. Designating a method of shaft excavation by being thrust to a point below, and then raising. Webster 2d.

up-over cith. A wedging cith placed on the face of a slope of a shaft, to shoot off the water in a certain stratum. Fay.


Upper. Being a later epoch or series of the Carboniferous strata of the Appalachian field that is now assigned to the Monongahela group of the Pennsylvanian series. Obiotele. Fay.

upper belt. The upper bed or stratum of a seam. Fay.

upper bubble. The upper porion of a seam that is separated, by a parting, into two distinct layers. Fay.

upper catchment. The area from which water is collected and conveyed to a sewer, a channel, or a body of water. Upstream. Fay.

upper closure. The uppermost part of a shaft, mine or other opening. Fay.

upper deposit. The uppermost part of a stratum or bed. Fay.

upper drift. The direction opposite to the wind or air current, or to the direction of drift. A.G.I.

upper effect. The uppermost part of a shaft, mine or other opening. Fay.

upper explosive limit. The highest quantity of combustible gases which, when mixed with any quantity of air (or oxygen), will just support a self-propagating flame. Francis, 1965, p. 2.

upper leaf. Scot. The upper portion of a seam that is separated, by a parting, into two distinct layers. Fay.

upper limit. The upper value to be added to or subtracted from a variable, as a maximum or minimum. Fay.

upper punch. In powder metallurgy, the member of a die assembly that moves down and inward into the die body to transmit pressure to the powder contained in the die cavity. ASM Gloss.


uprate. An auxiliary shaft, a mill hole, carried from one level up toward another. Fay.

up rate. See post, 1. Dodd.

upright fold. Fold with a vertical axial plane. A.G.I.

upright joints. Eng. Vertical joints. See also thorough joints. Arkell.

upright man. glass. One who smooths the edge of glass that has been cut, using hand tools. D.C.T. 1.

uprush. A sudden flow of water onto the foresheer following the breaking of a wave. Ky.

up-side. a. To increase the diameter of a rock drill by blunting the end. Fay, b. Scot. A narrow heading connecting two levels in an inclined T-section. Sometimes used as a synonym for raise. Fay. c. Aust. A capped or broken ship. Fay, d. In Indiana, a narrow passage driven on a slope and leaving a widen pillar which is to be mined by slacking or otherwise. Hess, e. In Alabama, a break in a course of concrete or coal, from one pair of entries to another for the development of a long face in semi long-wall or long-wall mining. Hess, f. A tubular part such as a drill rod, the wall thickness of which has been increased, by hot forging for a distance of one or both ends, thereby reinforcing the area in which screw threads are cut. See upset also inside upset, up-set. Hess, g. The localized increase in volume resulting from the application of pressure.

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upwelling. The phenomenon in which colder water is forced upward percolation. See sand leaching. Foster.

upthrust. An upheaval of rocks; said preferentially to the pillar to be formed. Fay.

upthrow. The block or mass of rock on that side of the surface. Pettijohn.

upseeing. A means of increasing the diameter of a rod at the end by forging. L. & L.

uralitization. The processes whereby the primary pyroclastic rocks are altered to uralsite, a form of secondary hornblende occurring in altered rocks and pseudomorphous after pyroxene. Appleman.

uranides. A name proposed for the elements beyond uranium (pitchblende), and the radioactive isotopes of natural uranium; and the nonfissionable, fertile uranium 238 (99.28 percent of natural uranium) which by capture of a neutron and a decay sequence yields fissionable plutonium 239, which can substitute for uranium 235 as a nuclear fuel or a nuclear explosive. Uranium 234 constitutes 0.0058 percent of natural uranium. Hey, M.M., 1961.

uranium. A radioactive, silver-white, metalloid in group IV of the periodic system. It occurs in the minerals uraninite (pitchblende), coffinite, carnottite, autunite, uaurite, davidite, and tbernite. It is found in phosphate rock, limestones, and monazite sands. There are 16 radioactive isotopes (uranium 227 to uranium 240) which have a half-life of less than 4.5 X 10¹⁰ years and which has been used to estimate the age of the igneous rocks in which it occurs. Uranium has three allotropic forms: (1) alpha uranium (orthorhombic), up to 667°C; (2) beta uranium (tetragonal), from 667°C to 775°C; and (3) gamma uranium (isotropic), from 775°C to 1,132°C (the boiling point). Symposium on Nuclear Energy, 1960; Atomic Energy and the Earth Sciences, 1961.

uranic. Of, relating to, or containing uranium; for example, uranothorite. Webster 3d.

uranite garnet. Occurring as a nodule in ultramafic rocks. Shipley.

uranium borides. Three borides are known: UB₃, UB₄, and UB₅. The most attention has been given to the triboride, which can be obtained by heating the properties of which are: melting point, >2,100°C (but oxidizes rapidly above 1,000°C), specific gravity, 9.3, gram/m³; gray color; and the millimeter, thermal expansion, 7 X 10⁻⁶.
uranium boilide

(20° to 1,000° C), modulus of rupture (20° C), 60,000 pounds per square inch, electric resistivity, 3 X 10^9 ohm-centimeter. Dec 1.

uranium carbide. A compound of uranium and carbon which may have one of three formulas, UC, UC2, and UC3. Brown to black; soluble in dilute acids and in dilute sulfuric acid; and insoluble in water. Said to be used as a nuclear fuel. CDD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-143.

uranium dioxide; uranium oxide. Brown to black; insoluble in water; soluble in dilute acids and in dilute sulfuric acid; frequently pyrophoric; melting point, 2,500° C or 3,000° C. A crystalline or pellet form is used to pack nuclear-fuel rods; also used in ceramics, and is a source of uranium for the fluors used for isotope separation. CDD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-235.

uranium disintegration series; uranium decay series; uranium sequence; uranium chains; uranium series; 4n + 2 series. a. The series of nuclides resulting from the decay of uranium 238. The mass numbers of all members of the decay series are given by 4n + 2, where n is an integer; therefore, the sequence is also known as the 4n + 2 series. It is also known as the uranium-radium series. Many synthetic nuclides decay in a collateral series into this sequence. See also radium. NRC-ASA N1.1-1957; Glasstone, 2, p. 133; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-86.

uranium galena. Galena containing uranium lead of isotope, Pb 206. From closed uranium ore deposits, altered from uraninite, and uranophane. Pearl, p. 47.

uranium leakage. See breakthrough, d. P. Pryor, 3.

uranium mica. See autunite.

uranium minerals. More than 150 uranium-bearing minerals are known to exist, but only a few are common. The five primary uranium-ore minerals are pitchblende, uraninite, davisonite, autunite, and brevium. These were formed by deep-seated hot solutions and are most commonly found in veins or pegmatites. The secondary uranium-ore minerals, altered from the primary minerals by weathering or other natural processes, include uranyl sulfate and metatyuyamuite (both very similar to carnotite), topiternite and metatorbernite, and metapt time and uraninite. Pearl, p. 47.

uranium, natural; uranium normal. Uranium, as found in nature, is a mixture of the fertile uranium 238 isotope (99.28 percent), the fissionable uranium 235 (0.71 percent), and 0.0058 percent of uranium 234. See: Handbook of Chemistry and Physics, 45th ed., 1964, p. B-143.

uranium nitride. Dark brown; crystalline; UC, specific gravity, 10.09; and is a compound of uranium and nitrogen. Said to be used as a nuclear fuel. CDD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-86.

uranium oxide. The important oxides of uranium are UO2, UO3, UO4, UO2SO4, UO3Cl2, UO3Cl2, and UO3Cl2. Uranium oxide has been used to produce colored glazes and ceramic colors. Dodd.

uranium oxide, brown. See uranium dioxide.

uranium oxide, orange. See uranium trioxide; uranium orange; potassium diuranate.

uranium peroxide; perradionite. A yellow; crystalline; UO2, zH2O (the number of molecules of water of hydration varies according to the conditions under which the oxide is formed); hygroscopic; insoluble in water; decomposes at 115° C; nearly insoluble in hydrochloric acid; and specific gravity 2.5 (at 15° C). Used in ceramics and in pigments. CDD 6d, 1961. b. Pale yellow; tantalinite; UO2H2O; molecular weight, 338.06; hygroscopic; decomposes at 115° C; nearly insoluble in hot water; and decomposes in hydrochloric acid. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-202.

uranium red. A ceramic stain for colored glazes suitable for firing temperatures up to 1,000° C. Increasing the uranium oxide content strengthens the color from orange, through red to tomato red. The stain should be thoroughly 0.5 mol SiO2, 0.1 to 0.2 mol Al2O3, 0.1 mol K2O, and the remaining base chiefly PbO. Boiling should be present in significant quantities.

uranium silicide. Beta USi2 has a slightly anisotropic thermal expansion. Dodd.

uranium oxide; stannidium diuranate. Yellow; SrUO3; molecular weight, 675.77; and soluble in acid. Used for coloring porcelain. Bennett, 2d, 1962.

uranium tetrafluoride; green salt. Green; nonvolatile; trichliric; needles; UF4; molecular weight, 148.96; specific gravity, 6.70±0.10; melting point, 960±5° C; and 1.036; very slightly soluble in water; insoluble in dilute acids; and soluble in concentrated acids and in concentrated alkalis. Used in the preparation of uranium metal and uranium hexafluoride. CDD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-235.

uranium trioxide. See uranium peroxide.

uranium trioxide; uranyl oxide; orange oxide; uranyl oxide. a. Red, orange, and yellow; UO3; molecular weight, 280.03; insoluble in water; decomposes in dilute nitric acid and in hydrochloric acid; specific gravity, 7.29 or 8.34; and it decomposes on heating. Used in ceramic and pigments. See also uranium oxide. CDD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-235. b. An intermediate product in the refining of uranium. LGL.

uranium X: brevium. A name for protactinium 234 (proactinium 234), a member of the uranium disintegration series; symbol, UX; fissionable isotope, UXf, half-life, 24.10 days. NRC-ASN N1.1-1957; Glasstone, 2, p. 133; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-86.


uranium X: actinumuranium; actinium-uranium. a. The readily fissionable isotope of uranium used in one type of atomic bomb. Concentrated from natural uranium by the process of diffusion, but can be obtained, or by electromagnetic methods. Symbols, U and ACU. CDD 6d, 1961. The parent radionuclide of the actinium disintegration series; emits alpha particles; half-life, 7.13 X 10^10 years; and it occurs at 0.71 percent of natural uranium. See also actinouranium. Glasstone, 2, p. 135; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-86.

uranium Y: americium. The abundant naturally occurring isotope of uranium; 140 t. NRC-ASA N1.1-1957; Glasstone, 2, p. 1. The concentration in natural uranium is 99.28 percent of natural uranium as contrasted with 0.71 percent. It is non-fissionable but can be transmuted in a nuclear reactor to eventually produce plutonium 239, a nucleus which can substitute for uranium 235 as a nuclear fuel or a nuclear explosive. This production of plutonium 239 is called breeding. Uranium 238 (obtained from natural uranium from which uranium 235 has been removed) can be used as a coloring agent, an analytical reagent, and in catalysis. Symbols, U and U. CDD 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, pp. B-86, B-143. b. The parent radionuclide of the americium disintegration series which ends with stable lead 206. It emits alpha particles and has a half-life of 4.51 X 10^10 years. It is the longest-lived isotope of uranium and gives the element its atomic weight. Used to estimate the age of the igneous rocks with which it is associated. Glasstone, 2, p. 133; Handbook of Chemistry and Physics, 45th ed., 1964, pp. B-86, B-143.

uranium violet. See jojobite.

uranium-uranyl oxide. See triuranium octoxide.

uranium X: thorium. A name for thorium 234, a member of the uranium disintegration series; symbol, UX; emits beta particles; and half-life, 24.10 days. NRC-ASA N1.1-1957; Glasstone, 2, p. 133; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-84.

uranium X: brevium. A name for protactinium 234 (proactinium 234), a member of the uranium disintegration series; symbol, UX; emits beta particles; and half-life, 1.82 minutes. Sometimes called brevium. NRC-ASA N1.1-1957; Glasstone, 2, p. 133; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-85. Uranium Xa (protactinium 234) undergoes isotopic
uranium X; brevium

transition in the uranium disintegration series to form uranium Z (also protactinium 234) which has a half-life of 6.66 hours. Carriage by magnetic particles to form uranium II (uranium 234). Glasstone, 2, p. 133; Handbook of Chemistry and Physics, 33d ed., 1964, p. B-85.

uranium Y. A name for thorium 231, a member of the actinium disintegration series. symbol, UY; emits beta particles; and half-life 25.6 hours. NRC-ASA N11-1957; Glasstone, 2, p. 133; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-84.

uranium Z. A name for protactinium 234 (protactinium 234), a member of the uranium disintegration series; symbol, UZ; isomeric with UX; emits beta particles; and half-life, 6.66 hours. NRC-ASA N11-1957; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-85. b. Uranium Z (protactinium 234) is formed from uranium X (also protactinium 234) by isomeric transition in the uranium disintegration series. Glasstone, 2, p. 133.


uranophyllite. Synonym for torbernite. Webster 3d.

uranopyllite. A very rare, strongly radioactive, tetrhgonal, lemon-yellow to siskin-yellow to orange yellow. Uranophane is one of the more common uranium minerals; found usually as an alteration product of gymnite after uraninite; usually associated with autunite and torbernite and less frequently with betauranotil.


uranophane. A strongly radioactive, orthorhombic, yellow to straw yellow, also pale greenshiney-green to orange yellow. Uranophasite is one of the more common uranium minerals; found usually as an alteration product of gymnite after uraninite; usually associated with autunite and torbernite and less frequently with betauranomica. Crosby, pp. 54-55.


uranolite. A very rare, strongly radioactive, possibly monoclinoic, yellow mineral, (UO2)2(SO4)2( OH)2. From the Tintic mining district, Utah. 


uranostilbite. Thorilinite with uranium in partial substitution for thorium. Crosby, p. 46.

uranosite. Auraniferous variety of thorite. Webster 3d.

uranous. Of, relating to, or containing uranium. Used especially for compounds in which uranium has a lower valence than in uranium compounds. Webster 3d.

uranous oxide. UO2; the least important of the uranium oxides. Ccd 6d, 1961.


uranyl. The bivalent radical UO2, or the ion UO2+ formed by uranitio (UO2) in an acid solution. Webser 3d.

uranyl-ammonium carbonate; uranium-ammonium carbonate; ammonium uranyl carbonate; yellow; monoclinic; UO2CO3·2(NH4)·2H2O; molecular weight, 558.24; decomposes at 100°C in air; specific gravity, 2.773; decomposes in hot water; soluble in cold water, in ammonium carbonate solutions, and in aqueous sulfur dioxide solutions. Used in uranium-yellow glazes. Ccd 6d, 1961; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-152.


uro. A hydrous sodium carbonate, Na2CO3·NaHCO3·2H2O. Torna is an impure form of ura.

urbanite. Proposed by Warren for a rock composed of hematite, ilmenite, rutile, sapphire, and garnet. It is found at St. Urban, Quebec, Canada. Hest.

urea; carbamide; carbonyl diamide. Colorless; tetragonal; NH2CONH2; molecular weight, 60.06; specific gravity, 1.335; melting point, 132.7°C; and very soluble in water and in ethyl alcohol. Used as a stabilizer in explosives. Bennett 2d, 1962; Handbook of Chemistry and Physics, 45th ed., 1964, p. 540. Specific gravity, 1.32 (at 18°C, referred to water at 4°C); decomposes before reaching a boiling point; very soluble in methanol; soluble in absolute alcohol; insoluble in chloroform. Handbook of Chemistry and Physics, 45th ed., 1964, p. C-589.


Ure's process. The treatment of quicksilver ores by heating in iron retorts with admixture of lime. Fay.

urethane foam. Used in fiber board and foam.


usite. a. A plutonic rock composed largely of plagioclase, a.

usasite. A uranium ore. The ore is composed of uraninite and pitchblende, or uraninite, a.

usauropneus. Salvaged diamonds considered as being fit for resetting and reuse in another bit or tool. Long.

usable stone. Synonym for usable diamond.

use charge. An annual rental charge assessed by the Atomic Energy Commission for inventories of enriched fissionable material. L. G. L.

used bit. A diamond bit so dulled by use that it is no longer of any value as a cutting tool. Long.

used diamond. A diamond that has been removed from a used bit. Also, a carbide, the edges and corners of which have been rounded by use but which is reusable. Long.

used stone. Synonym for used diamond. Long. useful area. Working area of a screen. The nominal area, less any area occupied by fixings or supports which obstruct the passage of material over or through the screen deck. R. C., 1952, 1962.

useful beam. Any ionizing radiations from a sealed source that can be employed for the purposes for which the sealed source is used. N.C.B.

useful limit point. See apparent elastic limit.

usual pressure. The usual pressure for a mine fan is the natural ventilation pressure deduced from the total ventilation pressure required to circulate the air through the mine. Roberts, 1, p. 294.

USGS Abbreviation for the United States Geological Survey.


utility arch. An arch of stone with steel arches; steel support; Toussaint-Heintzmann arch. Nelson.

usuramate. Sulfosalts Pb3(Sb5)(Sb)S8, as gray prismatic crystals in bismuth ore from the Ussuraisk deposit in western Trans-siberia, Siberia. Named from locality. Spencer 21, M.M., 1938.

usual mining privileges. By this term in a deed, the grantee has and may enjoy the right to go upon the land and explore for, open and operate mines, take out and sell the products, and do all things incident to that work. Ricketti, 1.

usuranite. A uranium ore. The ore is composed of uraninite, a. and rare sulfates, 3Fe2O3·3SO3·4H2O, from the tintic district, Utah. It has a silvery luster. Fay.

Usuranite. A uranium ore. The ore is composed of uraninite, a. and rare sulfates, 3Fe2O3·3SO3·4H2O, from the tintic district, Utah. It has a silvery luster. Fay.

utahlite. A name for protactinium 234 (protactinium 234), a member of the uranium disintegration series; symbol, UZ; isomeric with UX; emits beta particles; and half-life, 6.66 hours. NRC-ASA N11-1957; Glasstone, 2, p. 133; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-85.

utahllte. A compact, nodular variscite from Utah Jet. An inferior jet which came from the Utah Jet. Aho used to include all amethysts from an area along the border of Utah and Rio Grande do Sul, Brazil, which are mostly small and irregularly colored. Shipley.

usable area. The usable area for mica films is that area into which no edge cracks or open areas extend. Shou.

usable diamond. A resettable salvage diamond. Sm.

usable iron ore. The ore of iron, beneficating, or agglomerating plant which is shipped without further processing to the consumer. Bumines Bull. 630, 1965, pp. 450-459.

usalek diamond. A resettable or reusable diamond. Long.
utahlite

Lewiston, Cedar Valley, Utah. English.

utahlite matrix. An alternate name for amar- trice. Shipley.


Utica shale. An important member of the upper Ordovician succession in the eastern parts of North America, succeeding the Trenton limestone, and placed at the base of the Cincinnati series. C.T.D.

utilites. A general term proposed by Wadsworth for all useful geological products. His subdivisions according to uses are: Ceramics, fritic or ceramic materials; calcichites, binding materials or limes, mortars, cements, etc.; chemites, chemical materials; chalices, pigments, etc.; coprites, fertilizers or manure material; cosmites, decorative materials or monumental stones; and pyrotechns materials; lubricites, lubricants or friction materials; metalites, ores or metalliferous materials; pharmaceutics, mineral medicines; pyrolites, reagent or fire resisting materials; solitites, smelting materials or fluxes; salites, salts and silicates; technites, constructional materials, as building and road materials; thermites, fuels, and buring materials; tribolites, tribulatives, or attrition materials; and vitrites, vitrifying materials or glass, etc. These terms are not used. Fay.

U-tube manometer. The vertical U-tube is the simplest type of pressure gage and consists either of a single U-shaped glass tube having a uniform bore with vertical arms or two separate glass tubes connected in parallel. The level of the liquid in the vertical U-gage, can be read easily to 0.1 inch and in well-made instruments to 0.01 inch wide gage. Roberts, i, pp. 22-23.


U-type furnace. A furnace for the firing of vitreous enamelware, which is carried along a U-shaped path so that ware enters and leaves the furnace at adjacent points. See also hairpin furnace. Dodd.


V. Symbol for total volume; volume per unit mass; specific volume. Zimmermann, p. 117. c. Abbreviation for velocity. Zimmermann, p. 115. d. Symbol for group velocity; linear velocity or particle velocity; for one of the With c; symbol for linear velocity or particle velocity in the y direction; and for velocity of time t. Handbook of Chemistry and Physics, 45th ed., 1964, p. F-101; Zimmermann, p. 166. e. Abbreviation for volt; voltage. Zimmermann, p. 115. f. Abbreviation for voltmeter; vein; viscosity; variable and variation; vertical; visibility; vent; vector; vertex; valve; vacuum tube. Webster 3d.


vacuum chamber


vacuum common fine salt. VCF, evaporated salt made from pans, of ordinary purity and ordinary screen analysis. Kaufmann

vacuum concrete. Concrete poured into a vacuum fan. A fan for creating suction or vacuum deposition. Condensation vacuum degassing. A process utilizing the ad-vantages of vacuum melting or casting and the savings in continuous and pressure casting. One type of operation con-sists of inserting a refractory nozzle ex-tending from a vacuum vessel through the slag layer of a heat of steel in a con-ventional ladle. When vacuum is applied the amount of steel exposed is cycled by lowering and raising the ladle. This method was developed by the Dortmund-Horder-Hutton Union (D-H). Another unit consisted of ladles introduced in this country is called RohrstaHL-Heresus (R-H). This unit has two refractory tubes extending from the vacuum chamber which dips below the surface of the molten steel. After vacuum jets have raised the liquid steel to a certain level in the tubes, argon, or other gases, can be introduced through one tube. BuMines Bull. 630, 1965, p. 59.

vacuum deposition. Condensation of these metal coatings on the cool surface of work in a vacuum. ASM Glass.

vacuum fire. A form of filter in which the air beneath the filtering material is exhausted to hasten the process. Fay.

vacuum filter. a. A form of filter in which the air beneath the filtering material is exhausted to hasten the process. Fay. b. One in which the pulp is drawn into contact with a porous septum by means of a vacuum system. See also vacuum, d. Fay.

vacuum filtration. The separation of solids from liquids by passing the mixture through a filter and where, on one side, a partial vacuum is created to increase the rate of filtration. It may be used to extract fine coal from the suspension or slurry of the coal. Newton, 1946.

vacuum flushing. The separation of solids from liquids by passing the mixture through a filter and where, on one side, a partial vacuum is created to increase the rate of filtration. It may be used to extract fine coal from the suspension or slurry of the coal. Newton, 1946.

vacuum lifting. A process for the firing of special types of ceramic either to prevent oxidation of the ware or to reduce its porosity. Vacuum firing is used, for exam-ple, in the firing of dental porcelain to produce teeth of almost zero porosity. Dodd.

vacuum lifting. Lifting by a crane fitted with a vacuum chamber which dips below the surface of the molten steel. After vacuum jets have raised the liquid steel to a certain level in the tubes, argon, or other gases, can be introduced through one tube. BuMines Bull. 630, 1965, p. 59.

vacuum method. A method of carrying out a traxial test on a sand sample maintaining a partial vacuum in the rubber bag containing the sample. Ham.

vacuum mixer. A machine for the simultaneous de-airing and moistening of dry, prepared clay as it is fed to a pump. In the original design, the clay fell as a powder through a vertical de-airing chamber where water was added as a fine spray; from the bottom of the de-airing chamber the moist, de-aired clay passed into a pump. There have been several de-velopments of this principle. Dodd.

vacuum press wet-air dried brick. Brick formed in a press in which air is evacuated from the die chambers as the brick is pressed. A.I.S.I. No. 24.

vacuum pressing. A method of forming brick shapes by which they are subjected to partial vacuum during pressing in a power press. HW.

vacuum pump. a. A centrifugal or recir-culating pump which extracts steam or air from a chamber or pipe to create a partial vacuum in a vacuum pump, hand, or power operated, is part of a pump station equipment where gravity flow is absent. Nelson. b. Pulsonometer. Webster 3d. c. A pump with a piston or other apparatus to create a partial vacuum during pressing in a power press. HW.

vacuum pov. A pump with a vacuum chamber in which the clay is de-aired before it passes into the vacuum chamber. See also pov. 1. Dodd.

vacuum refining. The same as vacuum melting. ASM Glass.

vacuum system. A two-pipe steam heating system equipped with vacuum pumps to permit maintenance of pressure below atmospheric within the radiators. Strock, 10.

vacuum tube. A sealed tube or bulb with the contained gas exhausted to a pressure low enough to permit the passage of electrical discharges between electrodes within the tube. The performance of the tube is characterized by electron conduction. A.C.G.

vadose. Applied to seepage waters occurring below the surface and above the water table; contrasted with phreatic, which refers to the ground water below the water table. Holmes, 1928.

vadose water. a. Water retained within the soil mass above the standing water level. Nelson. b. Held water. Ham.


vaska. Soft, compact, mixed claylike material with a flat, even fracture found most often in volcanic tuffs. Bureau of Mines Staff. Not recommended.


vallenger cutter. A cutter chain on an armored flexible conveyor which cuts its own stable holes; pushed by pulsating rams to 10 inches (minimum work-able seam 20 inches; on gradients 0° to 20°; maximum length of face 45 yards.)

valbergite. A fine-grained variety of peridotite composed of olivine, hypersthene, and hornblende; locally, pyroxene is an abundant constituent. Holmes, 1928.

valley. Val Corn. The place where the reserve of tin ore is placed to dry before it is put into the smelting furnace. Fay.

valence. a. The degree of combining power of an element; the number of atoms of hydrogen, sodium, fluorine, or other univalent element with which an atom of the element enters combination. The radical will combine by means of bonds, or for which it can be substituted, or which it can be combined with, and which the oxidation state of an element in a com-pound. Webster 3d. b. A unit of valence; as, the valence in the carbonate. Webster 2d. Symbol, z. Zimmermann, p. 166.

valence bond. Linkage of pairs of electrons so as to unite their atoms as a molecule.

valence electron. Crystals whose atoms are held in position by covalent bonds; for example, diamond and silicon.

valence electron. One, usually on the outer shell of the atom concerned, available for transfer. The number of electrons on the outer shell of an atom which, by capturing it, partly or fully completes its own outermost electron shell.

valence electrons. The number of valence electrons thus transferable with relative ease determines the valence of an atom. In the opposite direction the number of holes in the outermost shell of the accepting atom determines its receiving capacity in terms of valence. An atom is negatively electrovalent when ionized by capture of one or more electrons, and positively (or plus valency) number under opposite con-ditions. The valence shell is the outermost shell of the atom. Pryor, 3.

valencite. An orthoclase feldspar similar to adularia. It is from a silver mine at Valencia, Mex. Webster 2d.

valency. The number of hydrogen atoms or their equivalent, with which one atom of a given element will combine. Pryor, 3.

valentine scale. Pocket-sized beam scale of Chinese origin, used in valuation of al-luvial tin gravels. The beam is so cali-brated as to read in catties per cubic yard. A gold ornament from washing of one-fourth cubic foot has a weight. Pryor, 3.

valentinite. Antimony trioxide, Sb2O3, in or-thorhombic crystal. Fay.

vallendar clay. An imported clay universally used in enamels twenty years ago. The clay was used at Vallendar, Germany. Enam. Dict.
valleite. A massive, soft metallic mineral resembling pyrrhotite in color, $\text{Cu}_8\text{Fe}_2\text{Al}_{12}\text{Mg}_2\text{H}_2\text{O};$ a doubtful, impure mineral.

valleus. See hanging valley. Sacrificedeker.

vallevarite. A somewhat leucocratic monzonic rock composed mainly of andesine, biotite, or low-grade microcline antiperthite, with small amounts of diopside, titaniferous, and apatite. Holme, 1926.

valley. A hollow or low-lying tract of ground between hills or mountains, usually traversed by streams or rivers. To receive the surrounding high ground. Deep, narrow valleys are more appropriately termed gorges, ravines, gorges, or canyons, according to their size and the steepness of the valley walls. Usually valleys are developed by stream erosion; but in special cases, faulting may also have contributed, as in rift valleys. C.T.B. A small, subcircular basin eroded by solution of the crest of an uplift, and having a sink through which its sediments escape; used locally in Missour.

valley loop mask. End moraines of valley. Fay. b. A glacier that occupies a continuous elongated valley. They may have a simple anti-clinal form or occur as a series of dislocations of the strata to the condition of camber over the Inland Valley due to superficial disturbance under its sediments escape; used locally in Missouri.

valley brown ore. A local name for limonite. Fay. b. A local name for limonite. 

valley bulge. The condition of strata in a valley due to superficial disturbance under the ice of a glacier. The strata of an elongated landform are tilted toward the direction of flow of the ice. The condition of camber over the Inland Valley due to superficial disturbance under its sediments escape; used locally in Missouri.

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valley train. A deposit of glacial outwash along the sides and floor of a valley. Fay.


valley glacier. A glacier extending into a valley. Fay. b. A glacier that occupies a valley and is fed from a née reservoir.

valley-loop moraines. End moraines of valley glaciers are usually steep on both sides and flat in the center, as convex on the downvalley side, extending across the width of the valley, and are hence called valley-loop moraines. Stokes and Varnes, 1955.

valley profile. Synonym for talweg. A.G.I.

valley sink. An elongated sink or series of interconnecting sinks forming a valleylike depression. A.G.I.

valley tiles. Specially-shaped roofing tiles for use in the "valley" where two roof slopes meet; these tiles are made to fit into the angle. They lap and course in with the hips of the roof in the valley, as shown in specific gravity layers; and (3) the use of the machine next to the mixing tank of the machine; (2) a baffle in the bottom of the valve; (3) the use of the machine next to the mixing tank of the machine; (2) a baffle in the bottom of the valve; (3) the use of the machine next to the mixing tank of the machine; (2) a baffle in the bottom of the valve; (3) the use of the machine next to the mixing tank of the machine; (2) a baffle in the bottom of the valve; (3) the use of the machine next to the mixing tank of the machine; (2) a baffle in the bottom of the valve; (3) the use of the machine next to the mixing tank of the machine; (2) a baffle in the bottom of the valve; (3) the use of the machine next to the mixing tank of the machine; (2) a baffle in the bottom of the valve; (3) the use of the machine next to the mixing tank of the machine; (2) a baffle in the bottom of the valve; (3) the use of the machine next to the mixing tank of the machine; (2) a baffle in the bottom of the valve; (3) the use of the machine next to the mixing tank of the machine; (2) a baffle in the bottom of the valve; (3) the use of the machine next to the mixing tank of the machine; (2) a baffle in the bottom of the valve; (3) the use of the machine next to the mixing tank of the machine; (2) a baffle in the bottom of the valve; (3) the use of the machine next to the mixing tank of the machine; (2) a baffle in the bottom of the valve; (3) the use of
vanadium ores

vanadinite, descloitite, volborthite, calciocollinite, and saginite. Fay.

vanadium oxide. Yellow to red; orthorhombic; VO₂; molecular weight, 181.88; specific gravity, 3.357 (at 16° C); toxic; melts at 2,980° C; decomposes at 1,750° C before reaching a boiling point; slightly soluble in water; soluble in acids and in alkalis; insoluble in absolute alcohol. Used in ceramics and as a catalyst. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-144, B-236. Also used as a glass colorant, producing various tints of yellow and greenish-yellow.

A pure emerald-green has been produced using this oxide by remelting for a long period of time under reducing conditions. A large excess of alkali leads to the formation of colorless vanadates. When used with cerium dioxide, the green color may be converted to pink or lavender by solution in sulfuric acid. Vanadium in glass inhibits ultraviolet transmission. Lee.

vanadium steel. Steel alloyed with vanadium (usually 0.10 to 0.15 percent), an element which strengthens the steel and serves to remove the oxygen and possibly nitrogen. Webster 3d.

vanadium taurinite. A variety of taurinite containing 5.76 percent VO₃. Spinel, 1959, p. 131.

vanadium yellow; tin-vanadium yellow. A ceramic color produced by the calcination, at about 1,600° C, of a mixture of 10 to 14 percent VO₃ (as ammonium metavananade) and 80 to 90 percent SnO₂. A stronger yellow results if a small amount of TiO₂ is added. These colors can be used in most glasses and either SnO₂ or ZrO₂ can be used as opacifier. Dodd.

vanadium-zirconium blue; vanadium-zirconium turquoise. See zirconium-vanadium blue. Dodd.

vanadium-zirconium turquoise. See zirconium-vanadium blue. Dodd.

vanadoferrite. See ferroferrite. Osborne.

vanados. Of, pertaining to, or containing vanadium. Used especially for compounds in which vanadium has a lower valence than in vanadic compounds. Webster 3d.

vanadyl. Either of two radicals composed of vanadium and oxygen: (1) the univalent, bivalent, or trivalent radical VO; for water, vanadyl sulfate (VOSO₄); and (2) the ditonic radical VO₂⁺. Webster 3d.

vanadyl sulfate; vanadyl sulfate. Blue; crystalline; VO₃SO₄; molecular weight, 163.00; and very soluble in water. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-236. Blue; crystalline; VO₃SO₄·2H₂O; and soluble in water. Used for blue and green colors in glasses and ceramics. CCI 6d, 1961.

vanal. Trade name; a coating for the protection of refractories against slag attack. It contains vanadium and is claimed to prevent slags from wetting the refractory. Dodd.

vanadium. A mineral, Na₃(VO₃)₂·5H₂O, in bright yellow incrustations on weathered shales from northwest Kara-Tau, Kazakhstan, S.S.R. Names from the composition. Handbook of Mineralogy, 1944; Platenker.

Van Allen radiation belts. Several belts of ionizing radiation extending from a few hundred miles to a few thousand miles above the earth's surface. The radiation consists of protons and electrons which originate mostly in the sun and are trapped by the earth's magnetic field.

Van Allen radiation zone. Powerful doughnut-shaped zone of radiation 1,000 to 3,000 miles above the earth's surface parallel with the equator. A.G.I. Supp. vannark and do Boer process. See iodide process. Thomas.

vanadinite. A very rare, strongly radioactive, triglucine, dark green to almost black mineral, Cu₆O·V₂O₅·3H₂O; a secondary mineral found associated with kasolite, sklodowskite, malachite, geomete, chalcocite, chalcopyrite, and uraninite; also found associated with curite, uranophane and cobalt wad; from Karungwe, Katanga, Republic of the Congo. Crosby, p. 58-59; Hey, 2d, 1955.

vanadinite. A very rare, strongly radioactive, amber orange hydrous lead uranate; small pseudohexagonal crystals, commonly barrel-shaped; from Katanga, Republic of the Congo. Crosby, p. 59.

van der Kolk method. A microscopic method for determining whether the refractive index of a mineral grain is higher or lower than that of a liquid medium in which it is immersed and a violet. Light rays from below the stage are cut off by inserting a suitable obstacle, and as the grain acts as a lens, a better focus is obtained. The image, a shadow, appears on the same side as the obstacle when the grain has the higher refractive index, and on the opposite side when the grain has the lower index. Holmes, 1928.

van der Waals' adhesion. Physical, as distinct from chemical cohesion. Normal adhesive forces between molecules, characterized by very low heats of ad- sorption. Pryor, 3.

van der Waals bond. a. A very weak bond found typically in other noble gases, and is due to principally induced polarization resulting from instantaneous dipoles. Aplan, F. F., 1921, 171. b. An intermolecular attraction arising from electrical dipoles, either natural or induced. V.V. c. Weak bonding or a suitable obstacle, and as the grain acts as a lens, a better focus is obtained. The image, a shadow, appears on the same side as the obstacle when the grain has the higher refractive index, and on the opposite side when the grain has the lower index. Holmes, 1928.

van der Waals forces. The weak attraction exerted by all molecules on one another, resulting from the interaction of the electrons and nuclei of the molecules; it has its origin in the electrostatic attraction of the nuclei of one molecule for the electrons of another molecule, which is largely but not completely compensated by the repulsion of electrons by electrons and nuclei by nuclei. These forces are involved in some kinds of adhesion and in the condensation and freezing of the inert gases and nonpolar coherent molecules. The linkage resulting from van der Waals attraction is sometimes called a van der Waals bond. A.G.I.

van Dorn sampler. This sediment sampler consists of a hexagonal cylinder closed at each end by an ordinary rubber force cup. The two cups are connected by a long flexible rubber tubing inside the cylinder, prestressed enough to permit the force cups to retain the sample in the cylinder. In the armature, the two cups are pressed on the cylinder where they are restrained by a releasing mechanism attached to the outside wall. Two short loops on the cups are secured to the releasing mechanism. The cups are released underwater by sending a messenger down the hydraulic wire. This sam- pler does not invert, which prevents use of reversing thermometers in conjunction with sampling. H.G.B.

Vandyke brown. A naturally occurring pigment containing iron oxide and organic matter. Obtained from bog earth, peat deposits, or from other containing bluminous matter. CCI 6d, 1961.

Vandyke red. A brownish-red pigment containing copper oxide and vanadinite. Sometimes used to refer to red varieties of ferric oxide. Used in pigments. CCI 6d, 1961.

van e. The target of a leveling staff; one of the hundredths of a circle or quadrant. Webster 3d.

van e antinodeometer. a. Consists of several light, flat vanes, usually eight in number, mounted on radial arms which are attached to a horizontal spindle. This rotor drives, through a suitable gear train, a counting mechanism which indicates the revolutions of the rotor. The indicating dial, usually graduated in feet of air, may be located either concentrically with the rotor, or in a plane at right angles to the plane of rotation. By observing the number of revolutions over a timed interval, the velocity of flow is found. The instrument is available in a number of forms, to cover velocities ranging from 30 to 6,000 feet per minute. Roberts, I., p. 45-46. See anemometer. Webster 3d.

van e-axial fan. An airfoil (propeller) or disk fan within a cylinder and equipped with air guide vanes either before or after the wheel and including driving mechanism supports either for belt drive or direct connection. A.G.I.

van e feeder. A device for feeding dry ground clay from a hopper to a tempering machine or mixer, for example. Vanes are fixed to a horizontal shaft at the base of the hopper rotate to discharge the material. Dodd.

van e shear test. An in-place shear test in which a rod with thin radial vanes at the end is forced into the soil and the resistance to rotation of the rod is determined. ASCE 1286.

van e shear test. A device used in soil testing consisting of flat blades fixed at the end of a rod. It is forced into the soil, and the torque required to shear the soil, in situ, is determined as a measure of the shear strength of the zone tested by rotating the device. Long.


van e test. A test to determine the shear strength of very soft deposits, such as clays and silts in place (in situ). The values obtained may be used to check the shear strength figures obtained in the laboratory. Boring is first employed to reach the depth required for a test, and the vane is then driven into the deposit. Four vanes or blades project from the end of a rod. It is forced into the soil, and the torque required to shear the soil, in situ, is determined as a measure of the shear strength of the zone tested by rotating the device. Long.

van e test. An intrusive plane parallel to the structure of the country rock but not necessarily following the foliation. G.G.A. Memo. 7, 1959, p. 322.

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vanner
in which the peculiar motions of the

or vapor as compared with some specific
standard (as hydrogen). Webster 3d. Abbreviation, v d; symbol, P. Zimmerman,

There is an end-shake type, which in-

vapor galvanizing. A process for coating metal

shovel in the miner's hands in the operation of making a van are, or are supposed
to be, more or less successfully imitated.

cludes the triumph concentrator. See also
Frue vanner, for a general description of
the side shake type. Fay. b. A miner who
separates ore with a shovel or pan. Web-

ster 3d. c. A wide, traveling, shaldng
rubber belt, for the concentration (dressing) of ores. C.T.D.
wanner grease belt. Consists of an endless
rubber belt, 36 inches wide, running on
rolls that are 61/2 feet between centers.
The outer surface is coated with grease.
The structural assembly is oscillated transversely, and it is tilted slightly downward

toward the tail pulley. Feed is dropped
onto the greased surface near the tail

pulley, and it is carried up the belt
against a counterflow of water. I.C. 8200,
1964, p. 72.

vannerman. In ore dressing, smelting, and
refining, one who operates a vann:r to
separate the valuable mineral from the
gangue (waste minerals) in an ore. Aho
called vanner operator. D.O.T. 1.
vanning. Corn. a. A rough assay for cassiterite made by washing a pulverized sample

on a flat vanning shovel. Largely superseded by use of vanning plaque, a white
enameled dish on whii.:n heavy and light
fractions of a finely divided wet sample
can be separated and inspected. Pryor, 3.
b. See van b. Fay.
vanning machine. See vanner, a. Fay.
vanoxite. A rare, weakly radioactive, black

mineral, 2V,CIE.V205.8H20, occurring in
the Colorado Plateau area as a cementing

;
P

material in sandstone, and as masses replacing wood; found associated with carnotite, gypsum
hewettite pintadoite,
tyuyaxnunite, and pyrite. See also kentsmit'aite. Crosby, p. 83.

vanthoffite. A colorless sulfate of sodium and
magnesium, 3Na2S0E.MgSO4. Crystalline.

From Wilhelmshall, Stassfurt, Germany.
English.

vanoralite. A mineral, (U0s).A1(VO4)r
(OH) .81120, yellow, monoclinic; occurring at Mounana, Gabon Republic.
Named from the composition. Hey, M.M.,
1964; Fleischer.

vapart mill. A centrifugal grinder for pulverizing ore, coal, and coke. Fay.
vapor. a. Diffused matter (such as smoke, fog,

mist, steam, or an exhalation) suspended
floating

in the air and impairing the

transparency of the air. Webster 3d. b. A
substance in the gaseous state as distinguished from the liquid or solid state; a

gasified liquid or solid; a gaseous substance that is at a temperature below its
critical temperature and therefore liquefiable by pressure alone. Webster 3d.
Abbreviations, V and v. Webster 3d;
Zimmerman, p. 1 15. c.
mine. Fay.

variolite

1197

Foul air in a

vapor barrier. A material intended to prevent

the passage of water vapor through a

building wall so as to prevent condensation within the wall. Strock, 10.
vapor blasting. The same as liquid honing.
ASM Gloss.

vapor degreasing. Degreasing work in vapor

over a boiling liquid solvent, the vapor
being considerably heavier than air. At
least one constituent of the soil must be
soluble in the solvent. ASM Gloss.
vapor demity. The relative density of a gas

the squares of the deviations of several
obruvations. Ham. b. The number of unassigned variables in a materials system.
VV.

p. I 15.

variance analysis.

Isolation by statistical

(usually iron or steel) surfaces with zinc

methods of research, control, or cost ac-

instead of, as in ordinary galvanizing, to

by determination of
their magnitude as a step in process study
or in managerial control by variance.
Pryor, 3.
variance control. Scrutiny of working data as

countancy, of causes of variation in a

by exposing them to the vapor of zinc

process, followed

molten zinc. Also called sherardizing. Fay.
vaporimeter. a. An instrument for measuring

the volume or the pressure of a vapor;

specifically, one used in alcoholometry.

Webster 3d. b. An apparatus in which

the volatility of oils is estimated by heat-

ing them in a current of air. C.T.D.

vaporization. The act or process of changing

means of managerial control. Emphasis
is placed on changes in a conenuous or
repetitive system rather than on performance norms. Pryor, 3.

a substance from a liquid to a gaseous
state. A.G.I.

variance in sampling. In statistical mathematics, the mean squared deviation of

vapor plating. Deposition of a metal or com-

Varian nuclear magnetometer. This mag-

items from the established mean. Pryor, 3.

vapor-phase dispersion. See gaseous dispersion

pound upon a heated surface by reduction or decomposition of a volatile compound at a temperature below the melting points of the deposit and the basis

material. The reduction is usually accomplished by a gaseous reducing agent such
as hydrogen. The decomposition process
may involve thermal dissociation or reaction with the basis material. Occasionally used to designate deposition on cold
surfaces by -vacuum evaporation. See also
deposition, b. ASM Gloss.

vapor pressure. a. The pressure at which a
liquid and its vapors are in equilibrium

at a definite temperatUre. If the vapor

pressure reaches the prevailing atmospheric pressure, the liquid boils. Hackh's
Chem. Dict. Symbol, p. Handbook of
Chemistry and Physics, 45th ed., 1964,

.

F-100. b. A component of atmospheric

pressure which is caused by the presence
of water vapor. It is expressed in inches
of mercury. Taylor.
vapor suppression. A safety system that can

be incorporated in the design of struc-

tures housing water reactors. In a vaporsuppression system, the space surround-

ing the reactor is vented into pools of
water open to the outside air. If surges
of hot vapors are released from the re-

actor in an accident, their energy is dissipated in the pools of water. Gases not
condensed are scrubbed clean of radio-

active particles by the bubbling. L&L.
vapor system. A steam heating Lystem operat-

ing at pressure very near that of the at-

mosphere. Strock, 10.
Vaqueros formation. Strata of shallow water
origin and of lower Miocene age. The formation includes the chief oil-bearing swads
of the Caolinga District, Calif. C.T.D.

var Abbreviation for reactive volt ampere.
vara. An old Spanish unit of length, used in

the southwestern United States and in

Mexico. One vara is equivalent to 331/3
inches in Texas, 33 inches in California,
and 32.9931 inches in Mexico. A.G.I.
V-archIng. Rock failure above a tunnel due
to ring stresses. These cause rock to crack

across a weakness plane and fall. The

final shape is a reentrant V rathei *ban a
rounded arching. Pryor, 3.
variable area method. A method of recording
seismic impulses wherein the area of exposure of a photosensitive film or paper
is

proportional to the intensity of the

seismic impulse. A.G.I.

variance. a. Defined as the square of the
standard deviation, it is the average of

1204

netometer is available in two models, one
for airborne surveys and the other for use

on the ground. Both measure the total
magnetic field of the earth rather than

its components. Dobrin, p. 288.
variation. The angle by which the compass
needle deviates from the true north; subject to annual, diurnal, and secular
changes. Called more properly declination of the needle. Standard, 1964. See
also declinatiln. Fay.
variation compass. A compass of delicate
construction for observing the variation
of the magnetic needle. Webster 2d.
variation diagram. A graphic representation
of the variation in composition of the

members of a series of related igneous
rocks; fo- e:ample, by plotting the bases
as ordinatei against silica as abscissae.

Holmes, 1928.
variegated. Showing variations of color, espe-

cially reticulate patterns or mottling effects. Stokes and Vaults, 1955.
variegated copper me. Bornite, erubescite.
Pryor, 3.
variegated ore. Same as bornite. Fay.
variegated sandstone. Generally, a sandstone
showing color variations or mottling.
More specifically, a proper noun synony-

mous with the Triassic New Red Sandstone of England or the Bunteseldstein

of middle Europe. Bureau of Mines Staff.
variegated slate. See colored slates. AIME,
p. 793.
varietal ruiners!. A characterizing accessory
mineral either present in considerable

amounts in a rock or distinctive of 'he
rock. A mineral that distinguishes one
variety of rock from another. In detrital
rocks, the varietal minerals are usually
of high specific gravity (heavy minerals)

and/or are those most resistant to abrasion. Synonym for characterizing acces-

sory mineral. A.G.I.
variety. In mineralogy, a mineral showing
differences in color, other physical properties, or minor variations ni composition
from the materi.il considered typical of
the species. An cxample is emerald, the
green-colored gem beryl. Hess.
varigradation. In geologyi a process by which
all streams of progressively increasing vol-

ume tend constantly, in a degree varying
inversely with the volume, to depart from

variole. A spherule of a variolite. Webster 3d.
variolite. A fine-grained igneous rock of basic

composition containing small, more or
less, spherical bodies (varioles) consisting
of minute radiating fibers of feldspar,
comparable with the more perfect spheru-


variolite

lites of acid igneous rocks. The term would be better used as an adjective, that is, variolitic basalt, etc. C.T.D. Synonym Veat.

variolitic, Of relating to, or resembling variolite. Webster 3d.

variolite. A coarse-grained dike rock essentially composed of albite and augite, with accessory apatite, magnetite, and chlorite. From Varisvik, Sweden. English.

var. a. Any sedimentary bed or lamination that is deposited within a year's time. A.G.I. b. A pair of contrasting laminae representing seasonal changes. A.G.I.

varved clay. Alternating thin layers of silt (or fine sand) and clay formed by variations in sedimentation during the various seasons of the year, often exhibiting contrasted colors when partially dried. ACSB, P1826.

varves. Clayey soils containing thin alternate layers of different particle sizes; often combine the undesirable properties of clay and silt; formed from seasonal deposits from glacial streams. Nelson.

vaseline. Mixture of hydrocarbons left after distillation off petroleum. See also petroleum. Pryor, 3.

vauguelinite. A green aluminum phosphate, $4\text{Al}_2\text{O}_3\cdot\text{P}_2\text{O}_5\cdot3\text{H}_2\text{O},$ occurring as nodular masses. Holmes, 1928.

vautierite. A mineral used in the manufacture of light bulb filaments. See also light bulb. ACSB, 3d. It is used in Cornish pumping engines. Fay.

vector. a. An entity represented as a directed magnitude, such as velocity, which is defined as consisting of a speed and a direction. See also scalar. Hy. b. See hard vector. Long.

v-bricks. A series of perforated clay building bricks designed by the Building Research Station, England, in 1959-60; the name derives from the fact that the perforations are vertical. Dodd.

v-bucket conveyor elevator. See gravity discharge conveyor elevator. ASA MH4.1-1938.

v-box. A vessel or tub in which ore is washed prior to chemical treatment. See also vat. Fay.

v-cuts, a. In mining and tunneling, a cut where the material blasted out in place resembles the letter V; usually consists of six or eight holes drilled into the face, half of which form an acute angle with the other half. Fay. b. In underground blasting, a type of cut employed in which the cut-holes meet in a V to pull the cut to the bottom of the holes properly. A single pair of holes may do in one kind of rock, but in another, two or three sets of V-holes entirely across the face may be needed. Also called cee cut; wedge cut. Levent, p. 165. c. All edge cuts converging towards the central area of the mica piece. Skew.

v-d Abbreviation for vapor density. Zimmer- man, p. 115.

v-d Abbreviation for vitreous enamel. See also vitreous enamel. Dodd.

v-driving. Somewhat related to double driving but is usually caused by loss of set in the ground coat which allows the driving to sag in a minute V-form. ACSB, 3.

vane. a. A water box or chest, usually on an wheel, for removing water. Also called ghost. Fay.

vaneite. a. A white hydrous borate of calcium, $2\text{Ca}_6\text{O}_5\text{H}_2\text{O},$ or $2\text{Ca}_6\text{O}_5\text{H}_2\text{O}+\text{H}_2\text{O}$. Fay.


vane, vane. English.

vence, veez. v. Abbreviation for vitreous enamel. See also vitreous enamel. Dodd.

vee cut. See wedge cut; V-cut.

vee cut. See wedge cut; V-cut.

vee-jewel. A jewel bearing fitting into a cuplike depression. Hess.


vee; veez. a. A layer of soft clay or earth on the sides of a fault or dike. See also feathered. Nelson. b. The acute angle between the fault plane and a coal seam, for example, working the coal to the vein. From the veering of the fault. Nelson. c. Scot. The line of intersection of the fault. Fay.
velocity head

The velocity head is the product of the density of the fluid, the absolute velocity of the fluid, and the unit weight of the fluid. It is given by the formula:

\[ \text{Velocity Head} = \rho \cdot v \cdot g \]

where:
- \( \rho \) is the density of the fluid,
- \( v \) is the velocity of the fluid, and
- \( g \) is the acceleration due to gravity.

This concept is crucial in understanding the behavior of fluids in pipes, conduits, and other flow systems. It helps in the design and analysis of hydraulic systems, where the pressure and flow rates need to be balanced to ensure efficient operation. The velocity head is particularly important in the study of fluid dynamics and in the design of pumps, turbines, and other hydraulic machinery.
velocity head

If at a given point the velocity is \( v \) feet per second, the velocity heat at this point is

\[ Q = \frac{1}{2} \rho v^2 \]

where \( \rho \) is the density and \( v \) the velocity. The velocity head is useful in determining the energy available from a fluid flow. For instance, in the context of water flow, the velocity head is defined in terms of the velocity of the fluid and its density.

velocity level. The velocity level, in decibels, is a measure of the intensity of a sound wave, which is defined as

\[ L_v = 20 \log_{10} \left( \frac{v}{v_0} \right) \]

where \( v \) is the velocity level in decibels, \( v_0 \) is the reference velocity level (usually 0 dPa), and \( L_v \) is the sound pressure level in decibels.

velocity hydrophone. A hydrophone is a device that responds to the pressure variations caused by moving water. A velocity hydrophone is designed to measure the velocity of sound in water, which is important in underwater acoustics and oceanography.

velocity of approach. In underwater acoustics, the velocity of approach is the speed at which a sound wave travels through water, typically measured in meters per second (m/s).

velocity meter. A velocity meter is a device used to measure the velocity of objects or fluids. It is often used in conjunction with other instruments to monitor specific parameters of a system.

velocity pantile. A velocity pantile is a seismic reflection spread, which is used in geophysical exploration to study the subsurface structure of the Earth.

velocity head. A velocity head is a pressure head that is proportional to the kinetic energy of a fluid. It is important in fluid mechanics and is used to describe the energy imparted to a fluid by a moving object.

velocity head. A velocity head is a measure of the energy available from a fluid flow, which is given by

\[ h_v = \frac{v^2}{2g} \]

where \( v \) is the velocity of the fluid and \( g \) is the acceleration due to gravity.

venetian red. A pigment consisting of a mixture of equal parts of white lead and barite.

venetian glass. A style of glass having an excessive amount of decoration, usually on a very light and delicate foundation. It was developed by the Venetian glassworkers in Murano.

ventilating wall. A wall having a facing (of facing or tile, for example) which is attached to the backing but not in a way to transmit a full share of the pressure and the backing do not exert a common action under load. 

ventilating wall. A wall having a facing (of facing or tile, for example) which is attached to the backing but not in a way to transmit a full share of the pressure and the backing do not exert a common action under load.

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ventilation

ing in a mine. Fay. b. The principal air-conditioning process concerned with control of air circulation. Hartman, p. 73. c. The provision of an adequate flow of fresh air along the drifts while traveling roads, workings, and service points underground. Ventilation is an essential factor in safety, health, and working efficiency and is also necessary to dilute and remove noxious or flammable gases and to abate such problems as fogging, freezing, and high temperatures. See also ascensional ventilation; auxiliary ventilation; descentional ventilation; fan; ventilation planning.

ventilation, auxiliary. See auxiliary ventilation.

ventilation department. A department for the purpose of planning adequate and economic ventilation for all future projects and to provide frequent information on existing ventilation systems. Nelson.

ventilation doors. Doors constructed to close off the unused or existing ventilation systems.

ventilation ducts. Two kinds are available: (1) flexible ducts generally consist of flexible metal, canvas, or rubber with rubber or polyvinyl chloride, a non-flammable substance. They are available in varying sizes and lengths for use in temporary installations as in the bord-and-pillar mining of coal. It is suited also for use in crooked workings of limited extent. It has a higher resistance and a greater tendency to leak than rigid ducting; and (2) rigid ducts are made of steel pipe which has welded seams and a bolted or a quick-release clip joint. See also auxiliary ventilation; flexible ventilation; stoppage; shunt ventilation. Nelson.

ventilation, reversal of. In the case of a centrifugal fan, the reversal arrangement may consist of an auxiliary drift connecting the fan with the downcast shaft. The drift is normally sealed off by air tight doors. In the case of an axial-flow fan, it is only necessary to reverse the rotation of the fan. This arrangement entails a reduction in volume and pressure in the reversed air flow. Nelson.


ventilation, splitting, splitting. Mine workings are usually subdivided to form a number of separate ventilating districts. Each district is provided with a ventilation system and is connected to the main system at the intake and the exhaust. These two systems are connected to supply fresh air to a working place. Long.

ventilation survey. In order to distribute the air in a mine efficiently and economically, ventilation surveys must be conducted. They may be classified as: (1) qualitative surveys to determine the proportion of flammable or poisonous gases, or dust, in the air which is being circulated through the mine, or in hot and humid mines to determine the conditions of air temperature and humidity; (2) quantitative surveys to determine the quantity of air being circulated through the mine workings for a variety of reasons. This is done by measuring the volume of air passing at different points in the circuit by means of the anemometer, in order to investigate the existing air distribution, particularly to the individual faces, the location of leakage, and the possibility of its reduction or elimination; and (3) pressure surveys to determine the pressure induced and the resistance of the roadways and faces included in the survey. This can be done by providing air to circulate the air in the different sections of the circuit and that expended in ventilating individual districts be determined. The total pressure expended in ventilating the mine may then be summed and the cost estimated. Sinclair, J., p. 133. Systematic observation of air pressure, quantity and quality throughout a mine is the best way to allow a detailed analysis of the ventilation of the system. B.S. 3618, 1963, sec. 2.

ventilation symbols. A set of standard letters, signs, or marks used on mine ventilation plans to represent certain appliances or constructions that direct and control the flow of air underground. For example, a regulator is denoted by R inside parallel or opposite a roadway. Nelson.

ventilation tubing; ducting; air pipe. Sheet steel or canvas piping 12 to 24 inches in diameter for conveying or to a tunnel or a hard heading face, or sinking pit. The tubing extends from an auxiliary fan to within a few yards of the face to be ventilated. The National Coal Board, Great Britain, has adopted a standard steel pipe which has welded seams and a bolted or a quick-release clip joint. See also auxiliary ventilation; flexible ventilation; ducting; shaftsinking ventilation. Nelson.

ventilator. a. A mechanical apparatus for producing a current of fresh air. Fay. b. A furnace for ventilating a mine by heating the underground air. Fay. Also called a device for providing fresh air to a room or other space by (1) introducing outside air, or (2) exhausting foul air. Nelson.

ventilation. See ventilation, stoppage.


vent tube. A hose or piping conducted air ejected drill cuttings from the borehole and being connected to the open air. Long. Nelson. b. An exhaust pipe or tube. Long. Nelson. c. A canvas tubing suspended from a winch in a mine to supply fresh air to a working place. Long.

ventubes. Tubes of sheet iron or canvas up to 100 centimeters in diameter through which the air can be easily connected. They are used in mine ventilation to lead the air whereby it is introduced at the face or called ventilation pipelines. Stokes, v. 1, p. 534.

venturi. A contraction in a pipeline or duct producing a current of air underground and increasing the air flow. Nelson.

venturi blower. a. A device resembling a Venturi meter, that is utilized in directing the jet of compressed air for short headings. The device is commonly made at the mine, and one well-proved type is called the Modder Deep. These blowers are mainly used in conjunction with 14- or 16-inch ducting for the ventilation of headings several thousand feet in length. Roberts, 1, pp. 223-224. b. An apparatus to induce a flow of air or gas in a duct by means of a jet of compressed air or water from a small nozzle in the duct. B.S. 3618, 1963, sec. 2.

venturi flume. A type of open flume with a contracted throat that causes a drop in the hydraulic gradient; used for measuring flow. Stokes, v. 1, p. 534. A control flume which consists of a short contracted section in the flume opened by one expanding to normal width. See also control, a. Nelson.

venturi meter. A tracer device in the form of a nozzle arranged to measure the flow of a liquid in pipes. Small tubes are attached to the Venturi meter and at the point where the liquid enters the converging entrance. The difference in pressure heads is shown on some form of display.

Venturi tube. A closed conduit which is gradually contracted to a throat causing a reduction of pressure head by which the velocity through the throat may be determined. The contraction is generally followed, but not necessarily so, by gradual enlargement to original size. Piezometers connected to the pipe above the contracting section and at the throat indicate the drop in the pressure head which is an index of flow. Seeley, 1.

vent, volcanic. See volcanic vent. A.G.I.

vent wire. A wire used by founders to make Venus's hahstone. Quartz containing needle--like pyroxene, originating in an igneous rock, or a sedimentary rock consisting largely of siltstone or sandstone. It is a rock found on the South American continent and is often classed as a marble. Sanford.

verdigris. a. An oxidation on the surface of a metal produced by atmospheric effects. The color is often classed as a marbling. Used in paintings, and the green vernier-reading manometer.

c. A green powder used as an imitation of cinnabar. Schaller.

d. A glassy, basaltic lava containing phenocrysts of biotite, olivine, augite, and sometimes plagioclase and potassium feldspar. Formed on the border of an igneous intrusion, or a lava flow. German Schaller.

verdite. A green rock, consisting chiefly of green mica (fuchsite) and clayey matter, occurring as large boulders in the North Kaap River, Republic of South Africa. C.M.D.

verdigris. a. Verdigris. Webster 2d. b. Either of two basic carbonates of copper used as pigments, and prepared either by grinding the mineral azurite (giving blue verditer), or artificially. Webster 2d.

c. Talcose-dolomitic breccia rock from New Jersey, Schaller.

d. A gable edge of a tilted roof. At the verge the roofing tiles are edge-bedded, preferably on a single or double undercloak of plain tiles. This form of undercloak gives a neat appearance to the verge and slightly inclines the verge tiles so that rainwater is turned back onto the main roof. Dodd.

verge. The direction of overturning of folds. Chalmers.

vermeil garnet. a. A tool used in deep boring for detaching and bringing to the surface portions of the wall of the borehole at the desired level. For gas testing, an apparatus by which the amount of gas required to produce a flame of a given size is measured; a gas verifier. Standard, 1964.

verite. A glassy, basaltlike lava containing phenocrysts of biotite, olivine, augite, and sometimes plagioclase and potassium feldspar, in a glassy groundmass; from Vera, Spain. Webster 2d.

vermell. a. Vermillion. Webster 2d. b. An orange-red garnet; spinel; ruby. Webster 3d. c. A red varnish applied to a gilded surface to give lustre. Webster 3d. d. Gilded silver, bronze, or copper. Webster 3d.

vermell garnet. A trade term for any orange-red garnet; same as garnascite garnet. Also sometimes applied to any brownish-red garnet. Shipley.

vermell ruby. An orange-red to red-brown corundum. Shipley.


vermeculized. Stones, etc., worked so as to have the appearance of having been eaten into by worms. Crispin.

vermiculite. A mineral of the mica group that is soft-bodied and more or less verniform in habit. Forms, and usually held to be a purely phyllosilicate mineral. Schaller.

vermilion; vermilion. a. A red pigment used in enormous quantities. Usually made from mercuric sulfide, HgS, tinted with pararosaniline. Crispin. b. A bright red pigment consisting of mercuric sulfide. Prepared synthetically (as by the reaction of mercury, sulfur, and sodium hydroxide), but formerly obtained from the mineral cinnabar. Color ranges from crimson to nearly orange when finely divided. Both spellings are correct. Webster 3d. c. Synonym for alpha mercuric sulfide and for the mineral cinnabar which is natural alpha mercuric sulfide. See also mercuric sulfide, red. Handbook of Chemistry and Physics, 45th ed., 1964, p. B-194.

vermilion opal. Milky opal impregnated with cinnabar. Schaller.


vermillon. In the Lake Superior region, the lowest of the strata of schists; the crystalline schist. Fr.}


vermeulian process. The technique invented by the French chemist Verneuil for the manufacture of synthetic corundum and spinel by fusing pure precipitated alumina, to which has been added a pre-determined quantity of the appropriate oxide for coloring, in an oxygen-coal-gas furnace. C.T.D.

vermiller. A small auxiliary scale in sliding contact with a main measuring scale on precision measuring instruments. It is calibrated so as to be slightly out of phase with the main scale. This gives a magnified reading of one main division and facilitates reading with an accuracy proportional to the recurrence of the markings which are in phase. If, for example, the main scale is graduated in centimeters and tenths, and the vernier is 0.9 centimeters divided into tenths, then a reading to the nearest 0.01 centimeter is registered where two marking lines meet. Pryor, 3b. In a spudding drill, a brake adjustment that permits the line to lay out automatically as the hole deepens. Nichol.

vermiller closure meter. An instrument consisting of two steel rods, graduated with a vernier scale and sliding over one another through a pair of clamps. Such an instrument may readily be made in a mine workshop and can be designed to read to either one-thousandth of a foot or one-hundredth of an inch without difficulty. Used to measure strain. Isaction, p. 193.

vernier compass. Scot. A mining compass for measuring angles without the use of the magnetic needle. Fay.

vernier-reading manometer; micrometer-reading manometer. This series of manometers covers a range of pressures from 0.001 inch water gage to 1 inch water gage. Essentially the instrument is a U-tube consisting of two reservoirs connected by a flexible rubber tube. One of the reservoirs is fixed while the other may be lowered or raised to balance the applied pressure difference by means of a screw.
vernier reading manometer

arrangement provided with either a vernier or micrometer reading attachment. Roberts, I, pp. 33-34.

Vernon shale. A division of the Middle Si- lurian of Eastern United States; it consists of red shales laid down under continental conditions as lagoonal deposits, underlying the Syracuse salt series. C.T.P.


versant. One side or slope of a mountain range; as, the east versant. Fay.

versed sine. The versed sine of an arc is that part of the diameter included between the extremity of the arc and the foot of the sine. Zern, p. 30.

verteculate. A pigment essentially a bicarbonate of copper. Used for producing a coppery, greenish, effect. Not to be confused with the perpenticular rock, verde antique. C.C. 6d, 1961.


vertical (of curve). See point of intersection, b. Seely, 2.

vertical a. A term used to define a direction which is perpendicular to a horizontal, or level, plane. A.G.I. b. Local usage for vertical fractures, especially in the Black Hills of South Dakota. A.G.I. c. Imaginary vertical line at any point in a stream or other body of water extending from the surface to the bottom. A.G.I. d. Said of deposits and coal teams with a dip of from 60° to 90°. Stoes, v, i, p. 56.

e. In aerial photographic mapping, a vertical line through the exposure station, or rear nodal point. Seely, 2.

vertical accretion deposit. Sediment accumula- tively formed by processes of deposition or by parallel paths. Thus, each pair of opposing shelves or brackets receive objects (usually dish trays) and deliver them to any number of elevations. ASA MH4.1-1958.

vertical circle. Graduated circle on theodo- lite or tachometer, by use of which the slope of the collimation line through sighting telescope is measured in survey work. Pryor, 3.

vertical collimator. An instrument in which the telescope sights vertically (upward or downward); used chiefly for centering a theodolite on a tower exactly over a station mark on the ground. It may be used for any vertical sight. Seely, 2.

vertical component. That part, or component, of a vector that is perpendicular to a horizontal or level plane. A.G.I.

vertical curve. a. The curve between two lengths of a straight roadway which possess different gradients. The curve provides a gradual change for haulages from one inclination to the other. The curve leading to the top or brow of an inclined plane would curve concave and concave at the bottom. Nelson. b. The graduated curve connecting two lengths of a railway or road which are at different slopes. Ham. c. The meeting of different gradients in a road or pipe. Nichols.


vertical drain. Usually column of sand used to vent water squeezed out of humus by weight of fill. Nichols.

vertical exaggeration. In a stereoscopic image, the increase in relief seen by the eye. A.G.I.

vertical fault. A fault in which the dip is 90° with the horizon, or directly downward. Fay.


c. For any vertical sight. Seeley, 2.

vertical hole. A borehole drilled vertically downward or upward. A.G.I.

vertical intensity. The magnetic intensity of the vertical component of the magnetic field, reckoned positive if downward, negative if upward. A.G.I.

d. The vertical component of the magnetic field intensity. Schiefer- decker.

vertical mill. A rolling mill in which the rolls operate vertically, Osborne.


vertical photograph. A photograph of a strip of country taken with an air-survey camera, set truly vertical in the survey air- craft. The camera is provided with a wide angle lens and the photographs are taken at precisely controlled intervals so that stereoscopic pairs can be produced for subsequent detailed mapping. Ham.

vertical-position welding. Welding where the axis of the weld is essentially vertical. A.M.S. Gold.

vertical pump. This pump is often of tic; single-acting bucket or ram type with single or double cylinders and either with or without a flywheel. Vertical pumps may be used where headroom is adequate but area restricted, although horizontal reciprocating pumps are more generally used. Sinclair, IV, p. 51.

vertical recieving convexor. A power or gravity actuated unit which receives objects on a carrier or car bed usually constructed of a power or roller conveyor. The object is then elevated or lowered to other elevations. ASA MH4.1-1958.


vertical sand drain. a. A boring through clay or silt which is filled with sand or gravel to facilitate drainage of liquid from the soil. Ham. b. See perched water table. Nelson.

vertical screw conveyor. A screw conveyor which conveys in a substantially vertical path. See also screw conveyor. ASA MH 4.1-1958.

vertical seismograph. An instrument that registers the vertical component. Schiefer- decker.

vertical separation. In faulting, the separa- tion between the two limbs of the dis- placed index plane (bed, vein, dike, etc.) measured in a vertical direction. A.G.I.

vertical shaft. A shaft sunk at an angle of 90° with the horizon or directly downward toward the center of the earth. Weed, 1922.

vertical shear. Reference is to a beam, assumed for convenience to be horizontal and to be loaded and supported by forces all of which lie in a vertical plane. The vertical shear at any section of the beam is the vertical component of all forces that act on the beam to the left of the section. The vertical shear is positive when upward and negative when downward. The shear equation is an expression for the vertical shear at any section in terms of x, the distance to that section measured from a chosen origin, usually taken at the left end of the beam. Ro.

vertical shift. The vertical component of the shift. See also shift, i. Fay.


vertical slip. The vertical component of the slip; this is the vertical component of the dip slip. Synonym for vertical component. Schieber-decker.

vertical takeup. A mechanism in which the pull is taken up by the rope traveling in a vertical plane. NEMA MB-1961.

vertical theory. The earliest view of subbi-
vergence in which it was supposed that the lines of break (limiting lines) were more or less vertical. Pillars left for support were accordingly formed immediately under the object to be protected, the questions of dip being disregarded. Briggs, p. 37.

very thick band. A field term that, in accordance with an arbitrary scale for use in describing banded coal, denotes a vitrain band exceeding 50 millimeters (over 2 inches) thick. Compare thin band; medium band; thick band. AGI.

vesbian. An extrusive rock composed of leucite, subordinate augite augite, and melilitc, with accessory apatite and opaque oxides. A melilitic leucite. AGI.

vesicle. A small cavity in an aphyric or glassy igneous rock, formed by the expansion of a bubble of gas or steam during the solidification of the rock. Fay.

vesicular. a. Characteristic of, characterized by, pertaining to, or containing vesicles. Fay. b. Having a cellular structure; applied to those clays which have become bloated by overfiring. HW. c. See cellular.

vesiginite. A vitreous lustered mineral, CuBa(Y0,),(OH)2, occurring as lamel-
kalaggregates and as polysynthetic twins with pseudohexagonal outline; yellow- green to dark olive-green; from Friedrich- thuringia, Germany. American Mineralogist, v. 40, No. 9-10, September-October 1955, p. 942.

vesillonite. In geology, the tenth series of the Pennsylvania system of stratigraphy, comprising the Pocomo sandstone of the Lower Carboniferous. Olds.

vesi. The area at the entrance of drier tunnels where cars of greenware can be vibrated by, or, containing vibrators. Fay.

vesibule. A term that, in the English language, signifies the productive part of the testa of an egg. Fay.

duct. A bridge carrying a road or a railway across a valley. See also aqueduct. Ham.

vial. Synonym for acid bottle. Long.

vibrose. A vibrating ore screen in which the feed is from a saucer-shaped distribu-
ter onto a conical surface kept in vibra-
tion by a ratchet motion. Liddell 2d, 192.

vibrate. To have a swinging or oscillating motion; to move or swing back and forth, as a pendulum, to have a period of vibration; to fluctuate; to vacillate; to sound, at the voice vibrates in the ear; to throb. A. G. I.

vibrated concrete. Concrete compacted by vibration during placing. Taylor.

vibrating ball mill. A mill supported on springs so that an out-of-balance mecha-
nism can impart vibration to the mill, usually in the horizontal plane, and typically at about 1,500 cycles per minute. Advan-
tages over the ordinary ball mill are in-
creased rates of grinding (particularly with very hard materials), lower energy consumption per ton of product, and less noise. Dodd.

vibrating conveyor. a. A trough or tube flex-
bly supported and vibrated at relatively high frequency and small amplitude to convey bulk material or objects. See also oscillating conveyor. ASA MH14-1953. b. A metal trough mounted on flexible supports and designed to move in a vertical plane. It is vibrated at an angle of about 30° to the horizontal. The material being conveyed moves in a series of gentle pitches and catches that blend to produce continuous, uniform flow. There is no tumbling or sliding of the material to cause wear of the trough. There are two basic types of vibrating conveyors: (1) the natural frequency type (those sup-
ported by heavy duty stiff coil or leaf springs), and (2) forced vibration types (those sup-
ported by leaf springs and rotating eccentrics). The mine, or more slightly inclined screening surfaces mounted in a robust frame. To in-
crease the capacity and prevent blinding the screening surfaces are caused to vibrate. This may be done by mounting the screen on powerful springs and caus-
ing it to bear down on the underside of the frame. An alternative method used in the Hummer screen is to stretch the wire screen to a high tension and mount at some convenient point on the frame an electromagnet actuated by an alternating current. The magnetic works against the springs on which the screen is mounted and in this way very rapid vibration can be secured and blinding greatly reduced. Mill.

vibrating screens (heated). Wire-mesh screens that are vibrated and heated electrically to increase their efficiency. See also screens. AGC, 1963.

vibrating-type conveyor. See conveyor, vibrat-

vibrating wire transducer. A device that can be used to measure ocean depth. The vibrating element is simply a very fine
vibrating wire transducer

tungsten wire which is stretched in a magnetic field. The wire vibrates at some predetermined frequency which is determined by the length and tension of the wire. Pressure changes by varying the tension in the wire will change the vibration frequency of the wire. H&G.


vibration drilling. Drilling in which a frequency of vibration in the range of 100 to 20,000 cycles per second is used to fracture rock. Ultrasonic drilling is one of the more known methods of vibration drilling. Mining and Minerals Engineering, v. 1, No. 5, January, 1965, p. 178.

vibration mark; chattermark; herringbone marking. A rare modification of a groove produced by the friction of tool against work in unsound rock. Grove.

vibration method of roof testing. The finger test. An approximate grading test of roofs to determine whether the roof is sound or not. Grove.

vibration test. An approximate grading test of roofs to determine whether the roof is sound or not. Grove.

vibratory pressing. A process for forming re-

fractory shapes, in which the ground surfaces are packed closely together, and made rigid by the slow-impact-type vibrations of the top and bottom dies. Also called impact pressing. HW.

vibratory screening: A screening similar to the shaking screen but the reciprocating movement imparted to it is of greater frequency than that of the slow movement of the shaker in preventing binding of holes and the screening is more effective. It may contain one, two or three screen decks with water sprays for washing products when screening. Five products ranging from plus three-fourths to minus one-eighth inch are possible from a double deck screen. In general, the screen is inclined at from 12° to 14° for the coarser sizes and 17° to 21° for the finer sizes with counterflow operation. See also pool washing screen; varioplate screen. Nelson.

Vibrex grease table. A device to concentrate and separate diamonds from gangue material. It is based on the principle that sharp short vibrations in rapid succession transmitted to a greased surface cause diamonds to become imbedded in the grease while water washes away other materials. I.C. 8200, 1964, pp. 66, 72.

Vibrogel. Special gelatin dynamites; used for blasting. A.G.I.


Victoria green. A bright green ceramic color. A typical batch composition is: 38 percent CaO, 20 percent CaF2, 22 percent SiO2.試. This batch is calcined, washed free from soluble chromate, and ground. The coloring agent is said to be uranovite (CaO Ca2(SiO3)2).

Victoria's coupling. A development in which a pair of circular bands, a tool instead of the usual threads. Two ends of pipe are then lined up and a rubber ring is fitted around the joint. A pair of semi-circular bands, a forming, are placed around the ring and are drawn together with bolts. The ridges fit on both edges which fits into the groove of the pipe. As they are tightened, the rubber ring is compressed, making a tight joint, while the ridges fitting in the grooves make it strong mechanically. Victoria's pipe is easier to lay because the bands have not to be aligned perfectly and screwed in. Kentucky, pp. 116-119.

vicinal fluid. A corrosive pipe joint which allows the pipes to move through several degrees after fixing but yet to remain watertight. This joint is designed to allow 12° of movement without causing leakage. The pipes have specially shouldered ends which are contained by a butt-on-flat rubber washer held by a special circumferential-type flange. The water has access to the inner part of the washer, on which it exerts pressure and thereby seals the joint. Mason, v. 2, pp. 628-629.

vicinal piping. Commercial type of pressure piping with some flexibility due to construction of joints. Pryor, 3.

Vicat-Montagne furnace. A mechanical roasting furnace similar to the Ross and Welter type. Fay.

Vicat German silver. See German silver.


Vicat turquoise. An amorphous imitation of Vienna turquoise
Vienna turquoise
turquoise formerly manufactured in Vienna, Czechoslovakia, France, and England. More difficult to detect than the various blue-stained cuttings which have replaced it as a turquoise substitute, it has approximately the same chemical composition, hardness, specific gravity, and fracture. Separate under the talcite name.

Vienna white; Cremnitz white. A paint base composed of pure white lead, imported from Belgium in small cubes. Also called Kremnitz white; Krem white. C.T.D.

virendes girder. An open frame N-truss without diagonal members, with rigid joints between the top and bottom chords and the verticals. Known also as open-frame girder. H. F. Rey.


vivianite. A massive, deep blue form of the pyroxene diopside, quarried at San Marcello, Piedmont, Italy. C.M.D.


violet. a. Same as copiapite. Dana 6d, p. 965. b. To branch in diverging lines. Webster 2d.

c. A magnetic iron ore. Fay.


e. Volute No. 5, L.F. Permissible explosive; Shipley.

villaninite. An iron-black disulfide of copper, nickel, cobalt, and iron with 1.5 percent selenium (Cu,Ni,Co,Fe)(S,Se)a. Small cubic-oval crystals and radiating nodular masses. Isometric. From Villamin, France, and symbols for absolute viscosity, i.e., and 

virgin. a. Unworked; untouched; often said that which has been fired. Standard, 1964. b. Virgin compression curve. See pressure-void ratio curve. ASCE P1826.

c. Virgin coal. An area of coal which is in place that which has been fired. Standard, 1964. d. Virgin clay. Clay, distinguished from that which has been fired. Standard, 1964.

d. Virgin coal. An area of coal which is in place that which has been fired. Standard, 1964.


f. Virgin field. A mineral field in which there has been no mining whatever. Fay.

virgin diamond. See new diamond. Long.

virdiace. A descriptive name given to articles made merely of good cast iron. Fay.

virgin ste. Another name for divining rod. Hooe, p. 337.

virgin steel. A descriptive name given to articles made merely of good cast iron. Fay.

virdiace. A descriptive name given to articles made merely of good cast iron. Fay.


viscosity. A measure to determine that involves dissipation of energy by internal friction. Holmes, 1928. b. In road building, the measure of the resistance to flow of a bituminous material, which is usually stated as the time of flow of a given quantity of the material through a given orifice. Hess. c. Liquid having a high viscosity rating will resist flow more readily than will a liquid having a low viscosity. See also rheological engineers (S.A.E.) standard series of viscosity numbers is used to indicate the viscosities of lubricating oils. NIST, 1996. d. The property of imperfect fluids by which they resist the action of a shearing stress. Measured by the shearing stress required to move a layer of the liquid one centimeter thick. Holmes, 1928. Abbreviations, vis and visc; symbol for coefficient of viscosity, μ; and symbols for absolute viscosity, ν, and a.

viscometer; viscometer. An instrument used to measure the viscosity of liquids. The Marsh funnel type measures the time required for a known amount of drilling mud to flow through an aperture of known diameter; other specific types are the Fann and Stormer viscometers. See also Marsh funnel.

viscosity. See viscometer.

viscosity coefficient. A quantitative expression of the friction between the molecules of water when in motion. It is the amount of force necessary to maintain a unit difference in velocity between two layers of water at a unit distance apart. It decreases rapidly with increase in temperature. A.G.I.

viscosity, kinematic. Ratio of absolute viscosity to mass density. Measured in square seconds per centimeter. See also poise. A.G.I.

viscosity, absolute. a. The force which will make one square inch of a plane surface with a speed of one centimeter per second relative to another parallel plane surface from which it is separated by a layer of the liquid one centimeter thick. This viscosity is expressed in dynes per square centimeter, its unit being the poise, which is equal to one dyne-second per square centimeter. See also poise. A.G.I.

viscosity, relative. The resistance of liquids, semisolids, and gases to movement or flow. H.G.C.

viscosity, absolute. a. The force which will make one square inch of a plane surface with a speed of one centimeter per second relative to another parallel plane surface from which it is separated by a layer of the liquid one centimeter thick. This viscosity is expressed in dynes per square centimeter, its unit being the poise, which is equal to one dyne-second per square centimeter. See also poise. A.G.I.

viscosity, relative. The resistance of liquids, semisolids, and gases to movement or flow. H.G.C.

viscous. a. Adhesive or sticky and having a nonfluid-like consistency. Webster 2d.

b. Imperfectly fluid; designating a sub-

viscous damping. Viscous damping is the dissipation of energy which occurs when a particle in a vibrating system is resisted by a force of which a constant, independent of displacement and velocity, and the direction of which is opposite to the direction of the velocity of the particle. Hy.

viscous flow. A type of fluid flow in which there is a continuous trend or motion of the particles and the motion at a fixed point always remains constant. Also called streamline flow; laminar flow; steady flow. C.D.

viscous resistance. The effect of surface friction between a particle and a liquid when the body moves through it. See turbulent resistance. Newton, p. 77.


Vishnevite. The original spelling of wischnewite. The term wischnewite is now considered incorrect. Hochstrasser, 1956.

visible horizon. The apparent horizon. A.G.1.

visible spectrum. That portion of the electromagnetic spectrum consisting of the visible light. The light of the visible spectrum is seen by the eye (sensory system) and is measured in terms of wave length, frequency, or energy. The visible spectrum is divided into the yellow-red end and the blue-violet end. In the middle of the visible spectrum is a color approximately midway between yellow and blue that is called white. All the colors of the visible spectrum are a mixture of red, green, and blue, and any two of these primary colors can be mixed to produce any one of the other colors. Bennett 2d, 1962 Add.

visible, in terms of the angle subtended at the eye by the object viewed, is the same as apparent. The visual acuity of the eye is the ability to see very small objects. It can be measured in a variety of ways, all of which are designed to detect the smallest detail which is visible. In terms of the angle subtended at the eye by the object viewed, a given distance away. Roberts, II, p. 76.

visual acuity. The ability of the eye to see very small objects. It can be measured in a variety of ways, all of which are designed to detect the smallest detail which is visible in terms of the angle subtended at the eye by the object viewed at a given distance away. Roberts, II, p. 76.

visual brightness range. The eye has the ability to function over a very wide range of brightnesses, from the order of 10,000 foot lamberts to a minimum detectable brightness of 0.0001 foot lamberts. But it cannot respond to the whole of this range at once. In any given environment visual brightness is typically limited to the range of light during the day, the range of light at the upper limit and the lower limit of discernible brightness at the threshold. What those limits are in terms of luminance depends on the eye adaptation and the scene. Roberts, II, p. 79.

visual field. If the eyes are directed straight ahead, the visual field for each eye is determined by the area of the retina from which the image is formed. Two areas, the near field and the far field, are present in the visual field. The near field is the portion of the visual field in which the image is formed by the eye. The far field is the portion of the visual field in which the image is formed by the eye. The near field and the far field are separated by the point of fixation. The point of fixation is the point in the visual field which is used as the reference point for measuring angles.

visual height. A device by which the winding or hoisting engineman can see on a dial or panel the position of his levers in the shaft or the journey on the haulage plane. See also depth indicator. Nelson.

visual performance. The interpretation of visual information by the brain and the outward action signal to the muscles of the body which result from that interpretation. Roberts, II, p. 79.

visual sampling. In evaluation of asbestos ore bodies, infers the measurement of all visible fiber seams in an average cross section of the ore to determine the percentage of fiber contained therein. Sinclair, W. E., 1966.

visual capacity. The term for the greatest volume of air that a man can expel after a forced expiration. In other words, it is the greatest volume of air that can be moved in and out of the lungs in a single breath. The visual capacity is an average of 4 and 5 liters. H&G.

Vital. A trade name for a new chemical additive which eliminates or reduces considerably the danger of diesel locomotive fumes underground. Tests have established that the chemical, added to diesel fuel, reduces the carbon monoxide danger from diesel locomotive exhausts to negligible proportions. The method of testing was by a modern variant of the live canary—yellow P.S. detector tube. The chemical has been approved for use underground in British coal mines.

vital air. Air which has been rendered impure by the breath of men and horses, or by being mixed with the various gases given off in mines. It is frequently called return air. Fei.

vitrail. This term was introduced by M. C. Stoopjes in 1919 to designate the macroscopically recognizable very bright bands of coals. Very bright bands or lenses, usually a few millimeters (3 to 5 in width); thick bands are rare. Oval to the touch. In many coals the vitrain is permeated with numerous angular cracks at right angles to stratification, and consequently breaks cubically—with conchoidal surfaces. In other coals the vitrain is fractured by only a few cracks. In some cases the vitrain is vitreous, although it is extensively cleaved. Examination with the microscope shows vitrain to consist of microfibrillotyes very rich in vitrinite. After clarin, vitrain is the most widely distributed and common macroscopic constituent of humic coals. H&G, 1963, part I. Occurs in lenticular bands, calcified from a partial natural vegetable growth. When it constitutes 30 to 60 percent of total sam, termed abundant; over 60 percent, very abundant; between 15 and 30 percent, moderate; below 15 percent, sparse. Pryor, 3.


vitrine antimony. See antimony glass. CCD 64, 1961.

vitrine china. A white and dense, but not translucent type of porcelain, used for the manufacture of sanitary ware. Rosenthal.

vitrine-china sanitary ware. A high grade ceramic ware used for sanitary appliances and manholes. Mixed with white-burning clays and finely ground minerals. After it has been fired at a high temperature the ware has a vitreous appearance. It is resistant to water absorption greater than 0.3 percent of the ware when dry. It is coated on all exposed surfaces with an impervious nonporous vitreous glaze giving a white or colored finish. A typical batch for this type of body in 20 to 30 percent clay, 10 to 20 percent feldspar, 30 to 40 percent flint, 0 to 5 percent quartz, and sometimes nepheline syenite is used instead of feldspar. Dodd.


vitreous enamel. An inorganic glass which is fused onto a metal article in the form of a relatively thin coating and provides protection against corrosion. Dodd.

vitrine fusion. Gradual fusion: having no sharp melting point. Webster 3d.

vitrine luster. The reflection of light so as to produce the appearance of broken glass.

vitreous silicate; black amorphous selenium. a. One of the allotropic forms of selenium. It is brownish-black and is produced as a brittle, glassy mass having a specific gravity of 4.28. Merriman, b. Black, amorphous; Se; molecular weight 78.96; atomic weight, 78.96; vitreous luster; transformation temperature from amorphous selenium to hexagonal selenium, 60° to 80° C; boiling point (selenium), 684.8° C; insoluble in water; and soluble in sulfuric acid, in carbon disulfide, and in carbon disulfide. Amorphous selenium, which is black in vitreous form, is red in powder form. Six allotropic forms have been claimed for selenium but only three forms are established: (1) amorphous selenium; (2) monoclinic selenium; and (3) trigonal selenium. Handbook of Chemistry and Physics, 45th ed., 1964, pp. B-134, B-215.

vitreous silica. A glass made from silica; it may contain numerous small bubbles, in which case it is translucent; when free from bubbles it is transparent. An important test of the vitrification is the required surface expansion, hence a high resistance to thermal shock; vitreous silica tubes, etc., find considerable use in chemical engineering. Dodd.

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vitreous silica. See vitreous silicate.

vitreous slip. A slip coating matured on a ceramic body, producing a vitrified surface. ASTM C242-60.

vitrific. An adjective designating (volcanic) glassy or glassy-coated material. It may be advisable to restrict the term to fragments made up of at least 75 percent by volume of glass and amorphous material. In addition, the term vitric crystal for ejecta containing between 50 and 75 percent glass. In addition, to the above usage, vitric may also be applied to any rock having the nature or quality of glass. Stokes and Varnes, 1955.

vitrific. a. Fused silicious compounds, such as glasses and enamels, as distinguished from metallic and aluminous compounds. Standard, 1964. b. The art or history of glass production. Standard, 1964.

d. Tuff. An indurated deposit of volcanic ash dominantly composed of glassy fragments blown out during a volcanic eruption. The term should be properly restricted to tuffs containing more than 75 percent by volume of glass particles. See also tuff. A.G.I.

vitrification. See vitrification. Fay.

vitrification. The manufacture of vitreous or vitrified wares, as glass. Standard, 1964.

vitrifiable. Of, or pertaining to, a substance that can be vitrified. Webster 3d.


vitrification. a. An act or instance or the vitrification range. The maturing range of a vitrifying body. Webster 3d. b. Any process tending to make a body more vitreous. Synonym to tuff. Standard, 1964.

vitrinite. The term vitrinite was introduced by B. Alpern in 1954, and in modified form vitrinite was adopted by the Nomenclature Subcommittee of the International Committee for Coal Petrology to designate a material having characteristics of both fusain and vitrain. See also vitrinite.

vitrinite. The term vitrinite was introduced by B. Alpern in 1954, and in modified form is used to designate a material consisting of coalified plant remains that can be vitrified. A.G.I.


vitrinite. A group name comprising collinite and telinite. Distinction between collinite and telinite depends in part on the method of observation. The distinction is mostly made in thin section or after etching a polished surface. Often there is uncertainty of distinction by reflected light and in such cases it is proper to use the general term vitrinite. See also collinite; telinite. IHCP, 1963, part I.

vitrinite bands. Where defined bands or streaks of a uniform brilliant black appearance about 1/16 inch thick, sometimes up to 2 inches thick, constituting the major portion of bright coal. Under the microscope, these bands are found to be derived from separate small pieces of wood or bark, frequently retaining their original cell structure. Vitrinite bands form an excellent coal that is readily oxidized. Cooper, p. 386.

vitrinod. The process in coalification that results in the formation of vitrinite. See also coalification. Compare incorporation; fusion. A.G.I.


vitrinite. a. A form of any of various metals (as copper, iron, or zinc, for example); especially a hydrate (as the hexahydrate) of such metals and often containing a glassy appearance or luster. Webster 3d. b. To dip (as metal) in dilute sulfuric acid. Webster 3d.


vitrulite. An old name for sulfuric acid. Webster 3d.


vitrulite, oil of. See sulfuric acid. CCD 6d, 1955.


vitrulite stone. A hard crystalline mass that consists chiefly of ferric sulfate and aluminum sulfate. Obtained by exposing pyritic chert to the atmosphere for some years, it is frequently used for incrusting. Used in manufacturing fuming sulfuric acid.


vitrulite. In 1955 the Nomenclature Subcommittee of the International Committee for Coal Petrology resolved to apply this term to the microcellulose consisting principally of collinite and telinite. It must contain at least 25 percent vitrinite and bands of vitrinite having a width of more than 50 microns are recorded as vitrinite. It is the most abundant constituent of humic coals. It is particularly abundant in vitrains, rather less abundant in charaids, and limited to small amounts in durains. IHCP, 1963, part I.

vitrino. A prefix meaning glassy and used before many rock names, as vitrophyre, in order to indicate a glassy surface. Fay.

vitrinida. Basalt glass. Webster 3d.

vitrinoid. A rock-type coal consisting of vitrinite (collinite or telinite) and other matter that is mainly exinite, and in which the other materials exceed vitrinite in quantity. Compare clarovitrinite. A.G.I.


vitrinoid. Pertaining to a structure typical of vitrinite glass in which the particles usually have crescentic, rudely triangular outline, or somewhat concave cross sections. Ford.


vitrinite. A coal constituent transitional between vitrinite and fusain, and showing plant cell structure. The cell walls are soaked with vitrinite, where the cell cavities are empty. It is not a mixture but a transition. Accepted by the Heerlen Congress of 1935 to designate material transitional between vitrinite and fusain with fusain being predominant. Compare fusovitrinite. A.G.I.


vitrinite. A unit of atomic structure, particularly in silica glass. Its basis is a pentagonal ring of five SiO, tetrahedra; these rings can be built up into three-dimensional clusters but only to a limited extent because of increasing distortional stress; a cluster of the pentagonal ring is a vitrinite. Its most important property, as a basis for the understanding of the properties of glass, is its fivefold symmetry which

troctolite. Like glast. Nokes.
vitroleite. Telain (fragments of plant tissue completely soaked with structureless vitreous, that is, cell walls as well as cell cavities). Judged obsolete by the Heerlen Congress of 1935. AGI.

Vitros. Trade name for partly calcined cya- nitic manufactured by the Vitros Company. It must be in two grades—89 per cent through 100 mesh, for use in a pottery body. A coarser grade is made for use as a glaze and called Virovit. AGI.

Vivianite. A mineral, Fe3(PO4)6(OH)2, monoclinic. Colorless when unaltered, or blue to green, grey, brown, or yellowish, usually with a vitreous or glassy luster. Exposure. Also called blue iron earth; blue ocher. A.G.I.; obsolete by the Heerlen Congress of 1935. Compare telovitrain. A.G.I.

vol. a. A general term for porous space or other openings in rock. In addition to pore space, the term includes vesicles, solution cavities, or any openings either primary or secondary. Synonym for pore; interstice. A.G.I. b. Space in a soil mass not occupied by solid mineral matter. This space may be occupied by air, water, or gases, or by a liquid material. ASCP P128c. c. Porosity; unfilled space in unit volume of granular material compacted under stated conditions, and expressed either in percentage or ratio of solid to void. Prior, 4. d. That portion of a borehole from which the core could not be recovered. J. of Petroleum Technology, 1964., p. 237.

volcanic. a. Characteristic of, pertaining to, situated in or upon, formed in, or derived from volcanoes. Fay. b. Of mineral, originating from magma flowing from depths to the earth’s surface through cracks or vents in the rock. A volcanic placer is minute material left when such a channel cools. Pryor, 3. c. Igneous rocks which have been derived from volcanoes. Fay.


volcanic belt. A chain of volcanoes usually in a linear or arcuate arrangement; generally of great extent, and confined to orogen along the margins of the continents or within the ocean basins; the sequence of the granites of the Aeulonian island chain comprise a volcanic belt. AGI.

volcanic bomb. A detached mass of lava shot out by a volcano which, as it falls, assumes a rounded form, like a bombshell. See also bomb. A.G.I.

volcanic breccia. A more or less indurated pyroclastic rock consisting chiefly of accessory and accidental angular ejecta, 52 millimeters or more in diameter, set in a fine tuff matrix. If the matrix is abun- dant, the term tuff breccia seems appro- priate. A.G.I. b. A rock made up of angular volcanic fragments of either pyroclastic or detrital origin coarser than 2 millimeters in a chemical or mineral composition or texture or with no matrix. A.G.I. Supp. c. A rock composed of angular non-volcanic fragments enclosed in a volcanic matrix. A.G.I. Supp.

volcanic butte. A special type of butte re- sulting from the differential weathering and consequent isolation of narrow verti- cal intrusions of igneous rocks. Stokes and Varnes, 1955.

volcanic cinder. Synonym for volcanic ash. A.G.I.

volcanic chrysolite. Vesuvianite. Fay.

volcanic clay. A term sometimes applied to bentonite, which is derived from devitrified and chemically altered glassy volcanic ash or tuff. Stokes and Varnes, 1953.

volcanic cluster. A group of volcanoes, volcanic cones, or volcanic vents without any apparent systematic relationship. Validity uncertain. A.G.I.

volcanic conglomerate. A rock composed mainly or entirely of rounded or subangu-
volcanic doma. A volcanic form consisting of rounded masses of viscous lava squeezed out from the orifice, or of portions of older lavas or ejectamenta elevated by the pressure of new lava rising from beneath. The term dome is also applied as a geographical term to volcanic mountains of the type of Mauna Loa, in Hawaii. Holmes, 1928.

volcanic earthquake. A seismic disturbance which is due to the direct action of volcanic force, or one whose origin lies under or near a volcano, whether active, dormant, or extinct. A.G.I.

volcanic eruption. The breaking forth of lava, pumice, dust, etc., from the mouth of a volcano. Standard, 1964.

volcanic glass. A volcanic form consisting of volcanic glass. Natural glass produced by the volcanic ore deposits. The major group of volcanic mud and sand. Deposits occurring volcanic rock. Any rock of volcanic origin; rounded masses of viscous lava squeezed from formerly solidified lavas. A.G.I. formed by the accumulation of rounded rocks, in a paste of the same material. Lar fragments, chiefly or wholly of volcanic or extinct. A.G.I. which is due to the direct action of volcanic phenomena. Webster 3d.

volcanic glass. Natural glass produced by the cooling of molten lava or some liquid fraction of molten lava, that rapidly to permit crystallization, and forming such material as obsidian, pitchstone, sideromelane, and the glassy mesostasis in the groundmass of many effusive rocks. A.G.I.

volcanic island. An island that is formed as a result of volcanic action. MacCracken.

volcanic mud. a. Mud formed by the mixture of water with volcanic dust, ash, or other fragmental products of volcanic eruptions. These materials often initially hot and flowing down the flanks of a volcanic cone as a hot lahar or mudflow. A.G.I. b. A deposit of fine-grained, usually calcareous, detrital volcanic material, commonly containing a high proportion of clay, on the sea floor around the margins of volcanic islands. A.G.I.

volcanic mud and sand. Deposits occurring around volcanic oceanic islands and coastlines. The deposits near shore contain fragments of volcanic rocks and minerals and vary in size from boulders to clay and silt. Out to sea, the finer particles and alteration products form clayey or chloritic muds. Holmes, 1928.


volcanic ore deposits. The major group of ore deposits of magmatic origin, designated as young by European mineralogists, which have been formed under near-surface conditions and very often in Tertiary or younger volcanic rocks. In a strict sense, deposits formed in relation to surface eruptions. Schaeferdaker.

volcanic pipe. Sometimes the streams of lava are very fluid, and cool at the bottom and upper surfaces much more rapidly than in the interior. The rocks thus formed remain, while the interior molten lava flows on and causes the stream to diminish in size, which are known as volcanic pipes. A.G.I.

volcanic plume. A lava flow, spreading out over a modern slope, fills irregularities and may build a plain; and so also may volcanic ash emptied and strewn over the country on one side of the cone. See also plume. A.G.I.

volcanic plain. A lava flow, spreading over a modern slope, fills irregularities and may build a plain; and so also may volcanic ash emptied and strewn over the country on one side of the cone. See also volcano. A.G.I.

volcanic rock. Any rock of volcanic origin; volcanic igneous rocks are those erupted molten material forming lava flows, dikes in the crater walls, volcanic plugs, etc.; volcanic sedimentary rocks are the fragmental materials ejected in explosive eruptions, forming tuff, agglomerate, etc. Fay. A general collective term for extrusive igneous and pyroclastic material and rocks. A.G.I.


volcanic state. A volcanic basin of engulfment, or downfaulting, with a floor area many times greater than the cross section of the associated vent. Fay. Compare caldera.

volcanic tuff. See tuff. Fay.

volcanic vent. An opening or channel in the earth's crust through which volcanic materials are transported and out of which volcanic materials (lava, pyroclastic detritus) are erupted at the surface. Fay. The name is based on the original occurrence in Volynia, U.S.S.R. Fay.

volcanic zone. In mining, the act of exploding blasts in sections. Standard, 1964. A round of blasting is started at any one time. Fay.


volt. a. The practical meter-kilogram-second (mks) unit of electrical potential difference and electromotive force (emf) that equals the difference in potential between two points in a conducting wire carrying a constant current of 1 ampere when the power dissipated between these two points is 1 watt. Web.

voltmeter. A device used for measuring the potential difference between two points, any point being used as a fixed reference. Fay.

voltage. A. The place where tin ore is stored to be dried before being put into the melting furnace. Nelson.

voltage efficiency. The ratio of the equilib-
voltage efficiency

nium reaction potential in a given electro-
chemical process to the bath voltage.

Lounehim.


voltage regulation. This is the change in out-
put voltage which occurs when the load is
reduced from rated value to zero with the values of all other quantities remaining unchanged. Coal Age, 1.

voltage. A dull oil-green, brown to black
chemical solution of strength proportional
to gravimetric analysis. Quantitative chemical
termination.

volumetric. a. A spiral casing to a mine fan to
provide an area of passage, which gradually
increases in proportion to the in-
creasing size of the fan from the front. See also evase chimney. Nelson. b. A spiral casing for a centrifugal pump or a fan designed so that speed will be con-
verted to pressure without shock. Ham.

volute pumps. This type of centrifugal pumps is the most commonly used. The
impellers may be open, closed or semi-
enclosed, single-suction, double-suction or
nonclogging. The casing housing the rotating elements may be vertically or horizontally split, and a few designs have casings di-
vided on an angle from the horizontal.
Pumps in this class usually have a specific speed below 4,000 with single-suction im-
PELLERS and a specific speed of 5,000 with double-suction impellers. Pit and
Quarry, 53rd, Sec. E, p. 56.

von Neumann spike. The pressure peak
leading the detonation wave prior to the

vonsenite. A black borate of ferrous and
terric iron and magnesium, 3(Fe,Mg)
O.Bo:Fe0O. Coarse granular masses.
Orthorhombic. From Pointe Claire, Calif. English. Synonym for palesite.

von Sterneck-Askania pendulum. A device
for measuring the vertical component of
gravity, characterized by the use of four
pendulums in a single case. A.G.I.

von Wolff's classification. A chemicalmin-
eralogical classification of igneous rocks. A.G.I.


vug. Applied to rocks or mineral deposits
abounding in vugs, as vuggy lode, vuggy rock.

vuggy. A lode or vein in which vugs or
drussy cavities are of frequent occurrence.
Fay.

vuggy porosity. Porosity due to vugs in cal-
careous rock. The term vuggy is used by
some writers but condemned by others.
See also vug. A.G.I.

vuggy rock. Eng. A stratum of cellular struc-
ture, or one containing many cavities. Fay.


vurc-arching. When a pocket of rock in the
periphery of an excavation is weaker than
the remainder, it may
sometimes written vug, vogue, vug, vug, vog, vogue, and incorrectly called bug, bug hole, bug hole, see also geode. Fay; Long. b. A cavity, often with a mineral
lining of different composition from that of the surrounding rock. Holmes, 1928. c. A mining term for an unfilled cavity in a vein, generally with a mineral
lining of different composition from that of the immediately surrounding ore. Holmes, 1920. d. The word is used by
petroleum geologists for any opening from
the size of a small pea to the size of a
boulder. A.G.I.


vug. Applied to rocks or mineral deposits
abounding in vugs, as vuggy lode, vuggy rock.


vughhole. A lode or vein in which vugs or
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vugy rock. Eng. A stratum of cellular struc-
ture, or one containing many cavities. Fay.


vulg-arching. When a pocket of rock in the
periphery of an excavation is weaker than
the remainder, it may fail under the ring
stress. Fragments split away or fall out until
all the weak rock is removed, form-
ing an artificial vug. This is called vugh-
arching. Spalding.

vug hole. Synonym of vug. Long.

vug. Unfilled cavities remaining in the
midst of cavity-filling ore deposits. Bateman.

vuglar. Synonym for vug. A.G.I.

vulcan coal powder. Explosive; used in

vulcanism. Same as volcanism. Fay.

vulcanist. In geology, one who holds or
ought the plutonic theory of the forma-
tion of rocks. See also plutonic. Compare
neptunist. Usage obsolete. Fay.

vulcanite. a. A dark-colored, hard variety of
vulcanized India rubber that differs from the
softer rubber in having been Vulcan-
ized at a high temperature; ebonite. It
takes a high polish, and is used for
making buttons, ornaments, and in elec-
trical work because of its fine insulating
properties. Standard, 1964. b. A mineral,
CuTe, with nickel and native tellurid-
ium, occurring in patches on rock fragments from the

vulcanites. A general name for igneous rocks
vulcanites

of fine-grain size, normally occurring as lava flows, and thus in direct contrast with phanerites. Cf. D.D.

vulcanized rubber. A rubber which has been heated with sulfur; to change the properties of rubber by treatment with sulfur. Nelson.

vulcanizing. Process used to modify properties of rubber (strength, elasticity, stretch) by combination with sulfur, or a suitable sulfur-based compound, perhaps aided by heat and chemical accelerators. Used, among other things, in repair of damaged conveyor belts. Pryor, 3.

vulcanizing machine. Consists essentially of two heavy metal platens which are placed one on each side of the previously prepared joint and clamped firmly together. Each platten is heated, and this combined application of heat and pressure over a period completes the joint. These machines are used to vulcanize the belt joints of conveyors. Bureau of Mines Staff.

vulcano type. In vulcanology, the activity characterized by a sudden release of ash clouds. Heu.

vulcanic powder. High explosive composed of 40 percent nitrates, 52 1/2 percent sodium nitrate, 10 1/2 percent charcoal and 7 percent sulfur. Pryor, 3.

vulcanizing. Weakening of glass in use, due to scratching and abrasion which makes it more readily subject to breaking. Bennet, 2d ed., 1902.

vulpis. A scaly, granular variety of anhydrite; it is cut and polished for ornamental use. Webster 3d.

vulpile. a. Variety of latite containing phenocrysts of sanidine, andesine, augite, and hornblende; it is cut and polished for ornamental use. Webster 3d.

Vulturnite. a. A variety of latite containing phenocrysts of sanidine, andesine, augite, and hornblende; it is cut and polished for ornamental use. Webster 3d.

W


Waelc process

1213

Wales

zinc is vaporized and converted to oxide fumes by the process of working. Nelson. b. N. of Eng. An underground engine plane or horse road. Fay. c. Eng. See also rolopy.

t. N. of Eng. One who works in the rolo. Fay. wailer. N. of Eng. It is to be noted that the coal, a vitreous substance, when burnt, leaves a black dust that falls through a screen into the mine car with the coal. A variation of wale. Parry. wagon. A wagon used in the 16th century on the overland tracks for conveying coal to the staithes (or warehouse on the river). A trolley. Nelson.

wagon. A wagon used in the 16th century on the overland tracks for conveying coal to the staithes (or warehouse on the river). A trolley. Nelson.

wagon drill. A drilling machine mounted on a light, wheeled carriage. B.S. 3618, 1964. sec. 6. b. A wheel-mounted pneumatic percussive type rock drill. Some- times the name is applied to a wheel-mounted diamond drill machine. Long. c. Dukinfield. d. A hand-held ma- chines, on road construction work, in excavating foundations for bridges, buildings, and ditches and in quarrying. They are driften mounted on a vertical steel frame that is carried on a light, mobile, three-wheeled gabby, having steel or rubber-tired wheels. Holes can be drilled to depths of 40 feet at any angle from the vertical to the horizontal. Louis, p. 88.

wagoner. N. Staff. a. A man or boy who with a horse hauls mine cars underground. Fay.

wagon hole. Eng. The place where the tramway ends in a working place. Fay.

wagon mine. Same as snowbird mine. Fay.

wagon pluck box. A device for moving rail- way wagons and locomotives short dis- tances by hand. It consists of a cast-steel wedge-shaped box with a wood handle. The tip is placed over the rail and under the wagon wheel and the up-and-down movement of the handle exerts suffi- cient pressure on the wheel to move the wagon. Nelson.

wagon retarder. A device for brining a de- railed wagon back on to the track. It usually consists of ramp elements, which can be freed at intervals along the track or temporarily fitted to the track just beyond the end of the wagon. The wagon is then pulled to cause the wheels to ride up the ramp and back on to the rails. Nelson.

wagon retarder. An appliance which re- duces the speed of a wagon traveling in excess of a designed value (say, 3½ miles per hour), while having no effect on wagons moving at speeds less than this figure. The appliance is a self-contained hydraulic unit. See also automatic wagon retarder. Fay.

wagon rooms. Rooms driven in inclined seams in such a way that an adequate gradient is secured for the cars, which are often hauled to the heads of the rooms. Stout. Nelson.

wagon spotting appliance. A wagon spotting appliance. Fay.

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large coal fields and iron smelting works. The South Wales coal field alone covers about 1,500 square miles with deposits ranging from bituminous and steam coal to anthracite. *Encyclopedia Americana.*

**walking.** a. Eng. Cleaning coals by picking.

**Walker bunker conveyor.** Trade name for a walker. A walking dragline. Nichols.

**walking bar.** A trunnion or walking beam. Fay.

**walking.** a. The movement forward or backward. Nelson.

**Walker VACUUM mixer.** See vacuum mixer.

**walking-beam kiln.** A tunnel kiln of unusual type, the ware (set on bats) being moved through the kiln in steps by a mechanism that alternately lifts the boat and sets them down further along the kiln. *Dodd.*

**walking chain.** One of two chains forming a closed endless loop, one over the head and one single rail vertically beneath this in the floor. *Webster 3d.*

**walking delegate.** A business representative of a labor union appointed to visit members and to report and keep in touch, to secure the enforcement of union rules and agreements, and at times to represent the union in dealing with employers. *Webster 3d.*

**walking dragline.** a. A dragline which is equipped with apparatus which permits it to "walk" by the power of a motor placed in front of the working dragline. B.C.I. b. An excavator of very large capacity, equipped with walking beams operated by eccentrics in place of the usual power motor, and with a capacity of 22 hundredweight per hour. Fay.

**walking ganger.** A traveling ganger who is responsible for supervising the work of the ganger in the immediate neighborhood. Fay.

**walking miner.** See Joy walking miner. Nelson.

**walking props.** Another name for self-advancing supports. *Coal Age, v. 71, No. 8, August 1966, p. 201.*

**walking support.** See self-advancing supports. Nelson.

**walkingout.** Act of walking out or leaving; specifically, a labor strike. *Webster 2d.*

**wall.** a. The side of a level or drift. Fay. b. See walling or lining a shaft. Fay.

**wall and hanging wall.** Beerman. f. Eng. A rib of solid coal between two rooms; usually found in long walls. Long.

**wall cake.** Set cake, b. Long.

**wall closure.** See closure. Spalding, p. 76.

**wall controlled shoots.** Ore shoots that occur between a drill string and the walls of a borehole. Long.

**walking crib.** Eng. Oak cribs or curbs upon which the workmen stand when walking or lining a shaft. Fay.

**walking curb.** See curb; foundation curb; water ring. Nelson.

**walking scaffold.** See bricking scaffold. Nelson.

**wall hook.** A fishing tool shaped like a side rasp, but unlike the side rasp, the surface of the wall hook are smooth. Long.

**walking.** a. The brick or stone lining of shafts. Fay. b. Derb. Stacking or setting up ironstone, etc., in heaps, preparatory to being measured or weighed. Fay.

**walking wall.** Long. b. A horizontal member, usually at the side of a reef, shaft, or level; foot; from the mineralizing fluids. Stokes and Varnes, 1925.

**wall cut.** See closure. *Spalding, p. 76.*

**wall coat.** Scot. Breast coal; the middle division of three in a seam, the other two being termed top or bottom, and the middle wall-coal controlled shoots. Ore shoots that occur adjacent to certain favorable wall rocks that have been unusually influenced deposition from the mineralizing fluids. Stokes and Varnes, 1925.

**wall cutting.** Scot. Side cutting or shoring the solid coal in opening working places; trimming the sides of a shaft. Fay.

**wall drift.** The amount of friction resulting from the drill rods rubbing against the walls of a borehole or the inside surface of the casing lining a borehole. Long.

**walking.** a. Laborer who builds walls to support backfilling. *Fay. See pack builder, b. D.O.T.*

**wall face.** Scot. The face of the coal wall; the working face. Fay.

**wall friction.** a. The drag created in the flow of a liquid or gas because of contact with the wall surfaces of its conductor, such as the inside surfaces of a pipe or drill rod or the annular space between a drill string and the walls of a borehole. Long. b. The drag resulting from compaction of loose materials around the outside surfaces of pipe driving, casing, etc. Also called skin friction. Long. c. Friction which arises between two back of a retained wall and the retained soil. Long. d. Frictional resistance mobilized between a wall and the soil in contact with the wall. *ASCE 11966.*

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**walking curb.** See curb; foundation curb; water ring. Nelson.

**walking scaffold.** See bricking scaffold. Nelson.

**walling stage.** A movable wooden scaffold suspended from a crane or derrick, upon which men stand when walling or lining a shaft. Fay.

**walking up.** The building up of a layer of mud cake or compacted cuttings on the borehole sidewalks; the filling of cracks or caved portions of the borehole walls with cement. Long.

**walking off.** To seal cracks, crevices, etc., in the wall of a borehole with cement, mud cake, compacted cuttings, or the like. Long.

**walking wall.** Long. b. A windlass; a stowe. Fay.

**walking pack.** The compaction of sticky cuttings that collect and adhere to the walls of a borehole. Long.

**wall plate anchor.** A horizontal timber supported by posts resting on sills and extending lengthwise on each side of the tunnel. On these wallplates the roof supports rest. *Steelfer, b.* A horizontal member, usually of wood, bolted to a masonry wall to which the frame construction is attached. Also called headplate. *ACGI.*

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wallplates. a. Corn. The two sidepieces of a timber frame in a shaft, parallel to the strike of the beds, used after the shaft is sunk, on the sides. When not sunk on the lode, the two longest horizontal pieces of timber in a shaft, parallel to the lode in a set used in a pole shaft. C.T.D.

Hawkes.


ware. a. An area in a wall, sometimes used synonymously with ball clay. CCD 6d, 1961.

ware cleaner. One who smooths the surface of glazed-dipped vitreous china, such as sanitary fixtures and lavatories, with the fingers, removing checks, cracks, and loose material to prepare the ware for kiln baking. D.O.T. 1.

ware dresser. One who dresses and polishes glastone. Also called buffer. D.O.T. 1.

ware finisher. One who shapes handles and lips and other ends on pressed ware, such as pitchers, vases, and bowls. Cutters off required amounts of molten glass from gob (mass of molten glass), held by gatherer, with nippers and attachments to pressed ware to form handles. Shutters, handles while hot and pliable to desired contours, using a carbon stick. Manipulates carbon stick along top edges of heated ware to form lips and other decorations. Also called glassware finisher. D.O.T. 1.

wareformer. A general term applied to a worker who forms clay into vessels or other objects by hand or by using molds or presses. D.O.T. 1.


ware washer. One who washes all baked pottery or porcelain ware before it is moved to another department. Fay. D.O.T. 1.

wareboy. One who carries bisque ware from the firing room to the dipping room, English. Fay. D.O.T. 1.


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wareboy. One who carries bisque ware from the firing room to the dipping room, English. Fay. D.O.T. 1.


ware dresser. One who dresses and polishes glastone. Also called buffer. D.O.T. 1.

ware finisher. One who shapes handles and lips and other ends on pressed ware, such as pitchers, vases, and bowls. Cutters off required amounts of molten glass from gob (mass of molten glass), held by gatherer, with nippers and attachments to pressed ware to form handles. Shutters, handles while hot and pliable to desired contours, using a carbon stick. Manipulates carbon stick along top edges of heated ware to form lips and other decorations. Also called glassware finisher. D.O.T. 1.

wareformer. A general term applied to a worker who forms clay into vessels or other objects by hand or by using molds or presses. D.O.T. 1.

warning signals. Signals given to men in a mine to notify them that some danger exists as fire, etc., by blinking lights, sounding alarms or bells, or by shutting off the compressed air lines. Fay.


warpage. a. Distortion which may occur in a ceramic shape resulting from bending or bowing during manufacture. A.R.I.

warp dresser. In the asbestos products industry, one who winds strands of asbestos yarn from the filling yarns onto a bobbin by machine, for use in weaving asbestos cloth. D.O.T. I.

warped. Scot. Irregularly bedded, or pliated. Fay.

warped fault. Faulting accompanied or followed by folding or warping, particularly applicable to overthrusts and underthrusts. Nelson.

warping. a. The bending or twisting of a ceramic article in drying or firing. Bureau of Mines Staff. b. Change in the original contour of the enamelware produced during firing. ACSB-3. c. The gentle bending of the earth's crust without forming pronounced folds or dislocations. A.C.I. d. Conversion of a lagoon or tidal-flat area into a marsh. Schiermacker.

warping dam. A dam raised on tidal-flat area to promote marine deposition. Schiermacker.

warrent. a. A general term for the clay floors of coal seams, particularly when hard and tough. Nelson. b. Lanc. Synonymous with clunch; also known as spavin. Compare warren. Fay. Also known as spavin.

warrent clay. Staff. Underclay. Arkell.

warren. Long. Bank; clunch; etc. Compare warrent. Fay.


warrenite. A dark-brownish to dull-black mineral found in prismatic orthorhombic crystals with perfect cleavage, 3(Mg,Fe)2(TiO2),(CO3)6(OH)2, Mohs hardness, 3-4; specific gravity, 3.4. Larsen, p. 139.

Warwick safety device. A safety appliance placed near the entry of an inclined haulage road to stop a tram running wild down the incline. It consists of a heavy beam longer than the height of the road, and normally held up by a rope attached to a haulage hand, which releases the upper end of the beam which drops and stops the tram. Nelson.

Warwickshire method. A method of mining contiguous seams. See also bord-and-pillar.

wash. a. Applied to the defined bed of water-worn gravels, boulders, and sand in alluvial deposits and containing concentrations of the metal or mineral sought. Nelson. b. In coal mining, a washout. Nelson. c. The wet cleaning of coal or ores. Nelson. d. Tail clay, silt, sand, etc. removed from the coal. Hudson. e. A western miner's term for any loose, surface deposits of sand, gravel, boulders, etc. Fay. f. Auriferous gravel. Fay. g. To make a wash of any water, gravel, or objects, or to crush ore, to the action of water to separate the valuable material from the worthless or less valuable as: to wash gold. Webster 3d. h. To pass a gas through or over a liquid for the purpose of purifying it, especially by removing soluble components. Webster 3d. i. To clean cuttings or fragments of coal, rock, etc. from washout. Webster 3d. j. The erosion of core or drill string equipment by the action of a rapidly flowing stream of water or mud-laden liquid. Long. k. The term belongs neither to the terminology of geology nor of law. The wash of a stream is the sandy, gravelly, boulder-bestrewn part of a river bottom. The cone of the stream is not synchronous with wash of the stream; nor contaminates with it. Rickitts, I. I. To overlay with a thin coat of paint. Webster 3d. m. To dephosphorize molten pig iron by adding a molten metal containing less phosphorus than the metal to be treated. Webster 3d. n. In founding, to coat, as a core or mold, with an emulsion, as of graphite, in order to improve the casting. Standard, 1964 o. A coating applied to the face of a mold prior to casting. ASM Gloss. p. Coarse alluvium; an alluvial fan. Webster 3d. q. The dry bed of an intermittent stream often at the bottom of a canyon. Also called dry wash.

webster 3d.

washability. Coal properties determining the amenability of a coal to improvement in quality. B.S. 3552, 1962.

washability curve. A curve or graph showing the results of a series of float-and-sink tests. A number of overlaid curves are drawn to illustrate different conditions or variables, usually on the same axes, thus presenting the information on a single sheet of paper. Washability curves are essential when designing a new coal or mineral washery. Nelson. They are one major type of washability curve: characteristic ash curve, cumulative float curve, cumulative sink curve, ballistic or specific gravity curve. B.S. 3552, 1962.

washback. See wash mill. Dodd.

washbanding. A form of pottery decoration, usually on-glaze, in which a thin layer of color is applied over copper oxide in order to increase the hardness of the ware by means of a brush. Dodd.

washboard. Unintentional waviness on the surface of a washwater; also known as ladded. Dodd.

wash boring. a. Drilling by use of jet water applied inside casing pipe, in unconsolidated ground. Pryor. b. A test hole from which samples are brought up mixed with water. Nichols.

wash boring drill. A drill rig utilizing the jet action of a high-pressure stream of water to produce a borehole in soft or unconsolidated material. Long.

wash-boring gear. The equipment used in wash boring. Long.

wash bottle; washing bottle. a. A bottle or flask fitted with two glass tubes passing through the stopper, so that on blowing into one tube a stream of water issues from the other tube. The stream may be directed upon anything to be washed or rinsed. Hess. b. A nipple for washing dishes by passing them through liquid contained in it. Hess.

washbox. In coal preparation, the jig box in which the feed is divided by transverse division plates, each being capable of separate control. B.S. 3552, 1962.


washbox center weir. An adjustable plate situated between the feed end and the discharge end of a washbox and serving to regulate the forward movement of material into the box. B.S. 3552, 1962.

washbox conglomeration. The sections into which a washbox is divided by transverse division plates which extend above the screen plate to form a weir; each compartment usually contains two or more cells. B.S. 3552, 1962.

washbox discharge sill. That part of the washbox over which the washed coal passes out of the box. Usually the discharge sill is a part of the discharge-end refuse extraction chamber. B.S. 3552, 1962.

washbox feed sill. That part of the washbox over which the feed passes when it enters the box. Usually the feed sill is a part of the feedend refuse extraction chamber. B.S. 3552, 1962.

washbox screen plates; grid plate; sieve plates; bedplates. The perforated plate or grid which supports the bed of material being treated. B.S. 3552, 1962.


wash dirt. a. The tailings or material discarded in the operation of washing an alluvial deposit for gold. Nelson. b. Gold-bearing earth worth washing. Also called wash stuff; washing stuff; wash gravel; wash gravel; washing stuff; wash gravel.


washed clays

washed clays. Purified clays, with low silica and grit. They result from mixing raw clay with water and allowing sedimentation to cause the separation of the impurities from the clay. C.C.D. 64, 1961.

washed coal. Coal from which impurities have been removed by washing in a liquid medium. B.S. 3323, 1960. b. Coal produced by a wet-cleaning process. B.S. 3552, 1962.

washed gases. Purified coal gas from which the chemicals benzene and naphthalene have been extracted by scrubbing with oil. Cooper, pp. 391 and 396.

washed out. Said of a coal seam when the bed thickens out. Mason, V. 1, p. 20.

washer. a. A section, unit, or box in a coal washer. A small washer may comprise only one washbox. Nation, b. Apparatus for the wet cleaning of coal, together with its immediate ancillary equipment. B.S. 3352, 1962. c. An apparatus for washing ore, etc., as a jigger or a slurry table; also, any similar machine used in coal washing. Standard, 1964. d. An apparatus in which gases are cleaned of dust. Webster 3d.

d. A small flat perforated disk of metal or leather, used beneath a nut or pivot head, or at an axle-bearing or joint, to serve as a cushion or packing. Standard, 1964.

washed beltman. In bituminous coal mining, one who repairs belts used to drive coal-washing machines in washing plant. D.O.T. 1.


washed mica. Thumb-trimmed block micas of sufficient area to yield a disk 1 inch in diameter from sheets and open area. Now included in general term punch mica. Stock.


washed wood. A place at which ore, coal, or crushed stone is freed from impurities or dust by washing. Webster 3d. Also called wet separation. See also washing apparatus.

washed yellow gold. PlaceCt gold. Hess.


washed-house. A building on the surface at a mine where the men can wash before going to their homes. A changehouse. D.O.T. 1.


d. Local thinning or thinning or disappearance of a vein or tramline. A.G.I. b. Barren, thin, or jumbled areas in coal seams in which there is no actual disruption and no vertical displacement of the coal and strata. These disturbances may be divided into three main types; namely, (1) classical washouts; (2) pressure belts; and (3) tremor faults. Authentic washouts should be restricted to the first group. Also called rock fault; nip. See also cutout; want.-south. D.O.T. 1.

washed outbreak. A channel cut into or through a coal seam at some time during or after the formation of the seam, generally filled with sandstone—more or rarely with shale—similar to that of the roof. Raistrick and Marshall, p. 79. See also cutout; want.-south. A.G.I. b. Barren, thin, or jumbled areas in coal seams in which there is no actual disruption and no vertical displacement of the coal and strata. These disturbances may be divided into three main types; namely, (1) classical washouts; (2) pressure belts; and (3) tremor faults. Authentic washouts should be restricted to the first group. Also called rock fault; nip. See also cutout; want.-south.

washing. a. In metallurgy, that which is removed from a metal by finishing or cleaning processes, or by removing impurities from small sizes. D.O.T. 1.


washing fault. Eng. A portion of a seam of coal where the coal has been disintegrated and the iron ore is left as a residue. D.O.T. 3.

washing off. a. Removing printing paper from the surface of a piece with an infusible powder which prevents it from sticking to its supports while receiving the glaze. Fay.

washing plant. a. A plant where slimes are removed from relatively coarse ore or gravel. Zern. b. Machinery and appliances erected on the surface at a mine to process, clean, and segregate ore or sand. Marshall, p. 79. See also cutout; want.-south.

washing WOOL Flat screen or trommel on which the wool is sized and washed to produce it for market. Also called washing up.

Washes process. The process of treating silver ores by grinding in pans or tubs with the addition of mercury, and sometimes of chemicals, such as blue vitriol and salt. Fay.

wash gate. See wash mill. Dodd.


wash out. A channel cut into or through a coal seam at some time during or after the formation of the seam, generally filled with sandstone—more or rarely with shale—similar to that of the roof. Raistrick and Marshall, p. 79. See also cutout; want.-south. A.G.I. b. Barren, thin, or jumbled areas in coal seams in which there is no actual disruption and no vertical displacement of the coal and strata. These disturbances may be divided into three main types; namely, (1) classical washouts; (2) pressure belts; and (3) tremor faults. Authentic washouts should be restricted to the first group. Also called rock fault; nip. See also cutout; want.-south. A.G.I. b. Barren, thin, or jumbled areas in coal seams in which there is no actual disruption and no vertical displacement of the coal and strata. These disturbances may be divided into three main types; namely, (1) classical washouts; (2) pressure belts; and (3) tremor faults. Authentic washouts should be restricted to the first group. Also called rock fault; nip.

washed out. Said of a coal seam when the bed thickens out. Mason, V. 1, p. 20.

washed over. A channel cut into or through a coal seam at some time during or after the formation of the seam, generally filled with sandstone—more or rarely with shale—similar to that of the roof. Raistrick and Marshall, p. 79. See also cutout; want.-south.
washout

See also want, d. Fay. Channellike feature which cuts or transgresses the stratification of the underlying beds; may be streams, hill structures or large erosional channels. Also called cutout. Pettijohn.

washout valve. Valve in a pipeline or a dam which can be opened occasionally to clear out sediment. Ham.

washovers. a. To wash away or remove material from around the outside of casing pipe, drill stem, junk, or tramp materials in a borehole. Also see washover shoe. Long. b. See storm delta. Schiferdecker.

washover bit. See washover shoe. Long.


washovers. The material deposited by the action of the overwash. Schiferdecker.

washover shoe. A casing-shoe-like bit used to drill downward around a piece of drilling equipment stuck in a borehole. Also see washover.


washover. The material deposited by the action of the overwash. Schiferdecker.

washout valve. Valve in a pipeline or a dam which can be opened occasionally to clear out sediment. Ham.

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washpan. See washover shoe. Long.


wash water. Water circulated through the wash table. An inclined table used for cleaning wash stuff. Sugar.

washout. d. Space from which the coal seam has been removed. Also called condi. See also coal; g. A.S. Water, body; Scot; saving; pneumatic stowing. Nelson. e. Digging, hauling, and dumping of valueless material, or getting out of the way; or the valueless material itself. Nichols. f. Refuse and impurities removed from the coal. Hudson.

g. The refuse from ore dressing and smelting plants; Gob; coal; old workings; also, the fine coal made in mining and preparing coal for market; coal dust; dirt; also used to signify both the mine waste (or coal left in the mine in pillars, etc.) and the breaker waste. Fay. h. Eng. A more or less empty space between two packs. Also see coal. i. N. of Eng. A return airway. Fay. j. In stone cutting, to reduce roughly to a flat surface. Dipping. Webster 2d.

k. Material derived by mechanical and chemical weathering and moved downward to lower levels; also, a deposit in a stream or sea. Webster 2d. l. Cotton and similar material used for wiping machinery. Hudson.

m. A working or shaft which has been abandoned and filled with refuse (goaf or gob), or with material from the fall of the hanging wall. B.S. 3618, 1963, sec. 2. See spoil, a. Bureau of Mines Staff. o. Broken or spoiled castings for remelting. Standard, 1964. p. q. Stagnation of water. Nelson.


t. In stone cutting, to reduce roughly to a flat surface. Webster 2d.

u. The refuse from ore dressing and smelting plants; Gob; coal; old workings; also, the fine coal made in mining and preparing coal for market; coal dust; dirt; also used to signify both the mine waste (or coal left in the mine in pillars, etc.) and the breaker waste. Fay.

v. Eng. A more or less empty space between two packs. Also see coal.

waste drainage. The controlled leakage of air through a waste to prevent large concentrations of mine gases from accumulating in that waste. B.S. 3618, 1963, sec. 2.

waste dumping. A procedure whereby mine waste or spoil materials are disposed of or piled. Bureau of Mines Staff.

waste edge. A waste edge may result from broken timber or steel props or chocks set along the edge of the waste and parallel to the longwall face to induce spalling of the rock to break and to secure caving of the waste area. See also breaker props. Nelson.

waste filled stopes. In these methods, support is sometimes placed on, and intermediate (be- low), normally 2 or 3 feet above the stope. Nelson.

waste-filled stopes. In these methods, support is sometimes placed on, and intermediate (below), normally 2 or 3 feet above the stope. Nelson.

waste-filled stopes. In these methods, support is sometimes placed on, and intermediate (below), normally 2 or 3 feet above the stope. Nelson.

waste-free area. The zone where the toes of the waste stream are sometimes placed on, and intermediate (below), normally 2 or 3 feet above the stope. Nelson.

waste, f. Eng. A return airway. Fay. g. A.S. Water, body; Scot; saving; pneumatic stowing. Nelson. h. Digging, hauling, and dumping of valueless material, or getting out of the way; or the valueless material itself. Nichols. i. Refuse and impurities removed from the coal. Hudson.

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k. Eng. A more or less empty space between two packs. Also see coal.


m. In stone cutting, to reduce roughly to a flat surface. Dipping. Webster 2d.

n. Material derived by mechanical and chemical weathering and moved downward to lower levels; also, a deposit in a stream or sea. Webster 2d.

o. Cotton and similar material used for wiping machinery. Hudson.

p. A working or shaft which has been abandoned and filled with refuse (goaf or gob), or with material from the fall of the hanging wall. B.S. 3618, 1963, sec. 2. See spoil, a. Bureau of Mines Staff.


r. Utility to the particular process involved. ASTM STP No. 148-D. Abbreviations, p. 148-D.

s. A return airway. Fay.

waste stream. The debris cones along the foot of a mountain range usually so completely covers the land that many years are required to clear it. Also called wash out, often a waste plain or waste slope. See also piedmont alluvial plain. A.G.I.

waste a. The area which the toes of the waste stream are sometimes placed on, and intermediate (below), normally 2 or 3 feet above the stope. Nelson.

b. See also waste stream. Waste material. See also element of mining process; waste stream.


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waste water. a. Water from old mine workings. Fay. b. Water from any metallurgical process, or the overflow from a storage reservoir. A large excess water allowed to run to waste from the water circuit. Also called surplus water; bleed water. B.S. 3618, sec. 6.

wasteway. a. A channel for carrying off superfluous water. Webster 3d. b. The channel required to convey water, discharged into it from a spillway, escape, or sluice; a spillway. Secely, l.

wastew., waste. a. The waste provided in reservoir construction to discharge all surplus water flowing into the reservoir in flood time so as to prevent the level from rising above the limit allowed for in designing the dam. C.T.D. b. See weir, b. Fay.

wasting asset. Property (as mines or timber tracts) subject to depletion. Webster, 3d.


water-ampul. A water cartridge for water ampule. A fire-resistant plastics container filled with uranium fuel in an aqueous solution. Heat is removed by a cooling coil in the core. L&L.

water-break. A break in the continuity of the water film upon a metal when it is withdrawn from a bath. ASM Gloss.

water barrel. a. A sudden stoppage caused by the discharge of water from the sump at the bottom of a sinking shaft. Water barrels are now obsolete. See also pneumatic water bailer. B.S. 3618, 1963, sec. 4. b. A square, open, wooden tank car used for removing small amounts of water from low places in a mine. Also a tank car used for sprinkling the roadways to settle the airborne dust and the nitrous fumes present in the place. Fay.

water-bearing strata. Beds which yield a large quantity of water when bored or sunk through are said to be water-bearing. Peel.

water barrier. a. A bed of coarse gravel or pebbles occurring in the lower part of the mine water. b. A barrier to prevent the passage of water to contact with air. In flotation, a surface that seems to prefer contact with air. A water-avid surface. Fay.

water-bath. A man who bales water out of dip workings in places where it is not convenient to put in a pump. Fay.

water barrel. a. A barrel-shaped hopper designed to carry water from the bottom of a sinking shaft. Water barrels are now obsolete. See also 4-water barrel; water bailer. b. A tank used for winding water from the sump at the bottom of a shaft; usually self-filling by means of a valve or series of valves in the bottom of the tank. Also called barrel. b. A container filled with uranium fuel in an aqueous solution. Fay.

water-base. a. A solid, colorless liquid; H₂O; practically tasteless and odorless; specific gravity, 1.0000 (at 4°C); melting point, (36°F); boiling point, (212°F). Water is the most common solvent. Molecular weight, 18.0153; density, 0.9970 (at 4°C); and soluble in all proportion in alcohol. Also called ice; steam; water vapor; hydrogen water or hydrogen gas. Also called water-carbon dioxide extinguisher. A plunger-type extinguisher composed of a container for water and a small cylinder of high-pressure carbon dioxide gas. Both the container and the cartridge for the carbon dioxide can be made of copper or copper-lined steel to prevent corrosion. There are two advantages in using this extinguisher: (1) It can be recharged quickly and conveniently from a supply of compressed carbon dioxide gas, and (2) The high-pressure carbon dioxide charge does not deteriorate even if the extinguisher remains unused for many years. It is suitable for use on freely burning mine fires, but not effective against oil fires or in cases where electrical equipment may be live. McAdam, pp. 114-115.

water-bate. A fireproof cartridge surrounded by an outer case, the space between being filled with water, which is employed to destroy the flame produced when the shot is fired, thereby lessening the chance of an explosion should gas be present in the place. Fay.


water chamber. a. A sudden stoppage of water flow past the face of a bit while drilling is in progress. Long. b. A hollow box or block of iron, through which water is circulated, to protect parts of a funnel wall. Fay.

water blocking. Injection of water into a structure in such a way as to prevent drainage to and from adjoining properties. Williams.

water boiler. A reactor research, the core of which consists of a small spherical container filled with uranium fuel in an aqueous solution. Heat is removed by a cooling coil in the core. L&L.

water bob. Aust. The owner or holder of water or water rights, who sells the same for mining purposes. Fay.

water bound. A general term indicating that water is the medium or solvent in filling the voids between mineral fragments and to improve compaction. Nelson.

water box. a. A rectangular wooden pipe used in shafts for conveying water between gourds. B.S. 3618, 1964, sec. 4. b. A square, open, wooden tank car used for removing small amounts of water from low places in a mine. Also a tank car used for sprinkling the roadways to settle the dust. Fay. c. A water case attached to the outside of a furnace, to protect the iron from the effects of fire. Also called water block. Standard, 1964; Fay.

water leak. a. A leak in the continuity of the water film upon a metal when it is withdrawn from a bath. ASM Gloss. b. See barrier pillar. Nelson.

water-coal. a. Coal or rock layer that is laden with water or through which water percolates; sometimes, a swampy surface area. Webster 3d. b. A bed of coarse gravel or pebbles occurring in the lower part of the upper till in the Upper Mississippian Valley. Fay.

water blast. a. The expulsion of water under pressure, in mine workings, caused by trapped air expanding as the water level is lowered. B.S. 3618, 1963, sec. 6. b. Explosion caused by sudden inrush of water (not an ignition). Mason. c. Eng. The discharge of water down a shaft to produce or quicken ventilation. See also trombe. Fay. d. A water-actuated ventilating device. C.T.D.


water blank. a. A sudden stoppage of water inflow.
water-chamber. A hollow core through which water circulates in a mold used for cooling the interior of a casting more rapidly than the outer portion, which is solidifying, as in casting a cannon. Webster 3d.

water-cooling. Passage of water as a river, canal, flume, or drainage tunnel. Long. c. A subsurface opening or passage in rocks through which ground water flows. Long.

water-depth. Movement of water under or around a structure built on permeable foundations. See also piping. Nelson. 

water-cutoff core barrel. A core barrel having a device in its head part that closes and stops the circulation of liquid when a core block occurs in the inner tube of the core barrel. Long.

water-cure. Synonym for hydrologic cycle. A.G.I.

water dam. A permanent stopping to seal off a large body or feeder of water. It consists usually of a block of concrete between two brick endwalls and these are extended well into the surrounding ground. The contact points and all breaks in the strata are sealed by cement injection. The various pipes, pressure gages, etc., may be left through the stopping. Nelson.

water drive. A method of making a high-level oil well, nearing exhaustion, to continue producing by pouring water into abandoned low-level wells in hydraulic communication with the producing horizon. See also repressuring; swabbing. Nelson.

water fall. A drop or cascade of a water column at some point in the natural or artificial discharge of a stream. Long.

water flow. The movement of water under a structure built on permeable foundations. See also piping. Nelson. 

water hammer. A. The hammering noise produced when water flows in a pipe or vessel on a sudden stoppage or opening or passage in rocks through which a stream runs. Webster 3d.

water glass. A. A water-soluble substance consisting of sodium silicate of varying composition that exists as a glassy mass, a stony powder, or a viscous syrup liquid dissolved in water. Used as a fire-proofing agent and in making artificial stone. Webster 3d. Also used in the manufacture of cements, in concrete hardeners, in cementing stones, as water-proofing in hydraulic mortars and in acidproof mortars, in cementing pipe inclusions, in the manufacture of abrasive wheels and abrasive stones, in refining petroleum, in ore flotation, in lining Bessemer converters, as a binder in digestor linings, in acid concentrator linings, in cementing cements, in drilling mud, and in the manufacture of silica gel. C.C. 3d. 1961. c. A similar substance consisting of potassium silicate. Also called potash water glass. Webster 3d.

water grade. a. The inclination of an entry in a mine or a well into the surrounding ground. The vari-ous pipes, pressure gages, etc., may be left through the stopping. Nelson.

water-gas. A. A poisonous, flammable, gaseous mixture mainly of carbon monoxide and hydrogen with small amounts of methane, carbon dioxide, and nitrogen, and usually by blowing air and then steam over red-hot coke or coal, used especially formerly as a fuel (as in welding) and after carburizing as an illuminant but chiefly as a source of hydrogen gas. Webster 3d.

water-gas tar. Tar produced in the manufacture of carbonated water gas by the decomposition of petroleum oil by heat in the presence of blue gas. ASTM D324-41.


water glaze. A. A glass actuated by a water wheel. Fay. 

water glaze. b. Porcelain glaze. Fay.

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water-gas. A. A poisonous, flammable, gaseous mixture mainly of carbon monoxide and hydrogen with small amounts of methane, carbon dioxide, and nitrogen, and usually by blowing air and then steam over red-hot coke or coal, used especially formerly as a fuel (as in welding) and after carburizing as an illuminant but chiefly as a source of hydrogen gas. Webster 3d.
water hammer

STP No. 148-D. d. Sharp pulsations in a water-piping system caused by the intermittent escape of entrapped air or the instantaneous virtual stoppage of water in the system by a reciprocating-piston pump. Long.

water hauler. a. One who collects in a water box (car) water that accumulates in low places at the mine entrance, along haulageways, or at the working face, bailing it into a car with a bucket or using a small hand pump. Also called waterman; water monkey; water tender. D.O.T. 1.

b. A laborer who hauls water cars into a mine to supply water for sprinkling haulage roads and working places. D.O.T. 1.

water holsters. A simple method of disposing of mine water using tanks with the engine or motor on the surface. The machinery can be easily repaired and the plant is in no danger of being flooded. The high cost of the plant and the fact that the shaft cannot be used for other purposes while water is being hoisted are important disadvantages. Water is delivered intermittently and at an increasing rate as the depth of hoisting increases. This method is less economical than pumping but is useful as an emergency measure in reclaiming a flooded mine. Lewis, p. 632.

water-holding capacity. The smallest value to which water content of a soil can be reduced by gravity drainage. ASCE P. 1826.

water hose. The hose running from the water swivel on the upper end of a drill stem on a diamond or rotary drill to the pump. Long.


water hydraulic. A water-actuated mechanism on a diamond drill. Most hydraulic feed now are actuated by hydraulic oil pumped through a closed system. Long.

water inch. a. The discharge of a circular sharp-edged orifice 1 inch in diameter with a head corresponding to the line above the top notch is commonly estimated at 14 pints per minute and that constitutes an old unit of hydraulic measure. Webster 3d. b. A miner's inch. C.T.D. c. See V-inch, etc. Fay. d. See also Pulsed Infusion Shot Firing. Long. Webster 3d.

water infiltration. A technique being used abroad to suppress or prevent the formation of dust, in advance of mining a coal seam. Water (or sometimes foam or steam, which is costlier but more effective) is injected into the coal ahead of the face through long drill holes, as many as four to six per face and 20 to 60 feet in length. The liquid infuses into the seam along fractures and cracks and, under pressure, penetrates a considerable distance into the hole radially, wetting the coal well. It has proved very effective in reducing dust concentrations during subsequent mining, and it is now used on as much as 80 percent. Water infusion originated in Great Britain (it is used in 25 percent of the United States) and has been tried experimentally with some success in the United States. Hartman, pp. 64-65. See also pulsed infusion, etc. Fay.

water infusate. A special tube which acts as a borehole seal in the water infusion process. The tube has a small orifice at the injection end of the infusate, the other admits hydraulic fluid to actuate the piston expanding the seal in the borehole. The hydraulic fluid is supplied by a high pressure pump and is infusion water by a power pump, Nelson.

water infusation method. A method being used by the U.S. Bureau of Mines to remove methane from mines. It consists of injecting water under pressure into the coal to push the gas out of the coal seam. Holes are drilled horizontally into the coal face and water is pumped into some of the holes at pressures varying from 200 to 650 pounds per square inch. This forces the methane out through the other holes and also from the exposed part of the coal seam. Bureau of Mines Staff.

water infusant pump. A power pump, mounted on wheels, to supply the high pressure water for the infusation of water. It consists of an oil hydraulic circuit which drives two reciprocating rams which are in turn directly coupled to the two rams of the water pump, Nelson.

water injection. Method of recharging large bodies of plain water while the body is steadily losing chlorides through sweating. This is harmful because by so doing the saline content of the body fluids becomes diluted and in extreme cases water intoxication occurs. Spalding, p. 263.

water incrustation. A condition caused by the erosive power of a stream of water, of a furnace so constructed as to allow the free circulation of water for keeping the furnace cool. Also called water block and water box. Long.

water jet. a. A high-pressure stream of water ejected from an orifice. Long. b. The orifice through which a high-pressure stream of water is ejected. Long.

water jet drilling. The drilling of boreholes in unconsolidated or earthy formations using the erosive power of a small-diameter stream of water forcefully ejected as the cutting tool. See also Fay, etc. Long.

water kibbs. A large iron bucket with a valve in the bottom for self-filling; sometimes used in hoisting coal seam infum. Standard, 1964. See also water barrel. Fay.

water level. See ground-water lowering. Ham.

water mains. In coal mining, pipes made of cast iron or steel for the conveyance of water. The former are used when the water has corrosive properties and the greater thickness of metal will give a much longer life. Cast iron, however, has the disadvantages of great weight, low tensile strength and brittleness. When used under the latter conditions, the strata movements disturb the alignment of the pipe range, the flanges are likely to be broken away completely when subjected to strain. Water mains are most often used because of their lighter weight for a given bursting pressure and because of convenience of alignment. The metal allows the pipe to be readily bent. Mason, v. 2, pp. 628-627.
waterman. a. A laborer who quenches coke with water so that it may be drawn from the oven, using a sprinkling system of perforated pipes. D.O.T. 1. b. See water cooler. D.O.T. 1.

watermark. a. Any mark indicating the level at which the water has stood for a certain length of time. Schieferdecker. b. Eng. Oxford masons' and quarrymen's term for calcite veins in building stones, as in the Forest Marble at Bladon, and characteristic of Bath stones. Arkell. c. A shallow depressed spot sometimes appearing as a defect in vitrified enamelware. Also called water spot. Dodd. d. During transfer printing on pottery, a watermark may form if a drop of water dries on the ware, leaving a deposit of soluble salts. Also called water spot. Dodd.

water, mechanical. Water which is mechanically added to a clay mixture to produce plasticity for forming and which is lost by evaporation during drying or early stages of firing. ASCG, 1963.

water treatment. Applied to treatment-line, the center of which is pink and the edge of which is seen in crystals but not in cut stones. See also bocco de fogo. Shipley.

waterproof. a. Water which a clay mixture contains when it is workable or useable. Fay. b. A cement with waterproof properties. See waterproof cement. ASCG, 1963.

waterproof cement. A cement with waterproof properties which resists the movement of water through the mass. ASCG, 1963.

waterproof stone dust. The proofing of stone dust to prevent the particles from caking or becoming sticky in humid atmospheres. Waterproofing is considered essential if stone-dust barriers are to operate effectively at humidities above 85 percent. Nelson.

waterproof electric joint. A joint not intended to secure reliability of firing when used in wet work. ASA C42-85:1956.

waterproofing. a. The process of rendering surfaces or materials impervious to water. Waterproofing can be effected (1) by the deposition of a protective film or insoluble soaps, which process renders fabrics rain-proof but does not interfere with the ventilating properties; (2) by impregnation with oils; and (3) by coating with rubber or varnish. The latter processes prevent the transmission of air. C.T.D. b. Concrete or other masonry units that are made more waterproof by surface treatment of the set concrete or by the addition of an integral waterproofer. For surface treatment, a solution of sodium silicate or of a silicofluoride can be employed. Integral waterproofers include calcium chloride solution and/or various stearates. Dodd. c. Silicones have been recommended for the waterproofing of brickwork. Dodd.

waterproofing walls. Making them impervious to water or dampness, by mixing a compound with the concrete, or by applying the compound to the surface. Crispin.

water pressure. Pressure at which water is discharged from a pump. Long.


waterproof cement. A cement with waterproof properties which resists the movement of water through the mass. ASCG, 1963.

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outside wall of a noncoring bit that serves as a waterway. Synonym for waterway. Long.

water smoke. To fire (a kiln) slowly in order to remove moisture from the bricks, before firing. Standard, 1964.

watersmoking. The first period of firing in which all mechanical held water is removed from the clay by the advancing heat. ACSG, 1963.


water streak. A fault in vitreous enamelware that results from the cutting away of a grit or inclusions by water while the ware is in a molten state. Arkell.

water string. Casing used to shut off water supply. The undertaking by a public, or private, corporation of water works for the use of consumers. See water service.

water struck In brickmaking, made in e part of the clay by the advancing heat. ACSG, 1964.

water table. a. The upper limit or surface of the groundwater; it follows approximately the profile of the land surface. See also contour of depression; perched water table; waterlogged. Nelson. b. A gutter on the side of a road to carry off water. Webster 3d. c. The upper limit of the portion of the ground wholly saturated with water whether very near the surface or many feet below. Also called ground water level. Webster 3d. See also ground water elevation. ASCE P1826. d. A slight projection of the lower masonry on the outside of the wall and slightly above the ground. ACSG.

water-table contour. A line drawn on a map to represent an imaginary projection of the lower masonry on the outside wall of a noncoring bit that serves as a waterway. Synonym for waterway. Long.

waterway. a. A groove or slot incised in the water table of a definite level. These contours are constructed from the data provided by water-table levels, corrected for differences in surface level at the respective boreholes. A site investigation or opencast plan sometimes shows water-level. Nelson.

water-table level. Levels showing the depth of the water table below the surface; the depth at which water is encountered in trial pits or boreholes. Nelson.


water-table stream. Concentrated ground water flow at the water table in a formation or structure of high permeability. Stokes and Varnes, 1955.

water tender. A boiler house employee attendant to the equipment of boilers, and usually also to blow-off valves. Fay.

water test. See floc test. Dodd.

water-tight. a. A borehole in which the conditions are such that no loss of the circulated fluid occurs. Long. b. A borehole for the passage of water. Fay. c. A borehole in which the ordinary water pressure would be inadequate for distribution to consumers in the area. C.T.D. water transport. Water used for transport in some instances, especially in placer and in eluvial, and generally in mines in an elevated position and in cases of exposed mineral. Also filling the mine is often transported into the mine by water. The broken material is simply mixed with a sufficiency of water to raise the ratio of 1:1.5 to 1:1.5 (solid to liquid by weight)

water-wash. Another name for dowser, or water witch. Another name for dowser, or water witch. Webster 3d.

water-yardage. Another name for dowser, or water witch. Webster 3d.
yard of progress or the ton of coal mined.

Fay. water-year. The year through which a flow of water is measured—as July 1 to June 30.

Hess. wave-beveled. Cylindrical pellets (½ inch high, ½ inch in diameter) made of a blend of ceramic materials and fluxes so proportioned that, when heated under suitable conditions, they fuse at stated temperatures. They are numbered from 1 (600° C) to 99 (2,000° C).

Dodd. wave-height. Vertical distance between wave trough and wave crest, usually expressed in feet.

wave interferometer. The phenomenon which results when waves of the same or nearly the same frequency are superposed, characterized by a spatial or temporal distribution of amplitude of some specified characteristic differing from that of the individual superposed waves.

wave length. For instance, when the waves, either of lake or sea, may saw into the land, forming wave-cut plains which are generally of small extent and lie beneath the water. Later, these may, perhaps, be raised above the surface. Synonym for marine-cut terrace; plain of marine abrasion; shore platform; wave-cut terrace.

wave meter. An instrument to measure and record the wave spectra. Hy.

wave period. The time interval between the appearance of two consecutive wave segments at a given point, usually expressed in seconds. The wave period must be the same, that is, the crests, troughs, etc. Hy.

wave pressure. The pressure imposed on an antenna of r-f energy into space, or on the surface of the medium, with speed dependent upon the properties of the medium. Hy.
wave ripple marks. Ripple marks with symmetrical slopes, sharp crests, and rounded troughs produced by oscillation. Wave motion is periodic, and the Clamper growths of the circular orbits change to elliptical with the longer axes horizontal. Close to the bottom the ellipses are nearly flat and the motion is essentially a swinging back and forth. Any prominence on the bottom determines vortices alternately on the two sides, and ultimately a ridge develops with symmetrical slopes and a sharp apex. Wave ripple marks are formed on all sand bottoms of which overlying waters are agitated by waves or wave-like waves. Also known as aqueous ripple mark; oscillation ripple mark; oscillatory ripple mark; oscillatory burrowing ripple mark; symmetrical ripple mark; A.G.I. Supp. 3.

wave velocity. A vector quantity which specifies the speed and direction of the wave motion. A.G.I. Supp. 3.

wave spectrum. A concept used to describe the distribution of energy among waves of different period. Wave speed increases with wave length, so distant storms may be detected by the increase of energy in long period waves. The concept is useful when all possible wave frequencies possess energies appropriate to the spectrum for the prevailing wind speed. H.S.

wave velocity. A vector quantity which specifies the speed and direction of which a wave travels through a medium. H.S.

waveability. A waveability variation from a perfect surface to a surface much rougher and wider than the toughness caused by tool marks or grind marks. A.S.M. Gloss.

wave bedding. A concept used to define a bedding characterized by undulatory bounding surfaces. May be related to ripple bedding if regular and to nodular bedding if less regular. A.S.M. Gloss.

wave extinction. An irregular extinction of a mineral under the microscope due to the wave action. A.S.M. Gloss.

wave lamination. See wave bedding. Pettijohn.

wave-win. A vein that alternately enlarges or pinches at short intervals. Fay.

wave. a. Used loosely for any of a group of substances resembling boulders in appearance and character. In general, waves are distinguished by their composition of cutters of the higher alcohols and by their free-forming character. Substances include oncorite and paraffin. A.P.I. Glossary. b. Leic. Soft or puddled clay used for brickmaking. Fay. c. A.S.M. Gloss. b. A surface or rubberlike material of nominal thickness that is placed between the diaphragm to lessen the wear on it. Also also diaphragm, b. A.S.M. Gloss. b. A surface characterized by the wear or abrasion-resistant metal; a surface in which an abrasion-resistant substance is embedded. Long. d. Wear resistance. See abrasion hardness. H.S.

weathered. A term applied to weathered or worn material. H.S.

weathered layer. A layer of a material that has been altered by weathering processes. H.S.

weathering. The process resulting from the breakdown of rocks and minerals due to the action of physical, chemical, and biological agents. H.S.

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weatheted layer extending from the surface to a limited depth, usually characterized by a low velocity of transmission which abruptly changes to a lower value in the underlying rock. The name is erroneous, and the zone is more properly called the low-velocity layer. A.G.I.

weatheted rock. Rock the character of which has been changed by exposure to decaying conditions found in the zone of weathering. See also weathered zone. Long.

weathered zone. A more or less indefinite surface zone wherein, the rocks have been exposed to the chemical action of air, water, plants, and bacteria, and to the mechanical action of changes in temperature. The rock so exposed usually crumbles and decays. Long.

weathering. a. The group of processes, such as the chemical change of air and water and of plants and bacteria, and the mechanical action of changes in temperature, whereby rocks on exposure to the action of the weather, particularly frost action, may become oxidized and washed away by the rain. Osborn. d. See seasoning. Osborn. e. The attack of a glass or enamel surface by atmospheric elements. ASTM C162-66. f. The deleterious action of coal ir surface stockpiles under the influence of temperature, whereby rocks on exposure to the action of the weather, particularly frost action, may become oxidized and washed away by the rain. Osborne. d. See seasoning. Osborn. e. The attack of a glass or enamel surface by atmospheric elements. ASTM C162-66.

weatherometer. An instrument or apparatus used for accelerated weathering tests on concrete. Fay.

weatherometer test. A 500 to 1,000 gram sample of coal is weathered in a test: A 500 to 1,000 gram sample of coal is weathered for a period of 30 days at a temperature of 21°C (70°F) and a relative humidity of 65% by running bulk samples through a snW and finally crumble into lumps approximately 1

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weathering. A measure of the degree of susceptibility to weathering of a rock or a mineral, computed from a chemical or petrographic analysis. A.G.I.

weathering shot. In seismic work, a small charge of explosive detonated at or just below the surface of the earth for the purpose of recording refraction seismic information about the shallow-surface layers, particularly the low-velocity layer or layers, the so-called weathered layer. In modern seismic work, such shots are seldom used, and the data is derived from uphole times recorded at shot holes, or from first arrival reflection times recorded in connection with the reflection shot. Long.

weatherproofing. a. A measure of the weathering potential index. A measure of the degree of susceptibility to weathering of a rock or a mineral, computed from a chemical or petrographic analysis. A.G.I.

weatherproofing. a. A measure of the weathering potential index. A measure of the degree of susceptibility to weathering of a rock or a mineral, computed from a chemical or petrographic analysis. A.G.I.

wedge brick. A brick with both large faces low-grade gold ore bodies. Hoo, p. 69. weber. Equivalent in meter, kilogram, second (m.k.s.) system of the maxwell in the cgs system. One weber equals 10^8 maxwells. Abbreviation, wb. Pryor, 3.

weber. Equivalent in meter, kilogram, second (m.k.s.) system of the maxwell in the cgs system. One weber equals 10^8 maxwells. Abbreviation, wb. Pryor, 3.

weber process. A method for the manufacture of pig iron in which the ore is mixed with a proportionate amount of coal. Sufficient to smelt it, and after adding a binder the mixture is briquetted by means of a roller press into ovoids, which are subjected to low temperature carbonization between 550° and 600°C, followed by smelting in a low shaft furnace. Osborne. 13, M.M., 1949.


wedding. A. The accidental meeting or collision between a loaded and an empty bucket in a mine shaft when hoisting with a swinging rope, without guides. Fay.

wedding. A. The accidental meeting or collision between a loaded and an empty bucket in a mine shaft when hoisting with a swinging rope, without guides. Fay.

wedding. a. A wedge-shaped piece of wood for tightening timber or steel props or to tighten timber sets against the roof and sides of a tunnel. See also lag; lid; clamp; cleat. Nelson. b. A piece that tapers from a thick end to a chisel point. Nicholls. c. The act or process of changing the location of a borehole by a deflecting wedge. Long. d. The tapered wedge used to initiate the deflection of a borehole. Also called a set-ting wedge: Halt-Rowe wedge. Long. d. Tapered pieces of core that tend to bind and block a core barrel. Long. e. A piece of metal which, on rotation, becomes thicker at one end than at the other. Snow. f. In ceramics, to cut (clay) into wedge shaped masses and work them together to expel air bubbles. Webster 3d.

wedged and-sleeve bolt. A bolt designed for use in rock bolting. It consists of a 34-inch-diameter rod, at one end of which is a cold-rolled threaded portion, the other end being shaped to form a solid wedge forged integrally with the bolt. Over this wedge is fitted a loose split sleeve of 1/4 inch external diameter. The anchorage is provided by the bolt being placed in the hole and the bolt is pulled downwards while the sleeve is held by the thrust tube. Split by the head of the bolt, the sleeve expands until it grips the sides of the hole. Snow.

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equally inclined toward the small end.

wedge brick. See slugged bottom. Dodd.

wedge capping. A winding rope-capping consisting of two tapered wedges which encircle the rope, the end of which is prevented from unravelling by casting on the end. The greater the pull on the rope, the more the wedges grip it as they are drawn into the encircling hoops. Mason, V. 2, pp. 462-463.

wedge clinometer. An end clinometer the bottom end of which is shaped to match the wedge-guide pin on the drive wedge; hence, the clinometer can be fastened together with copper shear rivets. When the drive wedge is driven into the wood plug in the borehole, the copper rivets break, and after the clinometer has been removed from the borehole the relationship of the bearing and inclination readings can be compared for the flat face of the projection on the bottom of the clinometer case can be used to orient and place the instrument in it.

wedge core lifter. A core-gripping device consisting of a series of three or more serrated-face, tapered wedges contained in slotted and tapered recesses cut into the inner surface of a lifter case or core barrel. The case is threaded to the inner tube of a core barrel. As the core enters the inner tube, it is drawed to the opening made by the cut holes. When the barrel is raised, the core is broken and the cut holes converge to form a V or wedge. The other holes are drilled vertically in a 12-foot-wide drift with wedge-shaped outline in a vertical section. Pettijohn.

wedge cut. a. A cut in which the central holes are positioned to break out a wedge-shaped section of strata when fired. B.S. 3618, 1963, sec. 3. b. A drill hole pattern with the cut holes converging to form a V or wedge. The other holes are bored in a 12-foot-wide drift with wedge-shaped outline in a vertical section. Pettijohn.

wedge driller. To delineate or change the course of a borehole by using a deflecting wedge. See also bypass; deflect. Long.

wedge end. A. Edges or line of pinch-out of a truncated rock formation.

wedges. a. A method used in quarrying whenever the stone is so shaped that a wedge-shaped core of building stones such as syenite, granite, marble, sandstone, etc. In this method a row of holes is drilled, either by hand or by pneumatic drills close to each other so that a longitudinal crevice is formed into which a gently sloping steel wedge is driven. Usually several wedges are driven in, and the block of stone can be detached without any further effort. See Wedge sbot. Pryor, 3. b. Wedge-shaped core of a Hall-Rowe deflecting wedge. Long.

wedge inclination. The greater the inclination of a borehole, the greater the wedge-shaped core, which can be used. Normally, the borehole inclination must be kept below 12° to 14° so that pull on the rope tightens the wedge when deviating a borehole.

wedge inclinometer. A deflecting wedge, hardend-metal, noncorring, cone-shaped bit used primarily to mill off part of the stabilizing material, moss, or wood used to render a watertight packing between the tubbing in a shaft and the rock walls, by means of split deals, moss, and wedges, driven in between the curb and the rock. Also called wedgeing curb. Fay, b. See wedge curb. Nelson.

wedge down. Breaking down the coal at the face with hammers and wedges instead of by blasting. Fay.

wedge cut. a. Eng. Cropping out, or thinning out; said of coalbeds. Fay.

wedge deck. A screen deck comprising wires of wedge-shaped cross section spaced from each other at a fixed dimension; the underflow passes through a supernumerary of increased size. See also wedge deck. Fay.

wedge diameter. A screen deck designed to reduce or eliminate clogging of material. It consists of wedge-shaped parallel wires with their wide edges uppermost; used for dewatering coal on shaking or station-ery. Nelson.

wedge piloted. a. A method used in quarrying whenever the stone is so shaped that a wedge-shaped core of building stones such as syenite, granite, marble, sandstone, etc. In this method a row of holes is drilled, either by hand or by pneumatic drills close to each other so that a longitudinal crevice is formed into which a gently sloping steel wedge is driven. Usually several wedges are driven in, and the block of stone can be detached without any further effort. See Wedge sbot. Pryor, 3. b. Wedge-shaped core of a Hall-Rowe deflecting wedge. Long.

wedge pyrometer. An instrument for the approximate measurement of high temperatures. It depends on a wedge of colored glass, the position of which is adjusted so that the wedge heat is no longer visible when viewed through the glass; movement of the wedge operates a scale calibrated with temperature. Dodd.

wedge reaming bit. a. A tapered or bullnose rotary bit used to start drilling after a deflection wedge has been fitted into a borehole. B.S. 3618, 1963, sec. 3. b. See wedge reaming bit. Long.


wedge rock. Multi-cored, earth vertical furnace. Rabbles rotating on circular horizontal hearth work the continuously fed material across alternately to periphery and then on next hearth below toward center, so that it gravitates through either a central or a peripheral opening and is at the same time exposed to rising heat or air blown through rabble arms. Pryor, 3.

wedge rock. An expression used on the Comstock mine in a shaft too poor to be classed as "pay ore" or even "second-class ore," but better than waste. It usually assays under five dollars per ton. When a car is placed on the cage to be hoisted, it is specially tagged in the case of good ore. If it be waste no tag is used; it became the custom to throw a wooden wedge on top of the car of very low-grade ore, hence the term "wedge rock." Fay, b.

wedge玫瑰 bk. A serrated-face, tapered wedge. The other holes are drilled vertically in a 12-foot-wide drift with wedge-shaped outline in a vertical section. Pettijohn.


wedge shot. a. Wedge cut; Pryor, 3. b. Rocker fitting. A wire rope attachment in which the rope lies in a too-small groove between a wedge and a housing, so that pull on the rope tightens the wedge. Nichols.

wedge theory. The analysis formulated by Coulomb in 1776 of the force tending to overturn a retaining wall. Its basis is the weight of the wedge of earth which will slide down the face of the retaining wall. See also plane of rupture. Ham.

wedge toroidal crossbedding. Toroidal crossbedding. Crossbedding for which wedge-shaped cross section spaced from each other at a fixed dimension; the underflow passes through a supernumerary of increased size. See also toroidal crossbedding. Pettijohn.

wedge-wire deck. A screen deck comprising wires of wedge-shaped cross section spaced from each other at a fixed dimension; the underflow passes through a supernumerary of increased size. See also wedge deck. Fay.

wedge-wire screen. A screen designed to reduce or eliminate clogging of material. It consists of wedge-shaped parallel wires with their wide edges uppermost; used for dewatering coal on shaking or station-ery. Nelson.

wedge-wire deck. A screen deck comprising wires of wedge-shaped cross section spaced from each other at a fixed dimension; the underflow passes through a supernumerary of increased size. See also wedge deck. Fay.

wedge-wire screen. A screen designed to reduce or eliminate clogging of material. It consists of wedge-shaped parallel wires with their wide edges uppermost; used for dewatering coal on shaking or station-ery. Nelson.
zinc ore and other materials to be sidered, and crushes sidered ore preparatory to further reduction. D.O.T. Supp.

weight breaks. The breaks or fissures in the nether roof in consequence of the weightings. TIME.

weightisp. The occurrence of fracturing of the roof consequent on weightings. TIME.

weightings. A statistical theory of the amount of material being handled. Can be designed for batch or continuous weighing and can be equipped with either visual indicators or automatic registering equipment or both. Can also be arranged to control conveyor speed to compensate for lag in processing or nonuniform material load on conveyor. ASA MFA-1-1958.

weight feeders. These feeders usually handle the feed continuously over a belt which it is necessary to give a weighed weight, e. Fay.

weight in-motion system. An electronic system which weighs individually loaded coughs as they roll over a scale rail, feeding the information into a totalizing printer which automatically prints out gross and net weights. It employs hermetically sealed lead cells which accurately convert physical weight into electrical impulses. See also weightometer, Nelson.

weigh larry. A traveling hopper for receiving, weighing or measuring, and disturbing bulk materials. Usually fitted with a scale either manually-operated or of the automatic recording type. Weight larrys may be suspended between overhead tracks, or carried on railed mounted below them. They may be hand-pushed or power-propelled, and some designs provide a riding platform or cab for the operator. A remote-control device for operating the bunker or bin gates is usually mounted on the larry chassis. ASA MH4.1-1958.

weigh pan. See weigh basket. Fay.

weight. a. Roof movement, especially when it can be seen or heard. Also called weight break. Briggs, pp. 171-172. b. Eng. A...
timber and packing supports the roof, and distinct from the fracturing of the nether roof. TIME.

Weir. A channel which may be a notch or opening in the weir itself. The term usually applies to rectangular notches in the upstream of the notch to the surface of the water upstream of the weir. The velocity of approach is not included in this. Ham.

Weir head. The depth of water is a measuring weir as measured from the bottom of the notch of the surface of the water upstream of the weir. The velocity of flow in a given time over a weir of a given width at different heights of the water.

Weisbach triangle. a. In survey, for orientation of mine, use of theodolite at bottom of vertical shaft to sight on two plumb wires. Instrument set to a horizontal reading between the wires of about 30 feet of arc. By reiterations methods, close accuracy is obtained so that the azimuth angle of the shaft surface stations from which these plumb wires are suspended can be transferred to the underground workings. Pryor, 3. b. The highly attenuated triangle formed by the plan position of two shaft plumb lines and one observation station. B.S. 3618, 1963, sec. 1.

Weisbergite. A variety of microphorphyritic dolerite having a microlitic texture resembling that of augite andesite. Crystals of labradorite, augite, and hornblende are embedded in a groundmass composed of plagioclase and augite microlites with interstitial glass. Rice.

Weisie. a. A bluish-black tuffler of copper, Gille, massive. From Vulcan, Colo., English. b. Cordierite; fahlunite. Dana 6d, Steel. c. That part of dam, Fay. c. That part of dam, embankment, canal bank, etc., which contains gates and over which surplus water flows; specifically called a spillway. Standard, 1964. See also measuring weir; spillway.

Weir head. The depth of water is a measuring weir as measured from the bottom of the notch of the surface of the water upstream of the weir. The velocity of approach is not included in this. Ham.

Weir table. A record or memorandum used to estimate the quantity of water that will flow in a given time over a weir of a given width at different heights of the water. Fay.

Weisch triangle. a. In survey, for orientation of mine, use of theodolite at bottom of vertical shaft to sight on two plumb wires. Instrument set to a horizontal reading between the wires of about 30 feet of arc. By reiterations methods, close accuracy is obtained so that the azimuth angle of the shaft surface stations from which these plumb wires are suspended can be transferred to the underground workings. Pryor, 3. b. The highly attenuated triangle formed by the plan position of two shaft plumb lines and one observation station. B.S. 3618, 1963, sec. 1.

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welding transformer

weld interval. The total heat and cool times in making one multiple-impulse weld. ASM Gloss.

weld interval timer. A device used in resistance welding to control heat and cool times and weld time when making multiple-impulse welds singly or simultaneously. ASM Gloss.

weld iron. Wrought iron. A term suggested by an International Committee of the American Institute of Mining Engineers. Fay.

weld line. The junction of the weld metal and the base metal, or the junction of the base-metal parts when filler metal is not used. ASM Gloss.

weldment. A base or frame around a single piece made of pieces. ASM Gloss.

welding transformer. See transformer. ASM Gloss.


weld time. In single-impulse and flash welding, the time that the welding current is applied to the work. ASM Gloss.

weld timer. A device used in resistance welding to control the weld time only. ASM Gloss.

welding. Care of the health, both mental and physical, of the men employed in an undertaking. Spalding, p. 363.

weld properties. A department which deals with matters of welfare at mines, such as pithead baths, canteens, making meals, and at times advising on the organization of social functions connected with the mines. The welfare department is closely allied to the labor department. Nelson.

welfare officer. An appointment sometimes made at large mines or a group of mines. He is a good organizer and handles all welfare activities; he often deals with personal problems of the workmen which they may be reluctant to discuss with the manager. Nelson.

well. a. A shaft or hole sunk into the earth to receive oil, gas, water, etc. Webster 3d. See also oil well; shallow well; deep well; artesian well. b. A hollow cylinder of reinforced concrete, steel, timber, or masonry built in a hole as a support for a bridge or building. Webster 3d. Comford.

well bore. A synonym for borehole or drill hole, especially by individuals associated with the petroleum-drilling industry, but not in the front of a hydraulic dredge hull in which the digging ladder pivots. Nichols. c. A wall around a roof or the like built to protect one from fire. Nichols. f. A small dark or non-reflective area in the center of an improperly cut, too thick diamond. Heub. g. The crucible of a furnace. Fay. h. A cavity in the lower part of some rocks, into which the falling metal. Standard, 1964. f. See trap, i. Fay.

well bored. See well sinker. Fay.

well-boring jar. See jar. Fay.

well-conditioned triangle. A triangle which is equilateral or nearly so. In such a triangle any error in the measurement of an angle will be reduced to a minimum. Ham.


well core logging. a. A widely used technique which involves probing of the earth well with instruments lowered into boreholes, their readings being recorded on the surface. Among rock properties considered are electrical resistivity, self-potential, gamma-ray generation (both natural and in response to neutron bombardment), density, magnetic susceptibility, and acoustic velocity. Dobrin, p. 9. b. In deep bores, measurement of resistivity of the formations drilled through. Dobrin, p. 9. c. Explosives are drilled into the drilling mud at controlled spacings. Pryor, 3. c. See electric log. Nelson.

well driller. A furnace used for the manufacture of producer gas. Fay.

wells. a. A bag of flexible or other absorbent material packed around the tube of an oil well to prevent access of water to the oil in the well. Standard, 1964.

well-point. a. A vertical tube terminating in a perforated pointed shoe, connected with others in parallel by means of a header pipe to a drainage pump, used to dewater an area. Pryor, 3. b. A pipe fitted with a driving point and a fine mesh screen, used to remove underground water. Nichols. c. A complete set of equipment for drying up ground, including well points, connecting pipes and a pump. Nichols. d. See screen pipe. Long.

well-point pump. A centrifugal pump that can handle considerable quantities of air, and is used for removing underground water to dry up an excavation. Nichols.

wells. a. The natural pressure of the oil or gas in a well. It is often several hundred pounds per square inch and sufficient to cause the oil to rise to the surface. The well pressure is not related to the depth of the oil deposit below the surface. Nelson.

well-rotting formula. The Engineering News formula for calculating the load-bearing capacity of driven piles. Ham.

well rig. a. A record of the formations penetrated by a borehole and their approximate thickness, as determined by an examination of the cutting or core recovered. See also Long. Fay.

well rigging. a. A record of the formations penetrated by a borehole and their approximate thickness, as determined by an examination of the cutting or core recovered. See also Long. Fay.

wellrodding. a. The running of rock driven by a process of well drilling and removal from the hole by pumping or bailing. Wellrodding collected at closely spaced intervals provides a record of the strata penetrated. A.G.I. Supp.

well drill. A drill, usually a churn drill, used to drill wells. See also churn drill. Long.

well driller. See cable driller. D.O.T.


well-drilled holes. Holes drilled by means of an apparatus known as the well drills, or similar to that, and used for blasting on comparatively large scale. Such holes are usually 5 or 6 inches in diameter and from 30 to 150 feet deep. Fay.

well foundation. A type of foundation excavated by sinking a small-diameter caisson which has made it. Ham.

wellgrained fittings. A transparent lighting device widely used of all mains lighting devices in mines. Its distribution characteristics are simple, since there is no control of light other than that provided by the interior of the upper part of the fitting which absorbs a large proportion of the upward flux component from the lamp arc, and reflects the remainder. It is usually found spaced at intervals of 20 to 50 feet, 6 to 7 feet high, along the centerline of roads 12 to 14 feet wide. In general, the most noticeable effect of such a layout is glare. Roberts, II, p. 214.

well-graded soil. A soil with a particle-size distribution such that it passes evenly over a wide range of sizes. Nelson.

wellhole. a. A large-diameter (about 6 inches) vertical hole used in quarries and open-cast pits for taking samples of rock. Fay. b. A place where slips are caged at the bottom of the shaft, in which water collects. Fay. c. Change room. Fay.

wellbore. A method of quarry blasting in which the explosive charges are placed in rows of vertical holes. Hole diameters vary from 1 to 10 inches, 6 inches being a popular size. In general, 6-inch holes drilled in a 60-foot face are usually spaced 20 to 25 feet and spaced 12 to 20 feet apart. The loading ratio varies from about 3 tons of rock per pound of charge to about 7 tons under favorable conditions. Deck loading is usually employed and a powerful explosive is loaded at the bottom of the holes. Fay.

wellbore blasting. This type of blasting is virtually benching on a large scale. The depth and burden of the holes are much greater, and in consequence the hole diameter should also be increased to insure sufficient concentration of the explosive charge. Wellbore blasting is used in mines operating especially if the beds are horizontal and well-defined. It is not often used in highly abrasive igneous rocks because of the cost of drilling. Prouty, 2, Art. 8:40, p. 5.

wellbore pipe. One of the short fire clay pipes that were used to carry the flame upwards from the wellhole in the bottom of a bottle oven. Dodd.

Wellington formula. The Engineering News formula for calculating the load-bearing capacity of driven piles. Ham.

well log. A record of the formations penetrated by a borehole and their approximate thickness, as determined by an examination of the cutting or core recovered. See also Long. Fay.

Wellman producer. A furnace used for the manufacture of producer gas. Fay.

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The text contains various definitions and explanations related to geology and mining processes. Here are some highlights:

- **Well**: A vertical or inclined excavation in the earth's crust, made for the purpose of producing gas, oil, water, or some other substance.
- **Well survey**: Method of determining the velocity distribution by recording in a deep well.
- **Wells**: A skilled tradesman, often native to the district, who digs for and forms a well, usually with hand-operated implements.
- **Wells of Stromboli**: Cavities at the summit of the volcano Stromboli, in Italy, containing water, probably condensed from the interior.
- **Wells velocity survey**: Method of determining the velocity distribution by recording in a deep well.
- **Wells sinker**: A skilled tradesman, often native to the district, who digs for and forms a well, usually with hand-operated implements.
- **Wells survey**: Method of determining the velocity distribution by recording in a deep well.

The text also includes references to specific locations and processes, such as the extraction of coal, the use of seismographs in mining, and the application of geophysical methods in geological surveys.
Westphalian. Middle Upper Carboniferous.


wet money. N. of Eng. Payment made to face workers who have to work in wet conditions. Nut. 1222.

Weston photronic cell. 1232.

wet bulb thermometer. An instrument which measures the temperature of the air, or relative humidity. The bulb of the wet bulb thermometer is covered with a layer of muslin which is kept moist with water. As water is evaporated, heat is absorbed, and the thermometer is cooled below the dry bulb temperature. By determining the quantity of water evaporated in a given air by the evaporation of water from a wet bulb thermometer, and which is lower than the dry bulb temperature, moisture content of the air, or relative humidity. The bulb of the wet bulb thermometer is covered with a layer of muslin which is kept moist with water. As water is evaporated, heat is absorbed, and the thermometer is cooled below the dry bulb temperature. See also dry-bulb thermometer.

wet cleaning. A coal-cleaning method that involves the use of washers plus the equipment necessary to dewater and dry-dust the coal. This method is generally used when cleaning the coarser sizes of coal. It is a more expensive method than air cleaning and involves the addition of a water stream for cleaning and creating the additional problem of water pollution. Coal can, however, be cleaned more accurately by this method than by air cleaning. Kentucky, p. 300.

wet cyclone. See cyclone.

wet density. The ratio of the weight of a bottom sediment sample to its volume. Hy. wt. deck. A dock in a tidal estuary on the north coast, the water being maintained at the high-tide level by dock gates. These are opened only at high tide. Ham.

wet drill. A percussive drill with water feed either through the machine or by means of a water swivel, to suppress the dust produced when drilling. See also dust trap. Nelson.

wet drilling. In rock drilling for blasting purposes, injection of water through hollow drill shank to bottom of hole, to allay dust and danger of pneumokoniosis. Prp. 142.

wet dust. Dust which has been mixed with moisture or which has become wet from water in the mine. Nelson.

wet gas. a. Natural gas that contains more than 0.1 percent of water vapor. b. Gas which is saturated with liquid hydrocarbons. Wheeler.

wet gas wells. Wells in which gas production is continuous and which do not produce crude oil. Merseycourt, 4th, p. 159.

wet gaylussite. Ores containing lead.

wet hole. A borehole that traverses a water-bearing formation from which the flow of water is great enough to keep the hole almost full of water. Long, Westerholt.

wet kiln. The wet kiln thermometer consists of a body-temperature instrument with the bulb enclosed in a close-fitting, loosely woven, fabric thimble which remains wet while the cooling time is being measured. The cooling of the bulb is controlled by the effects of convection, radiation, and evaporation. The dry- and wet-bulb temperatures, moisture content, and air velocity of the surroundings will all affect the reading. Robert, 1, p. 133.

wet metallurgy. See hydrometallurgy. Banett.

wet method. Any hydrometallurgical process, as the cyanide process, flotation process, etc. See also wet process. Fey. 2d, 1962.

wet mining. The grinding of the finely divided enamel material with sufficient liquid to form a slurry. ASTM C285-65.

wet mining fleet. A mill in which a wet process is employed. Fey.


wet mining. In wet mining, water is sprayed into the air at all points where dust is liable to be formed, and no attempt is made to prevent the air from picking up moisture. It therefore soon becomes saturated and remains so through out the ventilation circuit. Spalding. b. Mining for salt and other water soluble minerals as brine, rather than in the dry state. Kaufmann, p. 142.

wet mill. A concrete mix to which too much water has been added. See also water-to-ground ratio.


wet money. N. of Eng. Payment made to face workers who have to work in wet conditions. Trist.

wet natural gas. Natural gas which contains readily combustible gasoline, that may be used in the field and necessitates the installation of a plant. Fey.
wet- or dry-ground hollow


wet pan. An edge runner mill used for grinding relatively wet material in wet or dry processes and for reclaiming clays and clayses. The bottom has slotted grids with a proportion of solid plates on which the material is ground.

wet pan charger. One who adds water to the mixture, in addition to clay, shale, or brick, in grinding pans in order to make it plastic. May be designated according to clay ground in pans, as silica-wet pan charger. Also called wet-pan feeder. D. O. T. 1.

wet pan operator. One who tends and supervises loading of ore in a pan used for grinding and tempering clay, performing essentially the same duties as described under dry-pan operator. Also called clay temperer; wet-mill man. D. O. T. 1.

wet place. Aust. A place considered wet if men have to work constantly for 3 inches of water or more, or when water is constantly dripping on them from the roof. Fay.

wet-plant operator. One who works as a member of a crew, performing any one or a combination of duties concerned with extracting cadmium, lead, and zinc oxide from dust recovered in Cottrell precipitators. D. O. T. 1.

wet-process. Plastic processing. Forming certain articles of suitable plastic body by direct pressure. ASTM C142-60T.

wet process. a. A metallurgical process in which the valuable constituents of the ore are dissolved by acid or other solvents; a leaching or lixiviation process. Opposed to dry process. Fay. b. The method of preparation of a ceramic body wherein the constituents are blended in sufficient liquid to produce a fluid suspension for use as such or for subsequent processing. Also called slip process. ASTM C242-60T.

wet sanding. The ordinary process of puddling in which the furnace is lined with material rich in oxide of iron. Fay.

wet sand. Same as core sand inside the pipes in a box or a lift. Fay.

wet shot. Timber decay set up when mine props have not been treated with dry salts or have been exposed to alternations of moisture and drying out. Pryor, J. 3.

wet rubbing test. A test to determine the degree of attack of a vitreous-enamed surface after an acid-resistance test. Dodd.

wet sample. A sample consisting of sludge, drill cuttings, or other material wetted by the water-drill circulation medium. Long.

wet screen analysis. See wet sieve analysis.

Bureau of Mines Staff.

wet screening. The addition of water to a screen to increase its capacity and improve its screening efficiency. The water is introduced either by adding it to the feed or by spraying it over the material on the screen deck. The latter method is also used in rinsing sludge deposits, to recover media in the heavy-media process. Nelson.

wet screen analysis. A term used in connection with coal washing or other processes using fluid. See also coal-preparation plant; washery. Nelson.


wet sphere device. An instrument developed in Germany for the purpose of assessing climatic conditions in mines such as the wet- and dry-bulb temperatures, air velocity, humidity, and radiation. The field of usefulness of the instrument is limited to mines where the workers are normally wearing freely and wet few clothes. Roberts, J., p. 134-135.

wettable. a. Term used in connection with flotation processes to describe extent to which a specific mineral's surface attracts or rejects water (is hydrophobic or hydrophilic). Can be modified by wetting agents. Pryor, J. 3. b. A term used in wet separation to indicate the ease with which a solid can be wetted by a liquid. It is often an advantage to feel the raw coal or ore into a washer, in a wet condition. Nelson.


wet tare weight. The total length of surface in a channel or pipe which is in actual contact with water. See also hydraulic mean depth.

wetted dyed. Originally, only guth dye-mettes to which were added salts containing water of crystallization, as Glauher's salts, sodium oxalate, etc., with the view of making them available in mines containing firetamp. Fay.

wet well. cistern; a worker who detaches the blown glass from the pipe by touching it with a wet tool. Fay.

wetting. a. A phenomenon involving a solid and a liquid in such intimate contact that the adhesive force between the two phases is greater than the cohesive force within the liquid. Thus, a solid that is wetted by being removed from the liquid bath, will have a thin continuous layer of liquid adhering to it. Foreign substances, such as grease, may prevent wetting. Addition agents, such as detergents, may induce wetting by lowering the surface tension of the liquid. For a contrast, see water break. ASTM C242. b. A natural phenomena that affects both a solid-air phase, by adsorption of a liquid to the rock, the fiber pores, and the corners adjacent to the grain contacts. The non-wetting fluid occupies the larger openings, thus reducing the relative permeability of the rock. Williams, c. Liquid contact angle of less than 90°. PV.

wetting agent. When surface-active agents cause water to displace air at the surface of a solid-water-air system the surface tension of the solid-water-air phase has been lowered in comparison with that of the solid-air phase, by adsorption of the wetting agent (adhesional wetting). For a small particle, this can be analyzed in three stages: adhesion, immersion, spreading. Wetting out is a preliminary step in deflocculation of the solid. Fay.

wetting agents. a. Substance that lowers the surface tension of water and thus enables it to mix more readily. Wetting agents, such as bone and sodium carboxymethyl-cellulose, may be used for binding coal dust on mine roadways. Also called surface-active agents. See also wettabiliy. Nelson. b. A reagent to reduce the interfacial tension between a solid and a liquid and so facilitate the spreading of the liquid over the solid surface. B.S. 3552, 1962. c. A chemical promoting adhesion of a liquid (usually water) to neutral surface. Pryor 2. d. See plasticizer. Taylor.

wetting coal dust. The spraying of mine roadways with dust treated, with a wetting agent in order to (1) increase the difficulty of raising the dust deposit into the air to take part in an explosion, and (2) reduce the flammability of the dust raised in an explosion. Nelson.

wetting off. The severing of a seamless glass tube by means of a fine jet of water. Dodd.

wet unit weight; units weight. The weight (solid plus water) per unit volume of total volume of soil mass, irrespective of the degree of saturation. A.S.C.E P1828.

wet weight. Eng. A certain amount of moisture, 10 tons, upon which a royalty is paid. Fey.


w. B. A. J.

wetback. See whaleback dune. A.G.I.

wetback dune. A general, self-explanatory descriptive term for dunes, consisting of drifts; has been applied to features ranging widely in size. A.G.I.

wetback. A horizontal beam in a bracing system.

wetback type. A coal-cutter jet which enables water to be taken, during cutting, to the back of the cutter and for dust suppression and prevention of gas ignition from frictional sparking. With an undercutting jet, it consists of a feed water pipe and four or five distributor pipes terminating in jets all arranged in the top plate of the jet. See also dust-suppression jet. Nelson.

wetback with shielding, which is constructed parallel to the waterfront. Ham.

wetback. A laborer who observes coke as it is drawn onto the machine, checks the sparks from the coke, and quenches them with water hose to prevent burning of conveyor belts; also regulates flow of coolant water onto conveyor belts by manipulating levers of gates. D.O.T. Supp.


wheeler bridge. See Whedestone bridge-type instruments. Roberts, J., p. 87.

wheeler bridge-type instrument. These instruments are able to make use of electrically heated filaments which burn the methane and measure the heat output by resistanceometry. One or more of the filaments form the arms of a Wheatstone bridge circuit, the out-of-balance current being a function of the methane percentage. Roberts, J., p. 87.

w. Corn. An abbreviation of water wheel, implying a water driven wheel. Fay.

wheelabrator. A shotblasting machine of a type used for cleaning castings prior to vitreous enameling. This equipment has also been adapted to the testing of re-
wheelabrator

wheelbase. The rate of movement of the wheel across the work. ACSG, 1963.

wheel brush. Scot. A prop to which the pulley on a short self-acting incline is fastened.

wheel conveyor. A series of wheels supported in a frame over which objects are moved manually or flow by gravity. ASA MH 4.1-1958.

wheel conveyor. A wheel equipped with digging buckets, carried and controlled by a tractor unit. Nichols. A machine that digs trenches by rotation of a wheel fitted with toothed buckets. Nichols.

wheel conveyor. A tool for cleaning, reshaping, and truing the cutting faces of grinding wheels. Crispin.

wheel conveyor. For abrasion resistance. Dodd.

wheel conveyor. A horizontal Al or lava hollowware are often revolved on a turning wheel. Pettijohn.

wheel conveyor. A device used to deflect and guide the bit away from the bedding planes, it is called a whipstoke. Wheeler. b. See deflection wedge. BS.

wheel conveyor. A bucket or small tub used in connection with a whim for hoisting ore, coal, or rock in a shallow shaft. Becoming rocky. D.O.T. 1.

wheel conveyor. A series of rubber-tired wheels which can travel comparatively fast over rough ground. Hem.

wheel conveyor. A horizontal H or lava stone used for giving a smooth edge to cutting tools. Ackell.

wheel conveyor. A series of wheels supporting the transport of objects which are moved manually or flow by gravity. ASA MH 4.1-1958.

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whitely, Scot. A hut, hutch, or tub. Fay. whirled, whirling beymeter. a. In mining, a hygrometer used to obtain wet-bulb temperatures. The instrument is spun round and round at a speed of about 200 revolutions per minute, for at least 1 minute, and then read as quickly as possible. Medlam, p. 160. b. See Sorrow whirlng hygrometer. Nelson.

whirling table. Any of various apparatus for producing rapid rotary and usually horizontal motion. Webster 2d.

whirlstone. Eng. Usually applied to sandstone (not a freestone) in the Carboniferous Limestone Series of Cumberland. Sometimes applied to a dolomite, limestone, or shale. Arkel.


whistle pipe. Obsolescent form of a small pipe, which is placed vertically and is blown through at a speed of about 200 revolutions per minute used to obtain wetbulb temperatures. ASG, 1963.

whistle-blower pipe. Obsolescent form of fixed sampler. Webster 2d.

white. A recrystallized product produced from molten bath of 99 percent pure alumina. It is considered to be the most friable of the aluminas abrasives. ASG, 1963.

white asphalt. A mixture of ammonium biphosphate and hydrochloric acid. Used for etching glass. CCD, 6d, 1961.

white and black. Same as chaledony. Fay.

white alkali. a. A mixture of salts (as sodium sulfate, magnesium sulfate, and sodium chloride) forming a white crust on some alkali soils. Webster 3d. b. Re-fined soda ash. Webster 2d.

white alumina. A recrystallized product produced from a molten bath of 99 percent pure alumina. It is considered to be the most friable of the aluminas abrasives. ASG, 1963.

white ash. The mineral valentinite, As$_2$O$_5$. The mineral valentinite, As$_2$O$_5$. A term used by Hodson.

white arsenic. arsenious oxide, As$_2$O$_3$. The most important compound of arsenic. Obtained from the roasting of arsenical ores. C.T.D.

white asbestos. Coal leaving a white ash. Fay.

white athabasca. A blasting compound to be applied directly to the steel as soon as a ground is available. ASGB, 3.


white cement. Portland cement made from secondary materials that, is chalk, or low-lithium limestone and china clay. The Fe$_2$O$_3$ content is <1 percent. Webster 3d.

white china. See kaolin.

white chloride. See kaolin.

white chloride. A 2,000-foot thick sandstone named from its outcrop in the Ogdin Canyon; a dense sand originally, of desert origin and of Jurassic age. Equivalent to the La Plata sandstone of southwestern Colorado. Fay.


white coal. A name frequently applied to calamine and cobaltite. Fay.

white copper. A white alloy of copper; pak-tong. Usually German silver. Synonym for dorkyrite. Webster 2d; Fay; Hey, 1955.


white copper ore. A. A safety fuse used for lighting fuses, or to obtain wetbulb temperatures. ASG, 1963.

white cement. The mineral valentinite, As$_2$O$_5$. The mineral valentinite, As$_2$O$_5$. A term used by Hodson.


white enamel. A translucent variety of glass, jade in appearance. Fay.

white emulsion. See one-coat ware. ASG.


white feldspar. Synonym for albite. Fay.

white furnace. See Howell furnace. Fay.

white gale perch. A safety fuse used for lighting fuses, or to obtain wetbulb temperatures. ASG, 1963.

white gale perch. A safety fuse used for lighting fuses, or to obtain wetbulb temperatures. ASG, 1963.

white gasser. A mixture of sodium carbonate (Na$_2$CO$_3$), sodium nitrate (NaNO$_3$), and sodium nitrate (NaNO$_2$). Used as an oxidizer in metalurgy. Buttress 2d, 1961.

white gasser. See one-coat ware. ASG.

white galler. Small; pale, rough nodules in hard shale. Arkel.


white gneiss. Commercially called arnica. A. A term used by Hodson.

white gold. Gold alloyed with nickel or iron. Webster 2d; Hey, 1955.

white gold. Gold alloyed with nickel or iron. Webster 2d; Hey, 1955.

white ground coat. White or opaque enamels to be applied directly to the steel as soon as a ground is available. ASGB, 3.

white ground coat. White or opaque enamels to be applied directly to the steel as soon as a ground is available. ASGB, 3.


white hat. Gold alloyed with nickel or palladium to give it a white color. C.T.D.

white hat. Gold alloyed with nickel or palladium to give it a white color. C.T.D.

white iron. An extremely hard cast iron, resulting when the casting is chilled in a metallic mold. Cripin.

white iron ore. An early name for siderite. Fay.

white iron ore. Pyrite. See marcasite. Fay.


white lead. Basic lead carbonate or lead hydroxy carbonate. Made by several processes of which the oldest and best known is the Dutch or Stack process. Used extensively as a paint pigment and for pottery glazes. C.T.D.

white lead ore. a. The mineral cerussite, PbCO$_3$. b. A decomposition product of sphalerite. Webster 3d. c. Usually German silver. SY.

white lead ore. The Upper Rh exeas, as opposed to the overlying Blue Lias. Arkel.

white limestone. The principal limestone deposit of the Permian system. Arkel.

white metal. a. A general term covering a group of white-colored metals of relatively low melting points (lead, antimony, bismuth, tin, cadmium, and zinc) and of the alloys based on these metals. ASM, 1964. b. A copper matte containing about 77 percent copper obtained from the smelting of sulphide copper ores. ASM, 1964. c. A term used for ing bearings and winding rope cappings. Nelson. d. N.S.W. Term applied to quantizes hard sandstones used as roadstones. New South Wales, p. 60.

white metal alloys. A mixture of zinc, tin, and copper, much used for the die casting of automobile hardware. Cripin.

white metal alloy. A capping in which the end of the winding rope (separated out into a brush) is embedded in a plug of white metal inside a socket. Nelson.

white metal alloying. A winding rope cap- ping by the bonding of the wires of the rope for a length equal to that of the socket, cleaning them thoroughly of all grease, cutting out the hemp core, and finally drawing them into the warmed socket and running in the white metal which is an alloy of lead, antimony, and tin. Mason, p. 2, 1962.

white metal. Muscovite. Webster 3d.

white mica. A machine for briquetting flue dust. Fay.

white mica. Mica containing large areas of white micas. Shipley.

white mica. Muscovite. Fay.

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white mica. Muscovite. Fay.

white mica. Mica containing large areas of white micas. Shipley.
white ore

white plate. A straight-grained softwood, light in color; used especially for pattern-made joinery. Crispin.

white portland cement. Essentially the same composition as other portland cement (but more expensive), being made from pure calcite limestones and white clays which exist in eastern Pennsylvania and in France. Ure, Chem. Sec. 7, p. 12.

white powder. See gunpowder, white. C.C.D. 6d, 1911.

whiteprint. See blueprint, white. H. E. 34, 1911.


white rent. Eng. An annual tax of eightpence upon every tinner in Cornwall and Devon, paid to the lord of the soil. Standard 1864.


white sand. Staff. White clay in the Coal Measures. Compare blackberry. Arkell.

white salt. a. Salt dried and calcined; de-creptitated salt. Fay. b. Salt refined and prepared mainly for household use. Also, vacuum salt used for salting slabs. They are said to have a distinct rock. Kauffman.

white sands. Sands which are usually quartzaceous, and must be pure enough to resist heat and slags. They are used for the final layer in Siemen's steel furnaces. Nelson.

white sapphire. More widely called white corundum; the colorless pure variety of crystallized corundum, 

white soaka. Salt dried and calcined; de-creptitated salt. Fay. b. Salt refined and prepared mainly for household use. Also, vacuum salt used for salting slabs. They are said to have a distinct rock. Kauffman.

whole diamond. A diamond (as mined), the shape of which has not been modified artificially. Black.

whole flat. Fay. b. Eng. The operation left to support previous work. See also pillar work, or the extraction of pillars to pillar work, or the extraction of pillars when it is drawn up to or over the pulleys. Fay.

whole stone. Synonym for whole diamond. Long.

whole stone bit. A bit of the crown which is either surface cut or impregnated with whole diamonds, as opposed to an impregnated or surface-cut bit in which the inset diamonds are fragmented diamonds. Long.

whole working. A. New. Working where the ground is still whole, that is, has not been penetrated as yet with breases. Opposed to pillar work, or the extraction of pillars to support previous work. See also flat. Fay. b. Eng. The operation of the working of the seams from which the form to it into pillars (bord-and-pillar). SMR, Paper No. 61. See also working the whole.

wholeworking. Scott. The case is said to be whelbed when it is drawn up to or over the pulleys. Fay.


wholeworking. Scott. Pithead or shaft pulleys. Fay. w top Abbreviation for water horsepower. Pit and Quarry, 53rd, sec. E, p. 82.


Wiancko pressure-measuring system. This pressure-measuring system is used to measure and record water pressure changes of 0.1 inch to 80.0 inches to a depth of 200 feet. The system includes three WAC units. The underwater unit consists of a differential pressure gage in a housing which also contains a hydraulic filter to compensate for static pressures and a calibration relay circuit. The differential pressure gage produces an electrical signal which is proportional to the pressure variation. The signal is used to change the ratio of two inductances. The electromagnetic unit of the system which consists of a bridge circuit with the two inductances. The bridge is used to produce a direct-current voltage across the proportions of the pressure variations. The recording unit is a recording milliammeter which serves as the indicating device for the pressure variations. H.W.G.
wick. Celtic for salt spring; often used in England as the termination of names of places where salt is or has been found. Northumberland. *Nelson.


widespread diaba or balsalt, named from a Finland locality, With and Wimper. Synonym for divining as a glassy phase of diabase or balsalt. Jeffery.

wildcat. A kind of pillar-and-stall, or bord-and-pillar, system of working a seam of coal, with pillars up to 15 yards and stalls up to 24 yards wide. Also called wicket work. *Fay. b. A wall built of refractories to close an opening into a kiln or furnace; it is of a temporary nature, serving as a partition wall, in intermittently or annular kilns. *Dodd.

wildcat conveyor. A conveyor comprising two or more endless chains, one driven by a crank and bar and to which vertical rods are attached at spaced intervals. The crossbars are also provided with the required projecting chains which can be lowered or raised to form a continuous carrying surface through which product cannot fall. *A.S.M. *1949-1958.

wildcat dip. A method of rapid-cotton string used to wick drill rod joints; the act of placing the cotton string on the rod joints. See also wildcat. *Fay.

wildcat driving. Long. Said of liquid steel, especially rimmed steel, that is being violently agitated, forcibly ejecting metal from the mold or other container. *Fay.

wildcat perf. Any old term used by colliers for fireplank. *Fay.

wild gas. Blast-furnace gas that does not burn steadily or properly. *Fay.

wild heat (of steel). A heat of molten steel which is boiling violently, and so, if poured, hardens in the ingot. *Fay.

wild mill. The drilling of boreholes in unproved territory. See also wildcat. Long. b. To act or to drill wells in unproved territory. See also wildcat. Long.

wild mill. Any rock not fit for commercial use.


wild parrot. Term used by Scottish miners for the term is now used as follows: Specifically applied to a mining or oil company organized for the purpose of unproved ground far from the actual point of discovery. Any risky venture in mining. *Fay.

wild drilling. The driving of boreholes in an unproved territory. See also wildcat. Long.

wildside. A borehole drilled in an unproved territory. See also wildcat. Long.

wilder. a. A borehole and/or the act of drilling a borehole in an improved territory where the prospect of finding anything of value is questionable. It is analogous to prospecting in mining. Long. b. To act or to drill wells in unproved territory. See also wildcat. Long.

wilder. Nickname for hand-rotated wilder. c. Organizing and exploiting a risky venture in mining. Long. d. A poor well or a well that is a failure. *Fay.

wilder. Said of liquid steel, especially rimmed steel, that is being violently agitated, forcibly ejecting metal from the mold or other container. *Fay.

wilder. A well drilled while out of control. *Brantly. 2.

wilder. A kind of bord-and-pillar system of coal mining in which the very narrow part of a seam supporting the roof is not recovered. *Fay.

Wileys' process. A method of reducing iron ore by which the electrode furnace is fed with two or more hollow electrodes, through which the finely divided ore intimately mixed with reducing materials is introduced. Osborn.

Willey table. A form of shaking canvas table which is given a vaner motion. *Henderson. 24. P. 1895.

Willey table. Long-established and widely used form of shaking table. Plane rectangle is mounted horizontally and can be rotated about its long axis. It is covered with linoleum (occasionally rubber) and has longitudinal ribs at discharge end to table, longitudinally. Sands, usually classified for size range are fed continuously and worked along table, by means of a water sprayer, and across ribs by downslope by gravity tilt adjustment, and added wash water. At discharge end the sands have separated into bands, the heaviest and smallest uppermost, the largest and lightest lowest. Pryor. 3. The Dodd, Cammet, 1237

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### Wildfly table

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wideshell</td>
<td>Same as lintonite, English.</td>
</tr>
<tr>
<td>Winder brake</td>
<td>A large, conical bottle of the type used for transporting laboratory liquids; the two British Standard Winches-</td>
</tr>
<tr>
<td></td>
<td>ters sold in this country vary in size, but are usually about 1 liter in volume, and are made of bituminous coal. Mitchell, p. 428.</td>
</tr>
<tr>
<td>Wimble</td>
<td>A natural zinc orthosilicate, Zn-SiO₂. Troosite is a manganese-bearing vari-</td>
</tr>
<tr>
<td></td>
<td>ety. Yellow, green, red, brown, white color; luster, vitreous to resinous; sometimes fluorescent in ultraviolet light; 3.3. Found in New Jersey, New Mexico; Africa; Green-</td>
</tr>
<tr>
<td></td>
<td>land. An ore of zinc; a phosphor. CCD 64, 1961.</td>
</tr>
<tr>
<td>Wimblestone</td>
<td>Eng. An oolithic freestone used for cornices and chimney pieces; also, a, a variety of stone, Halton Northampton-</td>
</tr>
<tr>
<td></td>
<td>shire, A42.</td>
</tr>
</tbody>
</table>
| Wimmer        | A tunnel kiln of the combined direct flame and muffie type for the firing of wall tiles and sewer pipes. This kiln differed from earlier tunnel kilns in that the hot combustion gases passed across, rather than along, the kiln. Wimble, a. A natural zinc orthosilicate. See also jadite, Sanford. b. A translucent bright green variety of serpentine usually containing species of chrysotile, used as a semiprecious stone. Dune 64, pp. 460, 669. c. An old misspelling of wilkmite. Dune 64, pp. 460, 669. Wimblestone. Wimble. A natural zinc orthosilicate, Zn-SiO₂. Troosite is a manganese-bearing variety. Yellow, green, red, brown, white color; luster, vitreous to resinous; sometimes fluorescent in ultraviolet light; 3.3. Wimble, a. A natural zinc orthosilicate. See also jadite, Sanford. b. A translucent bright green variety of serpentine usually containing species of chrysotile, used as a semiprecious stone. Dune 64, pp. 460, 669. c. An old misspelling of wilkmite. Dune 64, pp. 460, 669. Wimblestone. Wimble. A natural zinc orthosilicate, Zn-SiO₂. Troosite is a manganese-bearing variety. Yellow, green, red, brown, white color; luster, vitreous to resinous; sometimes fluorescent in ultraviolet light; 3.3. Found in New Jersey, New Mexico; Africa; Greenland. An ore of zinc; a phosphor. CCD 64, 1961. Wimble. A natural zinc orthosilicate, Zn-SiO₂. Troosite is a manganese-bearing variety. Yellow, green, red, brown, white color; luster, vitreous to resinous; sometimes fluorescent in ultraviolet light; 3.3. Found in New Jersey, New Mexico; Africa; Greenland. An ore of zinc; a phosphor. CCD 64, 1961. Wimblestone. Wimble. A natural zinc orthosilicate, Zn-SiO₂. Troosite is a manganese-bearing variety. Yellow, green, red, brown, white color; luster, vitreous to resinous; sometimes fluorescent in ultraviolet light; 3.3. Found in New Jersey, New Mexico; Africa; Greenland. An ore of zinc; a phosphor. CCD 64, 1961. Wimblestone. Wimble. A natural zinc orthosilicate, Zn-SiO₂. Troosite is a manganese-bearing variety. Yellow, green, red, brown, white color; luster, vitreous to resinous; sometimes fluorescent in ultraviolet light; 3.3. Found in New Jersey, New Mexico; Africa; Greenland. An ore of zinc; a phosphor. CCD 64, 1961.
winder brake

and smoothness of control which previously had been obtained only with Ward-Leonard control was at considerable expense. See also brake; semi-automatic control. Nelson.


wind gauge An instrument for testing the velocity of the air in mines. Fay.

wind gap a. The low slope or notch in a ridge where a stream formerly flowed, and that is utilized for highways in crossing the ridge. A.G.I. b. Sometimes a river that has been cutting a water gap it diverted by capture while the general low-

evitis of the land surface is in progress. Nelson.

wind gap furnace A form of furnace using the natural draft of a chimney without the aid of a bellows or blower. Fay.

windlass Eng. A shaft or other opening for various purposes. Nelson.

windlass operation The machinery and equipment for lowering and raising loads through the shaft or staple shaft. Nelson.

windlass box The appliance on drop bottom ore or coal cars by which the doors are

closed and held tight. Fay.

windlass cycle In general, a cycle refers to any series of changes or operations performed by or on a system, which brings it back to its original state. It is usually terms of a complete wind.

windlass, which comprises three phases: (1) acceleration to full speed; (2) full-speed running; and (3) retardation to rest.

The time of the winding cycle is the sum of the winding time and the deckling time in seconds. The time for changing mine cars is from 10 to 12 seconds for each deck of mine cars. The winding time is made for cylindrical or ellipsoidal forms, and the term usually refers to a complete wind.

windmill A windmill is driven by the air stream, and its rotation transmitted through gearing to dials or other recording mechanism. In some instruments the windmill and dial are in the same plane, that is, both vertical, while in others the dial is horizontal. In the windmill type of wind instrument the readings of the dials at the beginning and end of a measured period, and a watch or clock is required. The instruments may be fitted with an extension handle providing a form of remote control, and used to measure the air speed of an otherwise inaccessible spot. Mason, v. 1, p. 274-275.

windmill anemometer An anemometer in which a windmill is driven by the air stream, and, its rotation transmitted through gearing to dials or other recording mechanism. In some instruments the windmill and dial are in the same plane, that is, both vertical, while in others the dial is horizontal. In the windmill type of wind instrument the readings of the dials at the beginning and end of a measured period, and a watch or clock is required. The instruments may be fitted with an extension handle providing a form of remote control, and used to measure the air speed of an otherwise inaccessible spot. Mason, v. 1, pp. 274-275.


windmill pipe A dredge discharge pipe with one or more openings in the bottom. Nelson.

windmill-type sample Synonym for door-type sampler. Long.

windmill velocity Pressure on a structure due to wind, which increases with wind velocity approximately in accordance with the formula \( v = \frac{P}{0.03} \), where \( v \) is the wind velocity in miles per hour. Horn.

windmills a. A device used for hoisting, limited to small-scale development work and prospecting because of its small capacity. Lewis, p. 239. b. A drum, or usually a section of tree trunk wrapped horizontally on rough bearings above shallow pit or shaft, and provided with handles at each end for manual rotation. Used to raise or lower buckets of spoil in exploratory pit ing. Pryor, 3. c. Commonly used in England, Africa, and Australia to designate a hoist or winch. Long. d. A horizontal drum for winding, or for hoisting by winding; properly, one operated by radial arms, removable bars, or a pulwl-and-ratchet mechanism; loosely, any form of horizontal hoisting drum, especially that form of winch familiar in well curbs, consisting of a drum and cranks. Standard, 1954.

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windrift dune

oped forms have more or less parallel wings. Usually found along shores; few, if any, are found in the interior of the United States. *J. Geol.* 46, No. 2, Feb.-Mar., 1940.


wind rose. A diagram which shows the proportion of winds blowing from each of the main points of the compass at a given locality, recorded over a long period. The prevailing wind with its average strength is thereby revealed at a glance. *Ham.*

windrow. a. A row of peats or sod set up to dry, or cut in paring and burning. *Standord*, 1966, b. A ridge of soil pushed up by a grader or bulldozer. *See also travel mixer.* *Ham.*

windrowed. A variety of rippled mass consisting of straight, tapered ridges parallel to current. *Petijohn.*


windsortie. A leucocratic, spilitic variety of quartz monominite, containing a small percentage of biotite. *Holmes*, 1923.

windup. The amount of twist occurring in a mine shaft or incline, as where long-walls are advanced to reveal at a locality, recorded over a long period. The main points of the compass at a given point are thereby revealed at a glance. *Ham.*


windvane. a. A vertical or inclined opening, or excavation, connecting two levels in a mine shaft or incline, as where long-walls are advanced to reveal at a locality, recorded over a long period. The main points of the compass at a given point are thereby revealed at a glance. *Ham.* b. A subsidiary shaft which starts underground. It is usually a connection between two levels, and is sunk in the ore body. *Higham*, p. 36. c. Can. Interior mine shaft. *Hoffman.*

winder. In metal mining, one who operates an unmounted, compressed-air, percussion-type rock drill in sinking winders (passageways) from the surface to lower levels of the mine, or from one level to another. D.O.T. 1.

winding. In metal mining, one who operates an electric or compressed-air hoist to raise and lower men, ore, rock, and supplies (in some, small underground shaft or incline connecting two or more underground levels). Also called winze hoist operator. See *wind hoistman.* D.O.T. 1.


wiped joint. a. A joint wherein filler metal is applied in liquid form and distributed by mechanical means (such as phosphate coatings). *ASM Gloss.* b. A joint in which the molten solder is poured upon the joint, after scraping and fitting the joint in place, and the joint is wiped up by hand with a cloth pad while the metal is plastic. *Steck*, 1903.

wiper. a. A rod or bar which is held in place by a piece of cotton waste or other absorbent material and used for drying a drill hole before charging with black powder. *Fay.* b. A follower of cam. *Fay.*

wiper forming. A method of curving sections and tubing to a desired shape by rotating either the wiper block, shoe, or roll. *ASM Gloss.*

wiping. a. The extraction, loading, and removal of coal or ore from the ground; winning follows development. *Nelson.* b. The operation of (1) mining an ore, and (2) opening up a new portion of a coal seam, C.D. to a mine opening. *Fay.* d. The portion of a coalfield laid out for working. *Fay.* e. Mining. *Fay.* f. Scot. A pit (mine) and its associated equipment and machinery. *Fay.* g. Eng. See heading. *SMRB, Paper No. 61.* h. The combined process of getting (that is, extraction) and transporting a raw material, such as clay to a brickworks or stockpile. *Dodd.*

wining bord. Aust. A room from which coal is being mined. *Fay.*

wining headings. The development headings off which oblique headings and conveyor panels are formed and worked (longwall) or the development drivages in the solid coal. *Dodd.* 15 yards apart, and off which bords and pillars are formed (pillar method of working). *Nelson.*

wining headway. a. N. W. A headway driven to explore and open out the coal seam. *Fay.* b. N. of Eng. A crossheading, or one driven at right angles to the main gangway. *Fay.*

wining-out. Aust. A leading heading or drive in advance from which rooms, or bords, are opened. Any leading heading is termed a "winning." *Fay.*


wining gold. Air blowing. Tossing up dry powdered auriferous material in air, and catching the heavier particles not blown away. *Fay.*

wining coal. A heavy rain-carry-over and engine fire which is a solidifying point of below -20°F. *Fay.*

wire-cut process


wirette. a. A vertical or inclined opening, or excavation, connecting two levels in a mine shaft or incline, as where long-walls are advanced to reveal at a locality, recorded over a long period. The main points of the compass at a given point are thereby revealed at a glance. *Ham.* b. A subsidiary shaft which starts underground. It is usually a connection between two levels, and is sunk in the ore body. *Higham*, p. 36. c. Can. Interior mine shaft. *Hoffman.*

wister. A cast shape, particularly of tough pitch copper, which has a cross section approximately square with tapered ends, designed for hot rolling to rod for subse- quent drawing into wire. *ASM Gloss.*

wire brush. A hand brush fitted with wire or thin strips of steel instead of bristles. Used for removing rust, dirt, or foreign matter from a surface. *Crispin.*

wire cable. See cable. c. Long. *Wire cloth. Screen composed of wire or rod woven or crimped into a square or rectangular pattern. *Nichols.*

wire cut brick. Brick made by wire from a column of clay extruded by an auger ma- chine and not repressed. *A.R.I.*

wire-cut process. In the United Kingdom, the shaping of brick by extruding a column of clay through a die, the column being subsequently cut to the size of bricks
wire-cut process

by means of tools. Wire. The equivalent term in the United States for this process is known as the stuff feed process. BEAD

wire drawing. A process in which small solid wire is reduced in size by rolling. The metal to be rolled is hardened by a small amount of the ribbon of glass so that it acts as a reinforcement and holds the fringes together in the event of the glass being fractured. C.T.D.

wire drag. A buoyed wire towed at a given depth to determine whether any isolated rock is present. A gauge or scale is set above that depth, r for determining the least depth of an arc. HUG.

wire glass. a. Reducing the cross section of wire by pulling it through a die. See also Taylor process. ASM Gloss b. The operation, accidental or otherwise, of reducing the pressure of steam between the boiler and the cylinder. Fay.

gate gage. a. A gage for measuring the diameter of wire or thickness of steel wire. B. A standard series of sizes arbitrarily indicated by a set of standard holes or by a set of gages of the dimension of wire. Most widely used in the United States is the U.S. Standard Steel Wire Gage, which names sizes of steel wire without legal effect. The Birmingham gage is recognized in acts of Congress for tariff purposes. American Bureau of Shipping and Lloyd's gage are used for copper wires and all nonferrous metal wires. Crispin.

wire packs. A gage of fine wire, as that used for the chimneys of flame safety lamps. Fay.

wire rod. Hot-rolled coiled stock that is to be drawn into wire, as in the rope. Also called wire rod. Fay.

wire rope. A rope made of twisted strands of wire or threads. A.G.I.

wire strand. Several steel wires twisted together to form one strand of a wire rope. A.G.I.

wire-string core. A core in which the number of wires shall not be less than the number of wires in each strand. A.G.I.

wire-string core barrel. Long. Wire-string drilling. In this method, digging-under rock or buckets are suspended on a steel core barrel that rests on the surface of rocks in which they are bored and removed. Includes the use of drill-buckets, clamshell dippers, and muck forks. Fay.

wire-string drilling. The drilling of bore-holes with wire-string core barrels. Fay.

wire-string drill core. A core in which the number of wires shall not be less than the number of wires in each strand. A.G.I.

wire-string drill core barrel. Long. Wire-string drill string. The drill string of wire-string drill core barrels. Fay.

wire-string drill string. A rope made of twisted strands of wire. See also绝不. a. In some operations, wire-string drill string may be used in place of the shorter and lighter wire-string drilling. Fay.

wire-string helper. See wireman helper. D.O.T. I.

wireless. A device for stealing off and securing the tension in the wire ropes of a wire-rope side-framed intermediate section. NEMA MBI-1961 wire-tender. wire-tender is a term for an alternative to a return idler. NEMA MBI-1961.

wire-tender support. That part of the wire-rope side-framed intermediate section which maintains a horizontal plane a fixed distance between wire ropes but does not support the wire ropes. NEMA MBI-1961.

wire-tender tests. To insure that new rope for use in mines comply with the appropriate British Standards, it is recommended that a percentage (10 to 20 percent) of all new hawse ropes be tested. The test is carried out on rope samples taken either when the ropes are delivered or when put into service. The former practice is preferred. The three main tests are tensile, torsion, and reverse-bend, which are covered by British Standard 236 and 330. Nelson.

wire rope grade. A rope used as a cable or cables. Used for conveying ore and supplies in rough mountainous districts; a tramway. See also aerial tramway. Fay.

wire safety glass. A single piece of glass with a layer of meshed wire completely embedded in the glass, but not necessarily in the center of the sheers. When the glass is broken, the wire mesh holds the pieces together to a considerable extent. See also safety glass. ASTM C162-66.

wire saw. A saw consisting of one- and three-strand wire cables, up to 10,000 feet long, running over pulleys as a belt. When fed by a slurry of sand and water, and held against rock by tension, it cuts by abrasion. It cuts a narrow, uniform channel. This saw is used for cutting granite, limestone, marble, slate, and sandstone into smaller blocks. BuMines Bull. 630, 1965, p. 278. Nelson.

wire saw operator. See wire sawyer. D.O.T. I.

wire sawyer. In a stone industry, one who operates a wire saw to cut very large blocks of granite, limestone, marble, slate, or sandstone into smaller blocks that can be handled on gang or circular saw. Also called wire saw operator. D.O.T. I.


wire silver. Native metal in the form of wire or threads. A.G.I.

wire strand. Several steel wires twisted together to form one strand of a wire rope or cable. A.G.I.

wire-tender. A device for stealing off and securing the tension in the wire ropes of a wire-rope side-framed intermediate section. NEMA MBI-1961 wire-tender support. That part of the wire-rope side-framed intermediate section which maintains a horizontal plane a fixed distance between wire ropes but does not support the wire ropes. NEMA MBI-1961.
wittallite. A natural calcium silicate, CaSi2O5, or wollastonite.

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wollastonite. A natural calcium silicate, CaSi2O5 or wollastonite. A natural calcium silicate, CaSi2O5 formed by the reaction of calcium hydroxide (Ca(OH)2) with silica (SiO2) in the presence of water (H2O).

Wollastonite is a common mineral found in a variety of rock types, including metamorphic rocks, igneous rocks, and sedimentary rocks. It is often associated with other minerals such as quartz, feldspar, and mica.

Wollastonite is known for its high purity, optical properties, and thermal stability, making it a valuable mineral resource. It is used in a variety of applications, including as a filler in paints and plastics, as a thermal insulator in ceramics, and as a abrasive in polishing and grinding.

The term "wollastonite" was coined in honor of the British mineralogist, Edward Wollaston, who first described the mineral in 1804.
wood copper. See wood anneate.

Woodchuck cut. See burned cut. Hess.


wood coal. a. Charcoal. Webster 3d. See also board coal. Fay.


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workability

A property determining the ability to place or use a material in proper form for the desired purpose. Working time refers to the length of time within which a mixture, slurry, or paste may be placed and carried from one process to the next. Working time may be stated as a cloudy viscosity range or a window of viscosity range of the mixture. See also workability range.

working beam

Eng. A beam having a vertical motion on a rock shaft at its center, in which a pump piston works. Fay.

working beam furnace

In glassmaking, a small open-end reverbatory furnace supplied with fresh air from the downcast shaft. Fay.

working balance

In glassmaking, a small opening over pots enabling workers to introduce or withdraw material required. Bureau of Mines Staff.

working beam. Eng. A beam having a vertical motion on a rock shaft at its center, in which a pump piston works. Fay.

working balance. See whole working balance.

working beam furnace. See mold.

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working balance. See whole working balance.
wrought alloys

wrought alloys. The type of alloys that are suitable for forming by mechanical means.
wurtzite-8H; -wurtzite-10H. Two poly-

wumble. Corn. An instrument for cleaning
a holt, when boring. Hess, 1861.

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X-ray; roentgen ray. a. Any of the electromagnetic radiations emitted by the disintegration of the nuclei of radioactive substances or by the impact of an electron stream on a target. b. Electromagnetic radiation, of wavelength less than 500 angstroms, emitted as the result of nuclear disintegration.

deep. A. Abbreviation for extra fine. Webster 3d.

effect. A product utilizing a layer of photoconductive material on an aluminized mylar sheet upon which is placed an electron image for transmission of light but a wavelength approxi-

xenothermal ore deposit. Deposit formed at high temperature but at shallow to moderate depth. McKinstry.


X-yellow. A sedimentary rock composed of yellow sandstones and shales. Webster 3d.

X-1 hydrophotometer. A new transistorized self-calibrating device. The electrooptical system gives direct measurement of light transmission through a fixed distance in sea water. Heart of system is a sensor unit which contain a light source, photocell, and lens system in a watertight assembly.

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Xenothermal ore deposit. Deposit formed at high temperature but at shallow to moderate depth. McKinstry.

X-ray roentgen ray. a. Any of the electromagnetic radiations having the nature of visible light but a wavelength approxi-

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X-ray analysis. Use of X-rays by Laue method, by X-ray spectrometry, crystal rotation, or powder rotation method to photograph and establish lattice structure of crystals. This gives identification of species and shows the structural bonding of the constituents' elements. The hardness of an X-ray refers to its penetrating power and is in inverse proportion to its wavelength. 

X-ray crystallography, the determination by Max von Laue that the planes of atoms in crystals act as a diffraction grating to X-rays, which are scattered by them and provide a means of determining the details of the inner atomic structure. X-ray photography of metals provide information which in many cases cannot be obtained by ordinary microscopic methods. The lines produced by each element, or phase, are characteristic; the general pattern enables the crystalline structure to be identified. 

X-ray diffraction. Reflection at definite and characteristic angles from space lattices of crystals which are characteristic; the general pattern enables the crystalline structure to be identified. 

X-ray microscope. An instrument in which X-ray diffraction patterns of crystals are translated into pictures showing the relative positions of the atoms in a crystal as if in a photomicrograph of very high magnification. 

X-ray spectrometer. Apparatus developed by Bragg for beaming X-rays on a crystal, from the sources of which they are then reflected. 

X-ray spectrograph. An instrument in which the material being analyzed is subjected to an intense beam of X-rays. Secondary X-rays are emitted, separated according to element (by passing through a crystal such as lithium fluoride) and the intensity measured; used to analyze ores, slags, refractories, and other nonmetallic materials. 

X-ray spectrometer. A small portable drill making X-ray diffraction. Reflection at definite and characteristic angles from space lattices of crystals which are characteristic; the general pattern enables the crystalline structure to be identified. 

X-ray spectrometer. Glass that remits the penetration of X-rays and gamma rays and ordinarily contains a high content of lead. 

X-ray analysis. Use of X-rays by Laue method, by X-ray spectrometry, crystal rotation, or powder rotation method to photograph and establish lattice structure of crystals. This gives identification of species and shows the structural bonding of the constituents' elements. The hardness of an X-ray refers to its penetrating power and is in inverse proportion to its wavelength.

X-ray crystal analysis. The process of passing X-rays through crystals to determine the spacing of atoms and hence the nature of the crystal structure; the spacing of the rays are recorded on photographic film and from their interpretation the desired information is obtained. 

X-ray crystallography, the determination by Max von Laue that the planes of atoms in crystals act as a diffraction grating to X-rays, which are scattered by them and provide a means of determining the details of the inner atomic structure. X-ray photography of metals provide information which in many cases cannot be obtained by ordinary microscopic methods. The lines produced by each element, or phase, are characteristic; the general pattern enables the crystalline structure to be identified. 

X-ray diffraction. Reflection at definite and characteristic angles from space lattices of crystals which are characteristic; the general pattern enables the crystalline structure to be identified. 

X-ray microscope. An instrument in which X-ray diffraction patterns of crystals are translated into pictures showing the relative positions of the atoms in a crystal as if in a photomicrograph of very high magnification. 

X-ray spectrometer. Apparatus developed by Bragg for beaming X-rays on a crystal, from the sources of which they are then reflected.
yard price. The price paid per yard driven by yardmen. Dosonctive Lundforms carved out of yarn. As applied to minerals, an asbestos trough. A trough excavated by wind or water. graveyard. A place where the dead are buried. A.G.I., American Geographical Union. yardage, man. In plowing, the laborer who plows down rows of rock with a bar after coal has been blasted from the surface. yardage trough. A trough excavated by wind action, between two line of cleavage. yard. A unit of linear measurement. yardage with poikilitic inclusions of magnetite and titaniferous series of diopside syenites. Sinclair, W. E., p. 484. yard-long scale. Crispin. yard of metal would properly be called a 36-inch yard of the value one in a three-dimensional rectangular coordinate system. Webster 3d. yard of yellow. Yellow boy. Deposit from the acid waters of a mine or partial neutralization. Ferrous sulfate. Yellow, yellow. A pigment consisting of barium chromate. Standard 1964. yellow ochre. A mixture of limonite usually with clay and silica. Used as a pigment. Webster 2d. A moderate orange yellow that is yellower and darker than deep chrome yellow. Webster 3d. yellow ocher. same as yellow ochre. yellow ocher ore. Bellard, b. Corn. Chalcopyrite. yellow ochre. Yellow and decomposed emanation of sulfur oxide. King's yellow, Aso.S.. Webster 2d. yellow ocher. A mixture of limonite usually with clay and silica. Used as a pigment. Webster 2d. A moderate orange yellow that is yellower and darker than deep chrome yellow. Webster 3d. yellow ocher. A mixture of limonite usually with clay and silica. Used as a pigment. Webster 2d. A moderate orange yellow that is yellower and darker than deep chrome yellow. Webster 3d. yellow ocher. A mixture of limonite usually with clay and silica. Used as a pigment. Webster 2d. A moderate orange yellow that is yellower and darker than deep chrome yellow. Webster 3d. yellow ochre. Yellow and decomposed emanation of sulfur oxide. King's yellow, Aso.S.. Webster 2d. yellow ocher. A mixture of limonite usually with clay and silica. Used as a pigment. Webster 2d. A moderate orange yellow that is yellower and darker than deep chrome yellow. Webster 3d. yellow ocher. A mixture of limonite usually with clay and silica. Used as a pigment. Webster 2d. A moderate orange yellow that is yellower and darker than deep chrome yellow. Webster 3d. yellow ochre. Yellow and decomposed emanation of sulfur oxide. King's yellow, Aso.S.. Webster 2d. yellow ocher. A mixture of limonite usually with clay and silica. Used as a pigment. Webster 2d. A moderate orange yellow that is yellower and darker than deep chrome yellow. Webster 3d. yellow ocher. A mixture of limonite usually with clay and silica. Used as a pigment. Webster 2d. A moderate orange yellow that is yellower and darker than deep chrome yellow. Webster 3d. yellow ochre. A mixture of limonite usually with clay and silica. Used as a pigment. Webster 2d. A moderate orange yellow that is yellower and darker than deep chrome yellow. Webster 3d. yellow ochre. A mixture of limonite usually with clay and silica. Used as a pigment. Webster 2d. A moderate orange yellow that is yellower and darker than deep chrome yellow. Webster 3d. yellow ochre. A mixture of limonite usually with clay and silica. Used as a pigment. Webster 2d. A moderate orange yellow that is yellower and darker than deep chrome yellow. Webster 3d. yellow ochre. A mixture of limonite usually with clay and silica. Used as a pigment. Webster 2d. A moderate orange yellow that is yellower and darker than deep chrome yellow. Webster 3d.
yielding support. A support which incorporates a sliding or flexible joint to accommodate early damage and thus delay damage and distortion of the support. Friction or hydraulic devices may be used so that a support, when subjected to a load above its set load, yields mechanically rather than by distortion. Nelson.

yield loss. The difference between the actual yield of a product and the yield theoretically possible (based on the reconstituted feedstuff). B.S. 3552, 1962. Also called washing error.

yield point. The lowest stress at which extension of the strain test piece increases without increase in load. It is determined by observing the fall of the testing lever and checking by a pair of dividers on the original stage length. Many materials do not indicate a defined yield stress and in such cases the proof stress is used. See also working stress; high tensile steel; mild steel.

yield strength. A measure of the ability of a material to resist strain or elongation corresponding to the yield stress.

yield strength of concrete. The minimum stress at which continuous flow takes place. This yield point will be evident in mass, compression, tension, and shear tests when yielded at a given rate of stress and will depend on the manner of specimen preparation. A.S.C.E. 1963.

yield strength of metals. A stress at which a material exhibits a specified deviation from proportionality of stress and strain. An offset of 0.2 percent is used for most metals. A.I.M. 1968.

yield strength terminology. A measure of the ability of a material to resist creep.

young. That stage in the development of streams when they are increasing in vigor and efficiency; or in land sculptures, when topographic forms are being accentuated and are tending toward complexity. Compare maturity; old age. See also young.

young, see young.

youth. That stage in the development of streams when they are increasing in vigor and efficiency; or in land sculptures, when topographic forms are being accentuated and are tending toward complexity. Compare maturity; old age. See also young.

youth. A device used in conjunction with belt conveyors that consists of a short reversible pan or flight conveyor, set at right angles to the belt and driven by it. When a mine car has been loaded with coal, the yo-yo is reversed, and this causes the coal to be dumped into the empty car behind, without having to step the belt between loads. Kentucky, p. 232.

YP. Abbreviation for yield point. Webster 3d.


ytong. A cellular (lightweight) concrete made in block form from shale and lime, and subsequently hardened by autoclave treatment. Compare thermalite.

Y-track. A track at approximately right angles to a line of railroad, and connected with it by two parallel tracks abutting the whole approaching the form of a Y with a line joining the ends of its arms; used in passing trains.

yttrium. A metallic element in group III of the periodic system. Obtained by reduction of the fluorides or chlorides. Symbol, Y; valence, 3; atomic number, 39; and atomic weight, 89.008. C.T.D.; Fay; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-277. Also used in special ceramics, in optical glasses, and in arc welding. C.D., 1961.

yttrium garnet. A variety of garnet containing a small amount of yttrium. See also ytterglow. Fay.


yttriflite. One of the rare-earth minerals. It is a silicate of yttrium metals (43 to 47 percent); thorium (10 to 20 percent), and cerium metals (5 to 10 percent). Color on the fresh fracture olive-green, changing to orange-yellow on surface. Specific gravity 4.575. Found in Texas. C.D., 1961.

yttrium. A metallic element in group III of the periodic system. It is usually classed with the rare earths. Found in gadolinite and other rare minerals. Symbol, Y; valence, 3; atomic number, 39; and atomic weight, 88.905. C.T.D.; Fay; Handbook of Chemistry and Physics, 45th ed., 1964, p. B-277. Also used in special ceramics, in optical glasses, and in arc welding. C.D., 1961.

yttrium sulfate. White; Y₂(SO₄)₃; molecular weight, 465.99; specific gravity, 2.52; decomposes at 1,000° C; soluble in water and in a saturated sodium carbonate solution. In the Handbook of Chemistry and Physics, 45th ed., 1964, p. B-277.


Z. a. Symbol for unknown quantity. Webster 3d. 1. One of the three rectangular coordinates (x, y, z). Webster 3d. c. Symbol for the valency of an ion. Zimmermann, p. 59. d. Symbol for altitude. Zimmerman, p. 7. c. Symbol for elevation above datum plane or distance above datum plane. Zimmerman, p. 41. f. Abbreviation for zero. Webster 3d. g. Abbreviation for Zone(s). Webster 3d. 2. a. Symbol for Greenwich (England) Mean Time, also abbreviated GMT; for example, 0730 Z; and (x, y, z). Zimmerman, p. 171. d. Symbol for Greenwich (England) Mean Time, also abbreviated GMT; for example, 0730 Z.


Z. a. Symbol for unknown quantity. Webster 3d. b. Symbol for atomic number. Webster 3d. c. Symbol for gram-equivalent weight. Zimmermann, p. 51. d. Symbol for the number of molecular collisions per unit time or molecular collision frequency. Zimmermann, p. 75. e. Symbol for elevation above datum plane or distance above datum plane. Also given as Z. Zimmerman, p. 41. f. Symbol for impedance. Webster 3d. g. Symbol for self-inductance. Zimmerman, p. 57. h. Abbreviation for zinc, but usually the chemical symbol Zn is used. Webster 3d. i. Abbreviation for Zone(s) and for Greenwich (England) Mean Time, also abbreviated GMT; for example, 0730 Z; and (x, y, z). Zimmerman, p. 171. d. Symbol for Greenwich (England) Mean Time, also abbreviated GMT; for example, 0730 Z.
Z


Zaffer blue. Same as cobalt blue. Fay.

Zelas cup. An orifice type viscometer; it has been used for the determination of the viscosity of glaze suspensions. Dodd.


Zarnich; Zarnec. Native sulfide of arsenic, including sandarac and orpiment. Webster 2d.


Zaws. A cavern. C.T.D.

Zax. A tool for trimming and puncturing roofing slates. Webster 3d.

Z-axis; Z-axis. a. One of the three optic axes (Y, Z, and Z) in a biaxial crystal. The Z-axis is the axis of least ease of vibration. Light vibrating parallel to the Z-axis travels with minimum velocity and is called the slow ray, the Z-ray, and the y-ray. The highest index of refraction n, in biaxial minerals is the index of the slow ray vibrating parallel to the Z-axis. Bureau of Mines Staff. b. One of the axes in a three-dimensional rectangular coordinate system. Webster 3d. c. A line perpendicular to the plane of a polar coordinate system at the pole. Webster 3d.

Zemboite. Z. One of the three coordinates in a three-dimensional rectangular coordinate system. Webster 3d.

2d. Abbreviation for zenith distance. Webster 3d.

Zedralite. An old name for a variety of fire opal. Fay.


Zebra enstatite. Z. Zebra stone with lighter brown streaks. From India. Same as zebra stone. Shipley.

Zebra rock. A banded quartz and felsite rock of lower Cambrian age found in East Kimber- ly, Western Australia. Heu.

Zebra rock. A type of rock for basic open-hearth steels, the feldspar or quartz occurs as alternate rings of chrome magnetite and of silica refractories, hence the name from the colors and light stripes across the rock. The zebra rock was introduced in 1947 with a view to combining the merits of the two types of refractory; by 1952 there were 300 such roofs in service in the United States alone, but the zebra roof has now been displaced by the allisilic roof. Dodd.


Zeiss green. An underglaze color that has been used for pottery decoration. It is made by calcining a mixture of 10 parts barium chromate, 8 parts whiting, and 5 parts borax and soda. Zedke.

Zeiss konimeter. A portable dust-sampling instrument. See also konimeter. Netzos.

Z-ellweger furnace. A long-hearth reverberatory furnace used at Messel. Fay.


Zeolite mfnictite. Same as dicha diving. English.

Zeolite process. a. A base exchange method of treating hard water, in which the zeo- lites, contained in a tank, removes the salts. The zeolite layer is regenerated by back flushing with brine. The process is not suitable for water containing sulfates of magnesium or any chloride, but in other respects it is a simple and effective method. See also colloidal water treatment. Nelson, b. See base exchange process. Cooper, p. 371.

Zeolites. A class of hydrated silicates of alu- minum and either sodium or calcium or both, of the type Na2O·Al2O3·nSiO2·xH2O. The term originally described a group of naturally occurring minerals. The natural zeolites are analcime, chabazite, heulandite, natrolite, stilbite, and thomsonite. Artificial zeolites are made in a variety of forms ranging from gelatinous to porous and sandlike and are used as gas adsorbents and drying agents as well as water softeners. Both natural and artificial zeolites are now used extensively for water softening. The term zeolite now includes such diverse groups of compounds as sulfurated organics or basic reines, which act in a similar manner to effect either cation or anion exchange. OCR 6d, 1961.

Zeolite mimetica. Same as dachiardite. English.


Zeolite process. c. A method of treating water to produce a water that is free of hardness. Nelson, b. See base exchange process. Cooper, p. 371.

Zeolite process. d. A method of treating water to remove calcium and magnesium ions and to produce a water that is free of hardness. Nelson, b. See base exchange process. Cooper, p. 371.

Zeolite process. e. A base exchange method of treating hard water, in which the zeo- lites, contained in a tank, removes the salts. The zeolite layer is regenerated by back flushing with brine. The process is not suitable for water containing sulfates of magnesium or any chloride, but in other respects it is a simple and effective method. See also colloidal water treatment. Nelson, b. See base exchange process. Cooper, p. 371.


Zenzilite. A zeolitic deposit. Deposits, particularly native copper, which occurs in basaltic accompanied by autunite and torbernite and contains A.G.I. minerals of the zeolite group.

Zenzilization. The process by which a min- eral is converted into zeolite by alteration, for example, nepheline into thomsonite. Fay.

Zenzilite. A. To convert into a zeolite. Webster 3d. b. "fill (as the openings in a rock) with zeolites. Webster 3d. c. To treat in a process using zeolite. Webster 3d.


Zero air voids curve. Saturation curve. The curve showing the zero air voids unit weight as a function of water content. ASCE P1826.

Zero air voids density. See zero air voids unit weight. ASCE P1826.

Zero air voids unit weight. The weight of solids per unit volume of a saturated soil. ASCE P1826.

Zero group. The group of inert gases, hav- ing zero length spring. Special type of gravim- eter spring for which the length is propor- tioned to the applied force. Schiefer- decker.

Zero-concretion reaction. One which proceeds at a constant rate, virtually independent of pressure changes. Pryor, 3.

Zero-concretion remaining in a substance at the absolute 0 of temperature. Webster 3d.

Zero potential. The actual potential of the surface of the earth taken as a point of reference. Webster 3d.

Zero-power reactor. An experimental nu- clear reactor operated at such low power levels that a coolant is not needed and little radioactivity is produced. Critical experi- ments are said to run at zero power. Hey.

Zero time. When conducting a mine ven- tilation pressure survey, zero time is the time of the commencement of the survey from the base station, and the reading of the control barometer there is taken as the zero pressure datum to which subsequent pressures are referred. Sinclair, I, p. 160.

Zeovienal. Having a valence of 0. Webster 3d.

Zero-zero gel. A condition wherein the drill- ing fluid fails to form measurable gels during a quiet 10-minute time interval. Brantly, 1.

Zeta potential; electrokinetic potential. The potential difference across an electric double layer, usually between a solid surface and a liquid. Webster 3d.


Zeven. They consist of soft rock with a layer of hard rock at the summit, and beneath the hard cap the soft rock is carved into caves which resemble the typical de- nudation curve. Synonym for earth pillars. A.G.I.

Zevmo. A mineral, Cu2O·2(AO)·8·10-16H2O. Material which is instructional with autunite and torbernite and contains 10-16 H2O has not yet been found, but the name zevo is being reserved in the event that such a discovery is made. Arti- ficial zevo is tetragonal. Crosby, p. 61.


Zeuxanthozankovite. A mineral, Mn2Mg(AlFe3+)2+(OH)6·H2O. Material which is instructional with autunite and torbernite and contains 10-16 H2O has not yet been found, but the name zeux is being reserved in the event that such a discovery is made. Arti- ficial zeuxite is tetragonal. Crosby, p. 61.


Zieglerite. Incorrect spelling of pietrilekite, a mineral hydrous carbonatite similar to zoekerite. Trombeijssel, 1954.

Zighry; zigger; sicker. Corn. To percolate, trickle, or ooze, as water through a crack. From the German, sicker, Perk.

Zigzag fold. A form of vertical chute in which the chute is divided into independ- ent sections by earth pillars that are ra- ised on a track arrangement. It is flexible and can be lowered to the bottom of the case. By 1952 there was a new type of loading pocket to car. Mitchell, p. 802.

Zigzag fold. See chevron fold. A.G.I.
zinc kiln. A transverse-arch kiln with staggered dividing walls, the fire travel thus being forced to a zigzag path. Such kilns find use in the firing of structural clay products. See also transverse-arch kiln, Dodd.

zigzag rule. A wooden rule (generally 6 feet long, folded zigzag fashion in 6-inch lengths), used by drillers, craftsmen, etc., to measure short distances. The rise in 1.879; feet, and hundredths of a foot. Long.

zigzag transformer; grounding transformer. A zigzag transformer is a transformer intended primarily to provide a neutral point for grounding purposes. I.C. 7962, p. 23.

zinc glass. A glass in which zinc oxide, B2O3, and impurities, incidentally produced in the manufacture of spelter. It is sometimes referred to as colorless glass.

zinc green. A pigment not yellow and having a green shade. CCD 6d, 1961.


zinc green. A pigment not yellow and having a green shade. CCD 6d, 1961.

zinc. A lustrous, bluish-white metallic element in group II of the periodic system. Symbol, Zn; atomic number, 30; atomic weight, 65.37; valence, 2; hexagonal; brittleness, 2; density (of cubes), 7.133; melting point, 419.47° C; boiling point, 2740° C; specific gravity, 7.133; molecular weight, 125.39; specific gravity, 4.398, and ranges from 4.30 to 4.45; Mohs' hardness, 4.5 to 5.0; soluble in cold water; and crystals are colorless; 45th ed., 1964, p. B-237. Also see Merrill-Crowe Process, Prory, 3.

zinc oxide. A white, amorphous, non-crystalline white or greyish-white powder obtained by the reaction of zinc oxide, or zinc, with solutions of alkalies. Webster 3d.

zinc bloom. See zinc hydrosulfite; zinc oxide.

zinc borate. Of variable composition; contains zinc oxide, water, and boric oxide, B2O3, in various ratios. A typical specific gravity is 4.5 percent zinc oxide and 34 percent boric oxide on a weight basis. The term is used more accurately to refer to any of the basic zinc-borate minerals which are essentially a mixture of zinc oxide and boric oxide. See also zinc boric oxide, zinc chromate, zinc glass.

zinc chromate. A yellow crystalline powder said to be zinc chromate heptahydrate, ZnCrO4.7H2O. Also called variegated pigment, yellow zinc chromate, and hydrated zinc-potassium chromate. CCD 6d, 1961; Webster 3d. Another zinc chromate is not yellow and having a green shade. CCD 6d, 1961.


zinc oxide. A lustrous, white, amorphous, non-crystalline white or greyish-white powder obtained by the reaction of zinc oxide, or zinc, with solutions of alkalies. Webster 3d.

zinc carbonate; smithsonite; calamine. White; soluble in hot acids; slightly soluble in water; and crystals are colorless; 45th ed., 1964, p. B-237.

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zinc carbonate; smithsonite; calamine. White; soluble in hot acids; slightly soluble in water; and crystals are colorless; 45th ed., 1964, p. B-237.
zinc oxide; zinc oxide, white; zinc white.
zincous. Synonym for zincic, Webster 3d.

zincolyte. A body or compound that is de-

zinco. The combining form meaning zinc;

zincky; zbky; zincy. Relating to, contain-

zincing. The act or process of heating iron
plate with zinc or zinc salts; galvanization.

zincold, Of, relating to, or resembling zinc.

zinco. Relating to, containing, or resembling zinc.

zincolyte. A body or compound that is de-

zincify. To coat or to impregnate with zinc;

zincification. The act or process of zincify-

zincifcrous. Containing zinc or yielding zinc.

zinc green

zinco. The combining form meaning zinc;

zincky; zbky; zincy. Relating to, contain-

zinco. The combining form meaning zinc;

zincky; zbky; zincy. Relating to, contain-

zinco. The combining form meaning zinc;

zincky; zbky; zincy. Relating to, contain-

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zinc green
**Zirconium**

Zirconium is a lustrous, ductile, steel-gray or silvery-gray metallic element in group IV of the periodic table. Zirconium resembles titanium chemically; these three elements are in the same subgroup of the periodic table. Zirconium, like titanium, is isomorphous with hafnium, and commercial-grade zirconium contains less than 2 percent hafnium.

Zirconium is the principal source of zirconium dioxide, which is extensively used in the ceramics industry. Zirconium dioxide, also known as zirconia, is a white, high-temperature refractory material that is resistant to corrosion by acids, alkalies, and in hydrofluoric acid. Synthetic zirconia is used in various forms, such as powders, bricks, and coatings, in high-temperature applications such as thermal insulation, electric arc furnaces, and nuclear reactor fuel pins.

Zirconium dioxide is also used in the production of zirconium oxide, which is a major constituent of zirconium ceramics. Zirconium oxide is a white, high-temperature, high-strength material that is used in the production of zirconium dioxide-based ceramics, such as zirconia ceramics.

Zirconium oxide is also used in the production of zirconium diboride, which is a high-temperature and high-strength material that is used in the production of thermal insulation and refractory materials.

Zirconium oxide is also used in the production of zirconium nitride, which is a high-temperature, high-strength material that is used in the production of thermal insulation and refractory materials.

Zirconium oxide is also used in the production of zirconium carbide, which is a high-temperature, high-strength material that is used in the production of thermal insulation and refractory materials.

In conclusion, zirconium is a versatile and valuable material that is used in a wide range of applications, from high-temperature and high-strength materials to thermal insulation and refractory materials. Its unique properties make it an ideal material for many applications, and its potential for further development is significant.
The document contains a detailed discussion on the various forms and properties of zirconium. It describes the elements, their properties, and their applications in different fields such as ceramics, refractories, and in the formulation of zircon enamels. The text covers topics such as zirconite, zirconium dioxide, zirconium silicate, and zirconium carbonate, explaining their uses and characteristics. The document also includes references to various chemical and mineral properties, such as melting points, hardness, and density, and mentions the use of zirconium in the production of various materials like whiteware, zircon syenite, and zircon whiteware.
unaltered zone which consists of the original sulfide formation. Fryer, S. f. In minerals, a part of a mineral, crystal, or particle; to a single crystal, a zone is a region of surface differentiation (for example, of oriented molecules, passivation, etc.), not to be confused with a zone of crystal modification. A local variation in the lattice discontinuities may set up a zone of differentiated surfeice or chemical quality. Fryer, S. e. In geology, used in the same sense as horizon to indicate a certain geological level or chronobiologic position, without reference to the local crystal; or dip of the rock. Fay. h. An area or region more or less clearly set off or characterized as distinct from surrounding or adjoining parts; as, in a metamorphic region, the mineral zone. Webster 3d. i. Any of the five great divisions of the earth's surface with respect to latitude and temperature: (1) Torrid Zone, bounded on the north by the Tropic of Cancer and on the south by the Tropic of Capricorn; (2) North Temperate Zone, bounded on the south by the Tropic of Cancer and on the north by the Arctic Circle; (3) South Temperate Zone, bounded on the north by the Tropic of Capricorn and on the south by the Antarctic Circle; (4) North Frigid Zone, bounded only on the south by the Arctic Circle; and (5) South Frigid Zone, bounded only on the north by the Antarctic Circle. h. A region of oriented molecules. C.T.D. zone axis. A straight line to which all faces of a crystal are parallel. Webster 3d.

zone of weathering. a. Down to the level at which ground water stands, the rocks are full of fractures and are exposed to atmospheric agencies, such as oxygen, carbon dioxide, water, etc. Hence the rocks tend to decay, to be converted into carbonates and hydroxides, and to form soils. This zone is called the zone of weathering and is the zone of rock destruction. Stokes and Varnes, 1955. b. In amosite and crocidolite ore deposits in South Africa, these occur from surface downward as: silicified zone, leached zone, and fresh zone. Sinclair, W. E., p. 494.

zone refining. A method used in refining germanium and silicon to produce the ultra-pure elements used in making transistors. Neston, p. 378.

zones. In a shaft lumine, the different portions (horizontal sections) are called zones, and characterized according to the reactions which take place in them, as the zone of fusion or melting zone, the reduction zone, etc. Fay.

zones of lode. A lode may be divided into three main zones: the oxidized zone, the altered ore at depth; (2) the gossan or altered surface portion of the lode, containing native metals, oxides, and oxysalts, the result of oxidation of the ore; and (3) the zone of secondary enrichment which occurs between the first two zones, in which interaction between water and ore has resulted in the production of new materials, often of considerable economic value. Nestor, p. 378.

zone time. Standard time applied at sea in which the surface of the globe is divided into 24 zones of 15° each. The 0 zone extends 7.5° east and west of the meridian of Greenwich (England), (the Prime Meridian), and the zones are designated by the number of hours that must be applied to the local time to obtain Greenwich time. Abbreviation, ZT. Webster 3d.

zonolite. a. Concentric layering parallel to the periphery of a crystalline mineral, similar in color banding in such minerals as war-maline, and by differences of the optical reactions to polarized light in colorless minerals like feldspar. C.M.D. b. Applied to a structure of a mix-crystal that is composed of isomorphous compounds arranged in layer or zones of different composition; successive zones having been deposed from a magma (or other liquid solution) which gradually changed in composition owing to the separation of crystal phases. Rice. c. In a mineral deposit, the occurrence of successive minerals or elements outward from a common center. A.G.I. d. Arrangement of minerals or mineral assemblages in zones. McKinstry. The division of a building or group of buildings into separately controlled spaces where different conditions or uses are simul- taneously maintained. Strick, 10.

zonolite. A name which has been used in Arizona for locally occurring jasper or chert of various colors. Clay and Nauck, p. 113.

zonorhinite. A light and dark green gemstone similar to chlorastrolite. Rogers, p. 437.

zonolite. A trade name for a light, flaky material obtained locally in the western United States, which swells to fifteen times its original volume, forming golden yellow scales; from
zonolite

Libby, Mont. A titanium-bearing jefferisite from Westcliffe, Colo., is similar. English.

zoogene. In geology, of, pertaining to, consisting of, resulting from, or indicative of animal life or structure. Standard, 1964.

zoogenic. Originating from animals or as a result of their activities. A.G.I.


zooplankton. The portion of plankton composed of unattached animals which are at the mercy of the currents. Hy.

Zopaque. Trademark for pure titanium dioxide manufactured from ilmenite and specially processed to control crystal growth. It is used in nearly every industry requiring a white opacifying agent. CCD 6d, 1961.


Z reagents. The Dow series of xanthate flotation reagents consisting of:
- Z. 3 = Pot. ethyl xanthate.
- Z. 4 = Sod. ethyl xanthate.
- Z. 5 = Pot. secondary amyl X.
- Z. 6 = Pot. amyl xanthate.
- Z. 8 = Pot. secondary butyl x.
- Z. 9 = Pot. isopropyl xanthate.
- Z.10 = Pot. hexyl xanthate.
- Z.11 = Sod. isopropyl xanthate.
- Z.12 = Sod. sec-butyl xanthate.

Pryor, 3.

ZT Abbreviation for zone time. Webster 3d.

zueing. See zur. Fay.

zunderez Ger. Tinder ore; an ore of antimony occurring in the Saxon mines in soft, flexible, tinderlike masses, of a blackish-red color and little luster. Fay.

zungite. See zunyige. Fay.

zungite; zunyite. A rare basic orthosilicate of aluminum in transparent tetrahedral crystals, containing fluorine and chlorine; it occurs in minute cubic crystals at the Zuni mine, Silverton, Colo. C.M.D.

zur; zueing; dezuing. Eng. The same as hulkling a lode, viz, removing the soft side for facilitating the breaking down the harder part thereof. Fay.


zurron. A rawhide sack, holding about 150 pounds, used by miners for carrying ore. Nelson.

zwieselite. A clove-brown variety of triplite. Fay.

zwiter. A Saxon miner’s term for a variety of greisen. Only of significance in connection with tin ores. Fay.

zwiterion. Complex ion which carries charges opposite in polarity, for example, \( \text{H}_2\text{NCH}_2\text{COO}^- \). Pryor, 3.

zyglo. See fluorescent penetrant inspection. Henderson.
The following is a list of authors and sources quoted as authority for the forms and uses of terms presented in this dictionary:

<table>
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B.S. 3618, 1963, sec. 5

B.S. 3618, 1963, sec. 6

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<tr>
<td>Bull</td>
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**Hess**

**Hey 2d, 1955**

**Hey, M. M., 1961**

**Hey, M. M., 1964**

**H&G**
Hunt, Lee M., and Donald G. Groves H&G

**Holmes, 1920**

**Holmes, 1928**

**Hoo**

**Hudson**

**Huntington**

**Hurbut**

**HW**

**HW 2d, 1937**

**Hy**

**I.C.**
Bureau of Mines Information Circulars.
Quoted in dictionary as—

Name of author and publication

1958, 332 pp. Includes a glossary of anthracite technical and colloquial words and phrases, pp. 311–320.

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Langefor ——

Lee ——

E. ——

Liddell 2d ——

LIL ——

Long ——

Lowenheim ——

MacCracken ——

Mason ——

Quoted in dictionary as—

Name of author and publication


Mathews ——

McAdam ——

McAdam II ——

McKinstry ——

Mero ——

Mersereau ——

Mersereau, 4th ——

Miall ——

Mitchell ——

Morris and Cooper ——

NCB ——

Nelson ——

NEMA MB1—1956 ——

NEMA MB1—1961 ——

New South Wales ——

Newton ——

Nichols ——
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<tr>
<td>R.I.</td>
<td>Bureau of Mines Reports of Investigation</td>
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<td>Rice</td>
<td>Rice, George S. Quoted in dictionary as- Name of author and publication</td>
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geographical abbreviations

The accompanying list of abbreviations shows the localities in which certain words are in common use or where they may have been derived. These abbreviations are used throughout the text.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>Arg</td>
<td>Argentina.</td>
</tr>
<tr>
<td>Ark</td>
<td>Arkansas, U.S.A.</td>
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<tr>
<td>Aust</td>
<td>Australia.</td>
</tr>
<tr>
<td>B.C.</td>
<td>British Columbia, Canada.</td>
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<tr>
<td>Belg</td>
<td>Belgium.</td>
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<tr>
<td>Berks</td>
<td>Berkshire, England.</td>
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<tr>
<td>Bol</td>
<td>Bolivia.</td>
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<tr>
<td>Bras</td>
<td>Brazil.</td>
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<tr>
<td>Can</td>
<td>Dominion of Canada.</td>
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<tr>
<td>Cent. Am.</td>
<td>Central America.</td>
</tr>
<tr>
<td>Clev</td>
<td>Cleveland iron district, England.</td>
</tr>
<tr>
<td>Colom</td>
<td>United States of Colombia.</td>
</tr>
<tr>
<td>Corn</td>
<td>Cornwall, England.</td>
</tr>
<tr>
<td>Cumb</td>
<td>Cumberland coalfield, England.</td>
</tr>
<tr>
<td>Derb</td>
<td>Derbyshire coalfield, England.</td>
</tr>
<tr>
<td>E. Ind.</td>
<td>East Indies.</td>
</tr>
<tr>
<td>Eng</td>
<td>England.</td>
</tr>
<tr>
<td>Forest of Dean</td>
<td>Forest of Dean coalfield, England.</td>
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<tr>
<td>Fr</td>
<td>French.</td>
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<tr>
<td>Ger</td>
<td>German.</td>
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<tr>
<td>Gloasc</td>
<td>Gloucestershire coalfield, England.</td>
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<tr>
<td>Hid</td>
<td>Hidalgo, Mex.</td>
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<tr>
<td>Hind</td>
<td>Hindustan.</td>
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<tr>
<td>Ill</td>
<td>Illinois, U.S.A.</td>
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<td>Ire</td>
<td>Ireland.</td>
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<td>It</td>
<td>Italian.</td>
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<td>Kent</td>
<td>Kent, England.</td>
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<tr>
<td>Lanc</td>
<td>Lancashire coalfield, England.</td>
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<tr>
<td>Leic</td>
<td>Leicestershire, England.</td>
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<tr>
<td>Mex</td>
<td>Mexico.</td>
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<tr>
<td>Mid</td>
<td>Midland coalfield, England.</td>
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<tr>
<td>N.S.W.</td>
<td>New South Wales, Australia.</td>
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<tr>
<td>N.Z.</td>
<td>New Zealand.</td>
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<tr>
<td>N. Wales.</td>
<td>North Wales.</td>
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<tr>
<td>Pac</td>
<td>Pacific Coast, U.S.A.</td>
</tr>
<tr>
<td>Pat</td>
<td>Patagonia, South America.</td>
</tr>
<tr>
<td>Penn</td>
<td>Pennsylvania, U.S.A.</td>
</tr>
<tr>
<td>Port</td>
<td>Portuguese (mostly in Brazil).</td>
</tr>
<tr>
<td>Prov</td>
<td>Provincial, United States, unless otherwise specified.</td>
</tr>
<tr>
<td>Pr</td>
<td>Prussian.</td>
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<tr>
<td>Russ</td>
<td>Russia.</td>
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<tr>
<td>Scot</td>
<td>Scotland.</td>
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<tr>
<td>S. Afr.</td>
<td>South Africa.</td>
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<tr>
<td>S. Am.</td>
<td>South America.</td>
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<tr>
<td>S. Staff.</td>
<td>South Staffordshire, England.</td>
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<tr>
<td>S. Wales.</td>
<td>South Wales, Great Britain.</td>
</tr>
<tr>
<td>Som</td>
<td>Somerset, England.</td>
</tr>
<tr>
<td>Sp</td>
<td>Spanish origin but not necessarily used in Spain.</td>
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<tr>
<td>Sp Am.</td>
<td>Spanish America.</td>
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<td>Staff</td>
<td>Staffordshire, England.</td>
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<td>Suff</td>
<td>Suffolk, England.</td>
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<tr>
<td>Sw</td>
<td>Swedish.</td>
</tr>
<tr>
<td>Trans</td>
<td>Transvaal, Republic of South Africa.</td>
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<tr>
<td>U.S.</td>
<td>United States of America.</td>
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<tr>
<td>Venez</td>
<td>Venezuela.</td>
</tr>
<tr>
<td>W. Afr.</td>
<td>West Africa.</td>
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<td>War</td>
<td>Warwickshire, England.</td>
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<td>Wis</td>
<td>Wisconsin, U.S.A.</td>
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