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FACILITIES FOR FOREIGN STUDENTS IN AMERICAN COLLEGES AND UNIVERSITIES

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CONTENTS.

SECTION III.

SECTION IV.

SECTION V.

SECTION VI.

SECTION VII.

STATISTICAL TABLES.

ILLUSTRATIONS.

LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, November 2, 1920.

SIR: It is of special importance that students in foreign countries who may be seeking educational opportunities in the United States should have accurate information as to what institutions in this country have to offer. For this reason I requested Dr. Samuel Paul Capen, at that time specialist in higher education in the Bureau of Education, to prepare for publication a document which should show the organization of American education with special reference to universities, colleges, and professional schools; state and explain admission requirements with special reference to the needs of foreign students; and outline the general and specific opportunities to be found at American institutions of higher education. The manuscript transmitted herewith gives information on these points and on many others of value, not only to the prospective student from foreign countries, but to all who may be interested in the present facilities for higher education in the United States. I recommend that it be published as a bulletin of the Bureau of Education.

Respectfully submitted.

P. P. CLAXTON,
Commissioner.

The SECRETARY OF THE INTERIOR.

OPPORTUNITIES FOR FOREIGN STUDENTS AT COLLEGES AND UNIVERSITIES IN THE UNITED STATES.

SECTION I.

CHAPTER I.

ORGANIZATION OF EDUCATION IN THE UNITED STATES.

STATE SYSTEMS.

The United States is a federation of 48 self-governing Commonwealths, each of which exercises independently all powers not specifically conferred upon the Federal Congress by the Constitution or derived by implication therefrom. Since the Constitution does not provide for the control of education by the Federal Government, there is no national system: but the United States contains within its area 49[1] separate systems of education.

No two of the State systems are exactly similar, yet they possess certain common factors. For example, all States provide by law[2] for elementary education[3] at public expense. The usual length of the public elementary school course is eight years. Children commonly enter at the age of 6 or 7 and finish at the age of 14 or 15. In all States, school attendance during a part or all of this period is compulsory.[4] Public secondary schools, called high schools,[5] offering a course generally four years in length, are also maintained in every State. The high-school course[6] is based on the elementary school course and is open to graduates of elementary schools or others of equivalent preparation.

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[1] Including the District of Columbia, which is the seat of the Federal Government.

[2] The raising of the necessary money by taxation for the support of the schools and the administration of them are generally left to local communities—counties, towns, or districts. But local funds are often supplemented by State funds.

[3] For a statement of the scope and content of elementary education, see Sec. III, p. 105.

[4] The age of compulsory attendance is generally from 7 or 8 to 14 or 15. A few States require attendance up to 16 years.

[5] Not to be confused with the German Hochschule, an institution of university grade. The high school corresponds more nearly with the middle portion of the course in a German Gymnasium or Oberrealschule.

[6] For typical high-school curricula, see Sec. III, p. 106, and following.

The high school serves three main purposes. To the great mass of students who frequent it it offers four years of cultural and informational study designed to equip them for more intelligent and resourceful lives as citizens of a democracy. Its second purpose is to prepare students for various higher institutions. In the third place, a number of specialized public high schools fit young people for wage earning in trades and industries. In general, it may be said that the high school has tended more and more to adapt itself to the needs of the local community by introducing studies of a practical and vocational nature and by allowing its students increasing latitude in the choice of courses to be pursued.

Most States maintain normal schools for the training of teachers, or a more or less well-developed State university, or both. The normal schools and certain departments of the State universities articulate with the public high school in ways later to be described.

Alongside the public institutions various groups and individuals have founded elementary schools, high schools, academies,[1] normal schools, and colleges. The most extensive system of private schools is that under the control of the Roman Catholic Church. The total enrollment of the Catholic parochial schools was 1,633,597 in 1919. Other religious sects have also established institutions to provide education under denominational auspices. Both the religious schools and the private schools under denominational control parallel rather closely the amount and character of the training afforded by the public institutions of the same grade. These nonpublic institutions and systems are allowed perfect freedom of development under the laws of the country.

The foreign observer, noting chiefly the dissimilarities of the State systems, is at first inclined to think that a hopeless confusion of standards and organization must characterize American education. But the differences are after all superficial rather than fundamental. The same general types of institutions are to be found in every State, whether they all belong officially to the State system or not. Their interrelations are also essentially the same. There are still certain inequalities of educational standards, especially among higher institutions; but these are not so great nor so widespread as is often believed.

STANDARDS.

The principal reasons for the variation in the standards of higher education are perhaps already apparent, yet they should be briefly summarized because of their bearing on the whole plan and method of American education. The State educational systems have grown up independently of one another. If one takes account of the pro-

[1] The term "academy" is generally applied to a school of secondary grade.

visions for education made by a few of the colonial governments before the founding of the United States, the dates of establishment of the 49 systems of education have covered a period of something like two centuries and a half. In that time the social philosophy of the Nation has changed. The common conception of the part the State should play in fostering and controlling education has changed with it. According to a widely prevailing theory[8] all grades of education, from the kindergarten to the university, should be supported and managed by the State or local government. In the relatively newer States of the West and Middle West this condition is realized. Higher and secondary institutions not under public control are either rare or nonexistent. The educational policy of the older States, on the other hand, had crystallized before the general acceptance of this theory. Here the responsibility for providing elementary and a certain amount of secondary education is felt to rest properly on the State, but higher education is left, for the most part, to independent institutions founded under various auspices, principally religious, and subject to little or no public supervision.

Inevitable differences of standards sprang from these differences in methods of control. Moreover, a few of the States, particularly those of more recent origin and of sparse population and those impoverished by the Civil War of 1860–1865, have thus far found difficulty in providing adequate equipment for thorough university education and in enforcing the most severe scholastic requirements. In this latter group of States, also, the development of universities and colleges of the highest grade has been still further retarded by the inferiority of the lower schools which prepare students for advanced education.

There are, however, several counter influences at work tending to reduce these inequalities. Chief among them is the action of numerous national and sectional associations of school and university officers. For a number of years these associations have been engaged in defining standards of school and professional training and determining the appropriate scholastic requirements for degrees. In the sections of the country where education is best organized the recommendations of these associations are regarded as authoritative and are put into operation as speedily as possible. The educationally less favored sections are also striving to conform to the standards proposed by such bodies and are making increasingly rapid progress in this direction.

In elevating the standards of various types of institutions, principally in the fields of rural education and higher education, the recommendations of the United States Bureau of Education have also had wide influence.

[8] Members of certain of the denominational bodies, who believe that education should be under religious auspices, do not, of course, concur in this theory.

Whether American education ever will achieve complete uniformity in standards and methods of management is open to doubt. Uniformity is contrary to the genius of the Nation. The Americans are an individualistic people. Their educational systems and institutions have reflected this quality. These have maintained the right to expand as they chose and to adapt their courses to local needs, free from hampering restrictions. Their freedom is, in fact, one of the sources of their strength. Nevertheless, it may safely be said that there is now a national consensus of opinion as to what the standards of admission to and graduation from the principal types of institutions should be, that the standards agreed upon coincide in the main with those in force in the corresponding institutions of other leading nations, and that they are already maintained by the best institutions of the United States. Indeed, students from abroad will find in those educational centers to which they will probably be attracted unsurpassed facilities for advanced academic and professional training. The brief outline of the opportunities for university study in the United States presented in this pamphlet deals principally with conditions existing in these more prominent educational centers.

EVOLUTION OF THE UNIVERSITY.

THE COLLEGE.

An explanation of the prevailing organization of higher education in the United States properly begins with a description of the American college, an institution which has no exact counterpart in any other country.

Historically, the college is the oldest of American institutions. The first one, Harvard College, was founded in 1636 by the early English settlers in Massachusetts. Cambridge and Oxford furnished its prototypes. Following the example of these institutions, Harvard College was designed to give training in the liberal arts, principally Latin, Greek, philosophy, and mathematics. Most of its earlier graduates entered the Christian ministry. In fact, to supply properly trained young men for this profession was one of the chief objects sought in the foundation of Harvard and of the other colleges established during the first century of colonial life in the United States. Gradually, however, the purpose and character of the college changed. The more elementary stages of the subjects taught were given over to lower schools. New subjects were added to the curriculum. The college lost its theological bent, without becoming a training school for other professions. It still offered courses in the liberal arts, leavened more and more by the introduction of the sciences, and bestowed upon those who completed these courses the degree of A. B.

Three very significant changes in the relation of the college to the scheme of higher education occurred during the nineteenth century. The first of these was the founding of the professional schools of theology, law, and medicine. Although students were, and to some extent still are, admitted to these schools without a previous college education, the tendency has been constantly growing to demand a college degree or at least a period of collegiate study as a prerequisite for entrance. The college has thus become in certain measure a preparatory school for those who contemplate a course of professional training.

The second change to which reference has been made was the development within the college of departments of pure and applied science. By the middle of the nineteenth century the degree of B. S., granted for work done largely in the sciences, began to occupy a position of parity with the older degree of A. B.[9] Gradually also these courses in science ramified further into courses in engineering. The engineering schools or divisions thus became coordinate parts of many colleges of liberal arts.

The third and most momentous change in the status of the college was brought about by the establishment in connection with certain colleges of graduate schools on the model of the faculties of philosophy of German universities. The graduate schools have grown up principally in the last 45 years; indeed, the movement received its first strong impetus with the founding of Johns Hopkins University, incorporated in 1867 and opened for instruction in 1876. (See Sec. VI, p. 194.) The graduate schools offer to college graduates courses leading to the degrees of A. M. and Ph. D. and degrees of corresponding grade in the technical branches. They provide opportunities for advanced study in the arts and sciences and for research similar to those provided by the leading European universities.

From the origin of colleges until the foundation of the graduate schools the college curriculum, aside from the development of separate courses in science and engineering, had undergone but slight changes. A few new subjects had been added to it from time to time. Options between certain studies, as, for instance, between a modern and an ancient language or between two elementary sciences, were slowly introduced. In general, however, the college program of studies was fixed and definite, centering about a core of Latin, Greek, and mathematics. With the growth of the graduate school and the changed social and educational ideals has come the introduction of many new branches of study. Columbia University, for example, now offers to candidates for the bachelor's degree instruc-

[9] A number of other baccalaureate degrees have also been conferred, such as Ph. B., B. Ped., etc., but the present tendency is toward the two older degrees of A. B. and B. S., according as the subjects forming the basis of the curriculum are humanistic or scientific.

tion in 45 different subjects.[10] Its offerings are almost paralleled by a number of other institutions.

The prescribed course of study for the bachelor's degree has broken down, and there is now a general tendency to confine required work to but two or three subjects and to allow the student much freedom of choice with respect to the rest of his program; or to offer various groups of studies organized to correlate with a single central subject and to permit the student to choose one of these groups. Even those colleges which have not extended upward into graduate schools, which still grant no degrees higher than the baccalaureate, have felt and have responded to this tendency.

THE UNIVERSITY PROPER.

The college is the nucleus from which all higher institutions of learning have sprung. Before the nineteenth century there were no universities in the modern sense of the word. With the rise of professional schools of theology, law, and medicine, most of which were outgrowths of colleges already established, American institutions began to approach university organization. The name "university" came also into common use to designate an institution composed of a college and one or more professional schools each under the control of a separate faculty. German influence was the dominant force in American higher education for many years, and the universities of the United States were deliberately molded to the German type. The establishment of the graduate schools marked the final step in this evolution, the four traditional faculties of the German university—theology, law, medicine, and philosophy—being thus represented.

But the modern American university is more complex in organization than its Germanic prototype. It has added other schools or divisions.[11] Schools of dentistry, of various branches of engineering, of agriculture, of veterinary medicine, etc., are now frequently included in a single university.[12] The University of California, for instance, has 19 such schools or divisions; the University of Chicago, 10; the

[10] Compare p. 14.

[11] In some institutions the various divisions are also called colleges, as, for example, college of medicine, college of education, etc. The accepted nomenclature is now the following: A "college" is an institution requiring for admission graduation from a standard secondary school, or the equivalent, and offering a four-year curriculum leading to the first degree in arts or science, of such character as to qualify for admission to a graduate school of recognized standing.

The term "school," as applied to part of a university, is restricted to that part the standard of admission to which is not less than the equivalent of two years' work in the college, and which offers instruction of not less than two years' duration, leading to a technical or professional degree.

The term "division" is restricted to the larger administrative units of a college or university; as, for instance, the extension division, the division of agriculture, the division of arts and sciences.

[12] Thus, for instance, the type of institutions known as the Technische Hochschule in Germany, or the Ecole Polytechnique in France, is in the United States commonly a school or division of the university.

University of Illinois, 13; the University of Michigan, 8. As each new profession develops, a special division designed to give the training requisite for it is added to the university. In this manner, schools or colleges of commerce, of business administration, of domestic science, of ceramics, and of journalism have recently been established at a number of the larger universities. The process will undoubtedly continue with the further multiplication of the professions.

The term "university," however, has as yet no fixed connotation. The laws of the several States governing the incorporation of higher institutions vary greatly. Some require substantial assurance that an institution applying for charter will conform to the accepted standards of the designation which it seeks. In some States, on the other hand, it is possible to secure a university charter on the strength of prospects and good intentions alone. Even before the evolution of true universities, it was common for colleges offering nothing but a single course leading to the bachelor's degree to be chartered as universities. The name, therefore, antedated the thing. Many of these colleges still retain the name without having developed into universities. In certain sections of the country and in the minds of certain persons the college and the university are thus very naturally confused. No distinction is made between the two institutions. This confusion is the more readily understood if one recalls the fact that practically all the larger, thoroughly organized universities maintain a college of arts and sciences. A student who attends the college of arts and sciences of Cornell or the college of letters of the University of California is a member of the university and by tacit consent is allowed to call himself a "university student;" but his educational status is exactly the same as that of a student of Amherst College or Hamilton College, neither of which has any professional departments. Yet the student of the isolated college, like the two just mentioned, calls himself a "college student."

In the references made to universities throughout this pamphlet the term will be used in its strictest sense, i. e., to designate institutions maintaining professional divisions and conferring advanced degrees. Of these, there are already several score in the United States.

A comparative view of the best American universities would show an organization of schools and divisions substantially as recorded below. Not all the divisions mentioned are represented in every one of the strongest universities. This summary is intended rather to show the scope of university education than to describe conditions actually existing in any particular university. Detailed accounts of the organization and requirements of certain institutions selected to illustrate the best developments of American higher education appear in Section VI.

CHAPTER II.

ORGANIZATION OF THE TYPICAL UNIVERSITY.

THE COLLEGE OF ARTS AND SCIENCES.

The core of every university, except one,[13] is the college, variously called the college of arts and sciences, the college of letters, the college of liberal arts, etc. Whatever its name, its scope and character are everywhere approximately the same. It offers to graduates of secondary schools[14] a four-year course of study, leading usually to the degree of bachelor of arts or bachelor of science, or some other baccalaureate degree.[15] Generally the work is in part prescribed according to one of two methods. Certain subjects, such as English, one or more modern languages, Latin, a science, history, and mathematics are required of all students; or the courses are arranged in groups centering about a single subject, and each student may choose the group which best suits his individual tastes and purposes. In either case, a considerable portion of his course is elective; i. e., he may select at will from the subjects offered by the college enough to make up the number of courses required for graduation.

The undergraduate division of Harvard University, called Harvard College, gives instruction in the following subjects:

Anthropology, astronomy, botany, Celtic, chemistry, classical archaeology, classical philology, comparative literature, comparative philology, economics, education, Egyptology, engineering sciences, English, fine arts, French, geology and geography, German, government, Greek, history, history of religions, history of science, hygiene and sanitation, Indic philology, Italian, Latin, mathematics, military science, mineralogy and petrography, music, Netherlandish, palaeontology, philosophy, physics, physiology, public speaking, Romance languages and literatures, Romance philology, Scandinavian, Semitic languages and history, Slavic languages, social ethics, Spanish zoology. This list will indicate the possible range of undergraduate study in the best American universities.

Collegiate instruction is carried on by means of lectures, recitations, discussions, laboratory practice, and various kinds of written

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[13] Clark University.

[14] In addition to the public high schools (see above), there are many private secondary schools which offer four or five year courses and which maintain approximately the same standards as the public high schools. The curriculum of the secondary school is discussed below (see p. 106). Students from other countries may enter American universities upon presenting evidence of preparation equivalent to that demanded of American students. The colleges of arts and sciences of most universities give entrance examinations to candidates for admission whose scholastic preparation has been secured in a school the standing of which is unknown to the university officers. (See also p. 59, and following.)

[15] There is still a wide variation in the standards of collegiate institutions, and consequently in the value of degrees. For further discussion of this condition, see note 20, p. 24.

exercises. In the work of the first two years and in the elementary courses in all subjects, it has a tendency to be somewhat formal. The instructors assign definite tasks at each meeting of the class: A certain portion of the subject is to be mastered, a prescribed laboratory experiment is to be performed, a theme written on a specified subject, or a fixed number of pages read. At a subsequent meeting, students are tested on the assignment. In the later years of the course there is less formal prescription, and the student is thrown as far as possible on his own resources. His knowledge is tested by periodic examinations.

Because of the long period devoted to elementary and secondary training, American college students are generally older than students of other countries who have reached the same stage of academic advancement. The average age of entrance to American colleges is between 18 and 19 years, the average age of graduation between 22 and 23. A few colleges, however, allow students to complete the course in three years by taking extra work.

THE COLLEGE OR SCHOOL OF ENGINEERING.

Coordinate with the college of arts and sciences is the school or college of applied science or engineering. This offers to graduates of secondary schools a four-year course leading to the degree of B. S. in some division of engineering, e. g., civil, mechanical, mining, metallurgical, electrical, hydraulic, architectural, chemical, and sanitary engineering.[16] In some institutions work in these various branches is organized in separate schools, e. g., school of mining engineering, school of civil engineering. The first part of the curricula in engineering is devoted particularly to a thorough grounding in mathematics, physics, and chemistry, the fundamental sciences upon which all engineering work rests. The course of study for the first year is frequently uniform for students in all branches of engineering; indeed, the present tendency is toward a still greater measure of uniformity in the early years, followed by specialization in the last year or the last two years.

The school or college of engineering is in the scheme of American education an undergraduate division coordinate with the college of liberal arts, admitting students with the same preparation and giving its graduates the bachelor's degree.[17] It is, nevertheless, in spirit and tendency a professional school, fitting young men for the immediate practice of their professions as a means of livelihood. This fact affects the college of engineering in two ways. In the first place, its

[16] The degree given on the completion of one of these courses is not always B. S. Cornell, for example, gives the degree of M. E. to those who have completed courses in mechanical, electrical, or mining engineering.

[17] A few institutions, e. g., Columbia, have made the school of engineering or applied science a graduate department. (See Sec. VI, and p. 219.)

efficiency as a training school is constantly tested by the success of its graduates in actual professional work. It suffers the consequences without delay if its standards are not kept high. The college of liberal arts, whose purpose is to give general culture, is subjected to no such test.

Secondly, and as a result of its professional obligations, the work of the engineering school is for the most part more concrete and practical than that of the college of liberal arts. Not only in the extensive well-equipped laboratories and machine shops of the university itself, but in shops and factories of industrial organizations and in the field, the engineer in training is given an opportunity to perform those operations by which he may later earn his living.

The course of study of the engineering division is determined by the requirements of the profession. Most of it, therefore, is prescribed. Choice from among the various branches of engineering represented furnishes the principal opportunity for election.

Recently a tendency to lengthen the period of preparation for the profession of engineering has manifested itself. Several leading universities now offer five and six-year courses in the various engineering branches. Five-year courses, which are the commoner, include either a considerable amount of work in the college of arts and sciences designed to broaden the student's cultural training or a more extended specialization in the branch of engineering which the student has chosen. The degrees of E. E., M. E., C. E., A. E., and Arch. are generally awarded at the end of these more highly specialized courses. Such degrees rank higher than the degree of B. S.

Postgraduate work leading to the degrees of M. S., Ph. D., and Sc. D. in the engineering sciences is now given also at several of the foremost universities. The conditions of study for these degrees, whether in the engineering sciences or in pure science and the arts, are similar. They will be discussed under the caption "The Graduate School." (See below.) The increasing facilities for advanced study and research in the various lines of engineering represented by the five-year courses and the graduate courses just referred to indicate a tendency to prolong the period of general and special training of the engineer until it occupies as many years of the course as the training for the older professions.

THE COLLEGE OR SCHOOL OF AGRICULTURE.

In 1862 the United States Congress, under the Morrill Act, made to each State grants of public lands, the proceeds from the sale of which were to form a fund for the maintenance of colleges of agriculture and the mechanic arts.[18] Later acts provided for annual

[18] Mechanic arts are interpreted to mean chiefly the various branches of engineering.

appropriations by the Federal Government for the support of these institutions and for the promotion of agricultural research and demonstration.[19] In the 57 years since the passage of the original act, these so-called land-grant colleges have become among the most important agencies for training in the technical professions. In a number of States the land grant made possible the foundation of a State university, and the State university of 20 States is now legally designated a land-grant college.[20] Several of these institutions, for instance, the University of Wisconsin, the University of Illinois, the University of Minnesota, and the University of California are among the largest and best-equipped State universities in the country. The State governments have also made increasingly liberal appropriations for the support of these departments of the State institutions. Consequently, agriculture and the mechanic arts occupy an especially favored position among professional studies.

The engineering branches, which were discussed briefly in the preceding section, are taught at many other institutions than land-grant colleges; in fact, nearly every full-fledged university, public or private, maintains an engineering division, and there are numerous special schools of engineering as well. But the land-grant colleges have a practical monopoly of professional instruction in agriculture. In describing a college of agriculture as an integral part of a typical American university, attention is therefore called to the fact that these colleges are, with few exceptions, to be found only in connection with the 20 State universities which are land-grant institutions.

The typical college of agriculture, then, offers to graduates of a secondary school a four-year course in agriculture leading to the degree of B. S. Like the colleges of enginering, the colleges of agriculture are often subdivided, schools of forestry and home economics being the commonest of these subdivisions. The work of each course combines instruction in the general sciences, languages, and mathematics, with technical instruction in agriculture and actual practice in the laboratories, dairies, barns, and on the farms connected with the university.

Special agricultural schools of secondary grade are also maintained in connection with a few State institutions, e. g., the University of Minnesota, Colorado Agricultural College, Clemson Agricultural College (South Carolina).

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[19] In 1914 Congress provided for an annual appropriation of $10,000 to each State for extension instruction in agriculture and home economics. This sum is further supplemented by increasing annual appropriations for the same purpose, beginning in 1915–16, and eventually reaching the total of $4,100,000, to be distributed among the States in proportion to the rural population in each.

[20] In 10 other States the land-grant college is a separate foundation, independent of the State university, and often rivaling it in student enrollment and in the excellence of its undergraduate courses, especially in pure and applied science.

The college of agriculture is a professional school. Its first purpose is to train students for the intelligent practice of their profession. This is the principal object of the four-year course just mentioned. But as a State institution, largely supported by State funds, the college of agriculture has obligations toward the State. It can serve the State materially by disseminating agricultural information among the farmers of the State who have not had a chance for professional training. Most colleges of agriculture are now attempting to do this. Short courses ranging from 1 to 14 weeks have been established for farmers. The university also sends lecturers and demonstrators among rural communities to give practical instruction on the farms themselves.

A third important function of the colleges of agriculture is to extend the science of agriculture by means of experiments and investigations. In this work also the Federal Government has lent assistance. Under an act of 1887 agricultural experiment stations were established in every State, and an annual appropriation of $15,000 was set aside for their support. This annual appropriation has since been increased to $30,000. In most States where the land-grant college and the State university are united, the experiment station is attached to the university. It furnishes unsurpassed facilities for agricultural research.

THE COLLEGE OR SCHOOL OF VETERINARY MEDICINE.

Several prominent universities and colleges of agriculture and mechanic arts now maintain schools of veterinary medicine, which provide instruction in the causes and treatment of animal diseases and in the principles of sanitary science as applied to live stock. The large proportion of the Nation's wealth invested in live stock, the dependence of agriculture upon it, and the influence of certain animal diseases, notably tuberculosis, upon the health of the community give special importance to the profession of veterinary medicine.

The typical college of veterinary medicine offers to graduates of a secondary school a three-year course leading to the degree of D. V. M. or V. M. D. The course itself is closely prescribed. It combines instruction in the fundamental medical sciences—chemistry, anatomy, and physiology—with such special branches as animal pathology, surgery, and veterinary medicine. Clinical instruction is given in the veterinary hospitals connected with the school. There is generally provision also for graduate work in special branches of veterinary science.[21]

THE COLLEGE OR SCHOOL OF COMMERCE.

Among the more recent additions to American universities are the schools or colleges of commerce or business administration. The

[21] New York State Veterinary College, at Cornell, offers an optional four-year course in veterinary medicine.

typical college of commerce offers to graduates of secondary schools a four-year course leading to the degree of B. S. or A. B. The first part of the course is largely devoted to such foundational subjects as mathematics, English, natural sciences, modern foreign languages, history, and economics. These are followed in the last two years by the broader technical subjects designed to give general preparation for business life, such as various phases of business administration, commercial law, and advanced economics.

THE COLLEGE OR SCHOOL OF JOURNALISM.

Schools of journalism are also among the newer developments at several universities. These offer to graduates of secondary schools a four-year course leading to the bachelor's degree (A. B., B. Litt., B. J.). The foundation of the work in the schools of journalism is largely composed of courses in the social sciences and English, which are designed to familiarize the student with present economic and social conditions and to develope his power of written expression. These courses cover about two years and are followed by technical instruction in the methods of modern journalism. This includes actual practice in reporting, interviewing, and newspaper editing. The aim of all these schools is voiced in the official announcement of the school of journalism of Columbia University. It is "to make better journalists, who will make better newspapers, which will better serve the public."

THE COLLEGE OR SCHOOL OF PHARMACY.

The schools of pharmacy, which are now included in most of the larger universities, usually offer courses leading to three different degrees—Ph. G., Ph. C., and B. S. in Pharmacy or Phar. B. The entrance requirements are substantially the same as for those schools and departments already described. The degree of Ph. G. (graduate in pharmacy) is conferred at the end of a two-year course, consisting chiefly of instruction in botany, analytical chemistry, and pharmacy. Several States demand as a prerequisite for a license to practice the profession of pharmacist either a certain amount of practical experience in a place where drugs and medicines are compounded or dispensed or a course of instruction in a school of pharmacy. Courses in pharmacy are adjusted to meet these requirements.

The course leading to the degree of Ph. C. (pharmaceutical chemist) is three years in length. It is "designed more especially for those who wish to enter the commercial field of pharmaceutical chemistry or food and drug analysis."[22] More advanced instruction in pharmacy is given, together with such general studies as sciences and foreign languages.

[22] Quoted from the Catalogue of the University of Wisconsin.

The four-year course leading to the degree of B. S. in Pharmacy includes a combination of cultural studies and the advanced work in pharmacy taken by the candidates for the degree of Ph. C.

Opportunities for specialized graduate study and research in some department of pharmacy are frequently offered in the graduate schools of leading universities. The aims and methods of graduate study are essentially the same whatever the department. They are described below. (See under "Graduate School.") The degrees of A. M., M. S., Ph. D., Sc. D., and occasionally Phar. D., are conferred upon graduate students in pharmacy.

THE COLLEGE OR SCHOOL OF DENTISTRY.

The organization of 29 American universities and colleges now includes a school of dentistry, which offers to graduates of secondary schools a three-year course leading to the degree of D. D. S. or D. M. D. The curriculum provides first for a study of those elementary scientific subjects which form the groundwork of training in medicine: Anatomy, chemistry, bacteriology, physiology, and pathology. Instruction accompanied by extended clinical and laboratory practice in operative and prosthetic dentistry follows. The clinics of the best American dental schools furnish each student ample opportunity for practice in all branches of dentistry.

Although dentistry is a separate profession, and although training for it is quite fittingly carried on in a special professional school, nevertheless there is growing recognition of the fact that it is a branch of medical science. There has arisen in consequence a tendency to emphasize the affiliation of dental and medical education. Seven dental schools are now departments of medical schools. One State has already passed a law requiring that hereafter all practitioners of dentistry shall hold a medical degree. While there seems to be no immediate prospect that other States will take the same radical action, there is a very decided trend of opinion in the direction of lengthening the course in dentistry from three to four years. A number of dental schools are meeting this demand for further scientific training by offering postgraduate courses open to holders of degrees in dentistry and to others who have had practical experience.

It is appropriate to call attention to the excellence of American dental schools and clinics. The conspicuous success of American practitioners of dentistry is without doubt largely due to the splendid facilities for training in the profession that have been developed in the United States.

THE COLLEGE OR SCHOOL OF EDUCATION.

Among the important contributions which the United States has made to professional training may be counted the creation of special

schools of education. Normal schools organized principally for the training of elementary-school teachers have existed for a long time. They owe their origin to European experiments in the same direction.[23] But the schools of education whose aim is to prepare prospective high-school teachers, school principals, supervisors, and superintendents of city school systems, are relatively new and distinctly American institutions. Their establishment has come about because of the evident need of trained teachers and directing officers to carry on the work of public secondary education and the administration of school systems. With a few exceptions they have attained most vigorous growth in the States where the State university occupies a position of educational leadership. (But see especially the accounts of the organization of Columbia University, University of Chicago, and University of Missouri. Section VI, pp. 176–78, 212–13, 219–22.)

The typical school of education offers to graduates of secondary schools a four-year course leading to the bachelor's degree.[24] The course usually combines three distinct elements: General training in the arts and sciences, specialization in one or two subjects which the candidate proposes to teach later, and instruction in the theory and practice of teaching.

Among the the strictly professional subjects emphasis is laid on educational psychology, the history and philosophy of education, and the organization and management of schools. The best-equipped schools of education now provide opportunities also for students to observe skillful teaching and for practice teaching under supervision.

There is a marked tendency toward extending the scholastic range of schools of education, and consequently increasing the amount of professional training demanded of secondary-school teachers. The addition of a fifth year to the course in education is a manifestation of this tendency. At the completion of the longer course, the degree of A. M. is conferred. In this way the school of education is gradually merging into the graduate school. It will probably not be long before the general cultural and informational subjects will be relegated to the college of letters, and the school of education will advance to the rank of a graduate school offering purely professional instruction to college graduates. Graduate courses in education leading to the degree of doctor of philosophy are now commonly offered by the graduate departments of the best universities.

[23] A discussion of normal-school education lies without the scope of this bulletin. In general, it may be said that the entrance requirements of the best normal schools are similar to those of the colleges of arts and sciences. For high-school graduates the course is usually two or three years, with emphasis on the theory and practice of pedadogy. It often leads to a special degree. Any foreign student who is interested in normal-school training is urged to apply to the Bureau of Education for full information.

[24] A great variety of bachelor's degrees are granted for work in education, e. g., B. Ped., B. Litt., A. B., B. S. in Education, and so on.

THE OLDER PROFESSIONS.

The group of schools just described furnish training for those professions which are of comparatively recent origin or which have but lately risen to the dignity of special professional preparation. The professional beginnings of theology, law, and medicine, on the other hand, run back to the founding of the European universities. A certain superior prestige has attached to these older callings, even in a democracy like the United States. This has been reflected in the effort of the schools of theology, law, and medicine to enforce a higher standard of attainment for admission and for graduation than has yet been adopted by the other departments. They therefore may be said to form a second and more advanced order of professional institutes inside the general organization of the university.

THE COLLEGE OR SCHOOL OF THEOLOGY, OR THE DIVINITY SCHOOL.

The oldest of all professional schools in the United States is the school of theology or the divinity school. Indeed, the college itself, as has been explained, was established to train an enlightened ministry for the Christian (Protestant) Church. Theological instruction has therefore always been a part of the curriculum of the oldest universities. They were themselves theological schools until they consigned theology to a special department, which has happened generally within the last century.

The modern theological school is either frankly a sectarian school, or else it has become what the uncompromising fathers of the Nation would have deemed impossible—a nonsectarian school of theology attempting to study "all matters connected with theology * * * in a spirit as free as that in which philosophy, history, and the classical literature are studied in our colleges."[25] In mentioning the requirements and scope of the typical school of theology, it is understood that these schools are almost exclusively connected with denominational universities or else are entirely independent institutions.

The stronger schools of Protestant theology offer to graduates of a college of recognized standing, or to others who can show equivalent preparation, a three-year course leading to the degree of B. D. or S. T. B. The course is almost entirely professional, varying as to theological bias with the denomination which maintains the school.

The entrance requirements for Catholic schools of theology are somewhat higher. (See Section VI, pp. 166–69, Catholic University of America.)

[25] Quoted from the announcement of the Harvard Divinity School.

THE COLLEGE OR SCHOOL OF LAW.

English and American legal systems differ radically from those of most other nations. Because of this fact, foreign students will probably not be attracted in any large numbers to American law schools for the purpose of fitting themselves for the immediate practice of their profession at home. Nevertheless, there is a growing conviction among lawyers and jurists that a knowledge both of English common law and the code systems of continental Europe and Latin America is very valuable to the legal practitioner of any country. The spirit and motives of a country are reflected in its laws. An acquaintance with the latter tends to broaden international sympathies. It is for this reason, as well as to complete the account of the component parts of the American university, that the law school is mentioned here. Attention is called especially to the excellent courses in jurisprudence, international law, and diplomacy offered by the following institutions: Columbia University, Yale University, George Washington University, Harvard University, and the Law School of the Tulane University of Louisiana. The legal system of the State of Louisiana is based on the Spanish system, and is therefore closely related to the systems of the Latin-American countries. Detailed accounts of the offerings of these institutions may be found on pages 164–66, 170–71, 192–94, 197–200, 219–22.

The best American law schools now offer to students who have had at least two years of collegiate training a three-year course in common and statute law, leading to the degree of LL. B.

THE SCHOOL OR COLLEGE OF MEDICINE.

No other professional schools connected with American universities have made such noteworthy and gratifying advances within recent years as the schools of medicine. There have been three conspicuous lines of progress: The growth of laboratory equipment through liberal State appropriations and private benefactions, the increase in hospital facilities, and the raising of standards of admission. As a result of these developments the best medical schools of the United States are now unsurpassed in physical equipment, and demand as thorough preparation for entrance and graduation as do those of other leading nations.

The high standards recommended by the American Medical Association and put into practice by the more progressive schools of medicine have been rendered permanent by the subsequent action of numerous State licensing boards which fix the educational preparation to be required of practitioners of medicine in their respective

States. Medical education [26] has therefore attained a status consonant with the antiquity and importance of the profession.

As a division of the university, the medical school now ranks with the schools devoted to training for the other traditional callings.

The typical medical schools of the best universities require for entrance a four-year high-school course, including two years of Latin, and two years of college work, which must include at least a year each of physics, chemistry, and biology, and sufficient German and French to insure a reading knowledge of those languages. To such students the medical school offers a four-year course, consisting of laboratory, didactic, and clinical instruction in the theory and practice of medicine, and leading to the degree of M. D. Associated with all high-grade medical schools are hospitals, in which medical students study at first hand diseases and their treatment and in which they serve as internes.

Included in the "ideal standard" set up by the American Medical Association is the recommendation that a fifth year be added to the medical course, in which the student shall act as interne in a hospital. This recommendation has already been adopted by several of the leading medical schools of the country. Others, while not including the year's interneship in the medical course, provide ample facilities for their graduates to secure this privilege.

A recent development in medical education has been the establishment of postgraduate courses in medicine devoted chiefly to advanced study and research. As yet there has been no general organization of these courses into curricula leading to higher medical degrees. Atten-

[26] Students from other countries who are unfamiliar with American educational conditions should remember that there are many medical schools of low standing and proprietary institutions which exploit this or that therapeutic revelation. One of the results of State autonomy in education is the irregularity of State requirements for professional practice, not only in medicine, but in law, pharmacy, and other professions. Licensing regulations in many States are still lax. Moreover, as has been noted, there is no uniform legislation governing the incorporation of degree-giving institutions. The fact that a man bears the title of doctor, therefore, or holds the degree of A. B. or LL. B. gives no assurance that his education has been either prolonged or specialized. Unscrupulous persons and well-meaning but ignorant persons have taken advantage of these conditions to establish in many States institutions purporting to give collegiate or professional training, but which lack both the physical equipment and the teachers needed to make such training effective. A reliable guide to the standing of schools of medicine is the classified list of the American Medical Association. (See pp. 262–63.)

Students seeking other kinds of training, general or professional, may safely attend any of the institutions described in this bulletin. They are also invited to correspond with the United States Bureau of Education, which will furnish full and impartial information regarding the offering of any institution, whether included in this publication or not.

In spite of these inequalities among the schools of medicine, it is quite just to emphasize the high standards of medical education. The standards are set by the leading institutions. There are already 66 recognized as of highest grade by the American Medical Association. (See pp. 262–63.)

The very potent influence of this publicity in bringing about the improvements which the association has recommended illustrates strikingly the power of a voluntary educational association to affect the policy of institutions over which it has no official control. (See p. 9.)

tion should be called, however, to one higher medical degree which has already gained recognition. This is doctor of public health. The degree is conferred upon holders of the degree of M. D. after one or two years of postgraduate study devoted to problems of sanitation and community diseases and to special research.

Most large universities now provide for a six or seven year course, combining work in the department of arts and sciences with the course in medicine and leading to the two degrees A. B. (or B. S.) and M. D.

Students from tropical countries will be especially interested in the very excellent courses in tropical medicine offered by the medical schools of the Tulane University of Louisiana and Harvard University.

THE GRADUATE SCHOOL.

The capstone of the American university is the graduate school of arts and sciences. Originally planned to correspond to the faculty of philosophy of the German university and offering instruction merely in pure science and the humanities, the graduate school has far outgrown the first conception of its function. The graduate school of the large American university now usually organizes into one administrative unit[27] all the advanced teaching and all the facilities for original research provided by the university in any of its departments. Under this arrangement holders of the bachelor's degree who desire to specialize, for example, in engineering, in medical science, or in pharmacy, as well as in pure science and the humanities, enter the graduate school.

The American graduate school has a double aim. Chronologically, the first is to teach to properly prepared students the most advanced and specialized phases of the subjects offered by the university. More important, however, if second in point of development, is its obligation to increase the sum of human knowledge. Research is the life blood of the graduate school. The graduate school is differentiated from the ordinary professional schools by being devoted to the principle of research. As a rule, schools of medicine and engineering, for instance, aim primarily to pass on to the student a body of knowledge which is already organized and of accepted professional value, and so to train practitioners of already standardized professions. The graduate school places first emphasis upon the advancement of learn-

[27] This consolidation is not effected everywhere; for example, Columbia University maintains a faculty of philosophy, a faculty of political science, and a faculty of pure science; Harvard University has a graduate school of arts and sciences, a graduate school of business administration, a graduate school of applied biology, and a graduate school of medicine. The general description of the functions and facilities of the graduate school applies equally, however, to these and to other institutions which have not combined graduate departments into a single unit.

ing. Its teachers are expected to be actively engaged in extending the boundaries of knowledge and to direct students in the conduct of investigations. The vitality of the graduate school is properly judged by the amount and quality of its creative output.

Training for productive scholarship is still young in the United States. In view of its aims the graduate school is less susceptible to standardization than the schools already described. Its excellence will always depend in large measure on the fertility and originality of its teachers. No two schools, however skillfully administered, can be equal or equally strong throughout; nor, on the other hand, is a single school ever likely to have a monopoly of teaching and investigating talent in all lines. One will perhaps be preeminent in psychology, another in economics, another in chemistry. This variation inheres in graduate study. It has always characterized the research departments of European universities, which have had a considerably longer history.

Granting these inevitable inequalities, it is worthy of note that the great independent institutions of the East and the best-developed State universities of the West and Middle West have taken the steps needed to secure a high general level of graduate instruction. They have invested enormous sums in library and laboratory equipment and have vied with one another in seeking as teachers the most distinguished scholars, wherever they might be found. As a result of these efforts, no better material facilities for advanced study and research now exist anywhere. Certain American professors also rank with the leaders in their respective branches and have won international recognition. In fact, no other department of American higher education except the medical school has experienced so rapid and substantial development. Most graduate schools have been established within 25 years. National appreciation of the value of research, which has made this last expansion of the university possible, is hardly 15 years old; yet the enrollment in graduate courses in the United States has increased from 4,340 in 1893 to 7,911 in 1903, and to 14,406 in 1918. A correspondingly increased volume of scientific monographs has issued from the universities.

It is therefore safe to say that the students from abroad will now find in the graduate schools of the foremost American universities opportunities for special training and for research broadly equivalent to those provided by the faculties of philosophy and the scientific institutes of the universities of Europe. Such students will naturally seek those institutions which offer the best facilities and which possess the most eminent teachers in the particular lines in which they are interested.

A subordinate function of the graduate school has been the training of teachers for higher institutions. Indeed it is now customary

for appointing authorities to demand of candidates for higher teaching positions a more or less extended period of graduate study. Nevertheless there has been as yet no general adaptation of graduate courses to the professional needs of the prospective teacher. American graduate schools, like the universities of Europe, have in this matter proceeded on the assumption that the most important thing for the teacher of mature pupils is to know his subject. The method of its presentation may then safely be left to his individual judgment.

The typical American graduate school admits as students only those who hold a bachelor's degree from a college or university of recognized standing. It confers two orders of degrees, the master's degrees[28] and the doctor's degrees.[29]

To secure a master's degree one year of postgraduate study, devoted as a rule to not more than three subjects, one of which, called the major subject, receives the bulk of the student's attention, is usually required.[30] Many universities also demand a thesis embodying the results of a small piece of research.

The minimum period of postgraduate study for a doctor's degree is usually three years. The time spent and the number of courses taken, however, are of secondary importance. To receive the degree it is necessary that the candidate not only demonstrate in examination his mastery of his special field but also by means of a dissertation or thesis make an original contribution to knowledge in that field. Most universities require the dissertation to be published. The examinations are both written and oral. In fact, the requirements for the American degree of doctor of philosophy parallel closely those proposed by the German universities for the same degree. But American universities have recently attempted to demand of candidates for the degree a somewhat longer scholarly preparation and a more substantial thesis.

THE SUMMER SCHOOL.

The academic year is as a rule approximately nine months long. It usually extends from the middle of September to the middle of June. Many universities and colleges now either maintain a special summer school during about six weeks of the vacation period or carry on a summer session lasting throughout the summer months. Summer schools, which generally are confined to the undergraduate and graduate departments of arts and sciences, serve two main purposes. They enable teachers in elementary and secondary schools to pursue

[28] A. M., M. Com. Sci., M. F., M. L., M. Ped., M. S., M. S. in Agr., Cer. Eng., Chem. Eng., C. E., E. E., E. Min., Mech. E., Met. E.

[29] Ph. D., Sc. D., Phar. D.

[30] Two years of postgraduate study are required for the master's degree at Yale and Johns Hopkins Universities. (See Section VI, pp. 164–66, 194–96.)

special courses of study for professional advancement. They offer opportunities to college or university students who have failed to complete all the work required in the regular term to make good these deficiencies. In addition, summer schools are to some extent patronized by other classes of persons. While in the majority of summer schools the courses are planned with special reference to the needs of teachers, nevertheless the student whose interests are not pedagogical generally finds summer courses in most of the subjects ordinarily offered by the institution during the regular winter terms. The more advanced courses usually are not given in summer.

Summer schools present special attractions to the foreign student. If he happens to arrive in the United States in June or early July, he may profitably use his time and prepare himself for his later regular matriculation by enrolling in a good summer school. Opportunities for the study of English are commonly offered. After he has begun his collegiate or professional course he may shorten the period of study and also learn something of different universities by frequenting summer schools. It is possible to complete from a sixth to a quarter of a year's work during a summer course.

EQUIPMENT.

Such is the organization of a typical American university, but no account of these institutions, however brief, would be accurate unless it mentioned the astounding array of material appliances possessed by almost every one. In no other country has education been the recipient of such large and numerous benefactions from philanthropic men and women. The greatest of these have gone to American universities. Furthermore, the prosperous Commonwealths have contributed huge sums for the equipment of their State institutions. Certain of the richer universities are provided with almost everything they can possibly need to make their work effective.[21] A description of a single great university plant would occupy too much space to be included in such a brief survey as this, but a citizen of another country who has never seen an American institution may form some idea of the magnitude of these establishments by the subjoined statements of the value of grounds and buildings of leading universities as reported to the United States Government: University of Illinois, $4,758,621; University of Michigan, $5,285,053; University of Wisconsin, $7,086,799; Cornell University, $7,739,700; University of California, $11,400,891; University of Chicago, $11,698,223.

[21] For statements of laboratory and library facilities, see Section VI. Special attention is called to the immense and rapidly growing libraries of the higher institutions. T.

SPECIAL RESEARCH FOUNDATIONS.

American higher education has recently been reinforced by a group of special foundations established to further scientific and sociological research. Most of these owe their origin to the generosity of a single individual of large means. While not educational institutions, these foundations have made possible numerous investigations which have not only affected educational thought and practice, but have also raised the prestige of science throughout the United States. They should therefore be reckoned among the scientific resources of the Nation. Prominent among these institutions are the Russell Sage Foundation, the Carnegie Institution, the General Education Board, the Carnegie Foundation for the Advancement of Teaching, and the Rockefeller Institute for Medical Research.

CHAPTER III.

INDEPENDENT TECHNICAL AND PROFESSIONAL SCHOOLS.

In addition to the great universities giving instruction in practically all the departments of knowledge and including in their organization all types of higher professional schools, there are numerous other institutions of less complex organization. In fact, as has already been stated, the university is a comparatively recent creation. Many of these other schools, colleges, and institutes antedate the origin of universities. It is also true that many kinds of professional training can be quite as successfully and often as economically carried on in separate institutions established for that purpose alone. Some of the foremost training schools for engineering, medicine, dentistry, law, theology, and other callings are independent institutions not connected with any university.

The Massachusetts Institute of Technology,[32] for example, offers courses in the various branches of engineering and applied science. Rensselaer Polytechnic Institute[33] is devoted chiefly to civil, electrical, mechanical, and chemical engineering. Stevens Institute of Technology[34] gives only courses in mechanical engineering. The College of Physicians and Surgeons in Baltimore[a] and Jefferson Medical School of Philadelphia are not affiliated with universities. Among theological schools the majority are independent institutions, as, for example, the Newton Theological Institution (Baptist), the Theological Seminary of the General Synod of the Evangelical Lutheran

[a] This institution has since been consolidated with the medical school of the University of Maryland.

[32] See Sec. VI, pp. 201–3.

[33] Ibid., p. 227.

[34] Ibid., p. 219.

Church in the United States, and nearly all Catholic theological seminaries. Several States have established from the proceeds of the land grants[35] special colleges of agriculture and mechanic arts separate from the State university, as, for example, the Kansas State Agricultural College, the Iowa State College of Agriculture and Mechanic Arts.[36]

In range and content the courses given at these independent institutions are similar to those of the corresponding professional divisions of the large universities. Some of the schools of engineering, indeed, have become famous throughout the world for the high excellence of the work done in one or more departments.

CHAPTER IV.

INDEPENDENT AND DENOMINATIONAL COLLEGES.

Numerically the most important of the institutions not included in the organization of some university are the independent colleges offering courses in arts and sciences,[37] the majority of which confer the bachelor's degree. They present a wide variety of types and, almost as great a variety of scholastic standards; nevertheless, certain generalizations can be made concerning them.

As a rule the independent colleges give instruction in a more limited range of subjects than are open to candidates for bachelor's degrees at the larger universities. For instance, as against the 45 branches which the Harvard undergraduate may select, Carleton College offers work in the following: Astronomy, Bible, biology, chemistry, economics, education, English, German, geology, Greek, Hebrew, history, Latin, mathematics, music, philosophy, physical education, physics, political science, public speaking, Romance languages, Scandinavian languages, sociology. Williams College in the following: Art, astronomy, biology, chemistry, economics, English, geology, German, government and political science, Greek, history, Latin, mathematics, military art, philosophy, physics, physiology and hygiene, public speaking, religion, Romance languages. Reed College in the following: Biology, chemistry, classical languages, economics, education, English, Germanic languages, Greek, history and political science, Latin, mathematics, philosophy, physics, psychology, Romance languages, sociology.

The curricula of these institutions, then, are more nearly comparable to those of the French lycée and the German Gymnasium and Oberrealschule, most of the studies included being sanctioned

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[35] See p. 16.
[36] For further details, see Sec. VI, pp. 185–90.
[37] Some of these institutions are called universities. See above, p. 13.

by age-long tradition as appropriate training for the first degree in arts.

Reference has been made to the principle of election, in accordance with which the student chooses to a greater or less extent the subjects which shall compose his college course. Certain colleges of high standing have from conviction resisted the encroachments of this relatively new theory in higher education. For instance, at the leading Catholic institutions, which stand committed to a fixed educational procedure, courses in arts offer little freedom of choice. The courses leading to the degree of A. B. at Wabash College and William Jewell College are also largely prescribed. On the other hand, many independent colleges provide as extensive opportunities for election as their resources will permit. These differences in academic policy may properly have weight with the foreign student seeking a collegiate education in the United States.

The test of the excellence of a college, however, is not the multiplicity of its offerings, but the quality of work done. The stronger colleges, perhaps a quarter of the whole number, enforce a standard of accomplishment for the bachelor's degree every whit as high as that maintained by the best universities. The universities themselves readily concede this. They accept for advanced study the holders of degrees from these colleges on the same terms as their own graduates.[38] The foreign student need have no hesitation, therefore, in choosing an independent college rather than the collegiate division of some larger university as the institution in which to secure the A. B. or B. S., provided he assures himself in advance that the degrees of the college of his choice are valid educational currency. Among the colleges recognized by the larger universities are, on the one hand, some[39] which offer instruction only in the rather circumscribed group of studies which have for generations formed the basis of the A. B. course, and, on the other, institutions[40] which more nearly approximate the scope of university undergraduate departments.

Probably the most striking difference between the independent colleges and the universities is the difference in size, which also

[38] At its meeting in 1913, the Association of American Universities, composed of the following 22 institutions—University of California, Leland Stanford Junior University, Yale University, Catholic University of America, University of Chicago, University of Illinois, Indiana University, University of Iowa, University of Kansas, Johns Hopkins University, Harvard University, Clark University, University of Michigan, University of Minnesota, University of Missouri, University of Nebraska, Princeton University, Cornell University, Columbia University, University of Pennsylvania, University of Virginia, University of Wisconsin—recommended that the degrees of 119 American institutions be recognized by foreign universities as of equal value with the degrees of the members of the association. Of these 118 institutions, 53 were colleges or technical schools of the type under discussion. This list has since been extended.

[39] For example, Albion College.

[40] For instance, Oberlin College.

involves a profound difference in the institutional life. The independent college is commonly known as the small college, for the reason that its students usually number from 100 to 500. Universities of the type described frequently enroll from 1,000 to 5,000 students.[1] The foreign observer may be led to wonder why it is that small colleges persist and multiply in a country so liberally provided with large institutions, many of them State supported, giving the same opportunities for general education. The principal reasons are the following:

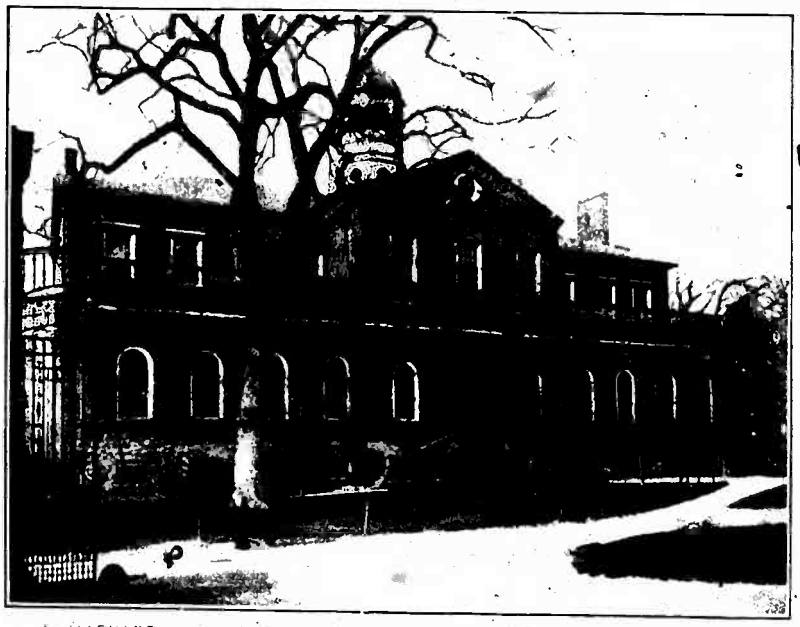
The prime mover in the foundation of most American colleges has been some religious denomination. The college so founded draws chiefly children of members of its denomination, and in a peculiar sense may be said to serve the denomination, although communicants of other sects are, as a rule, freely admitted. Thus there are Methodist colleges, Presbyterian colleges, Catholic colleges, Lutheran colleges, and many more. Those who believe that higher education must not only be imbued with the spirit of religion, but definitely correlated with a particular religious doctrine, and interpreted in terms of that doctrine, generally patronize a college of the desired denominational affiliation. Many denominations have met and encouraged this tendency by establishing colleges all over the land, wherever the denominational membership was large enough to give promise of support. It is no unusual thing to find several colleges in the same city or located within a few miles of one another in country districts each serving a different religious constituency.

The typical denominational college emphasizes the religious life and makes a special effort to create a religious atmosphere. More or less religious instruction generally appears in the curriculum. Denominational religious services are held daily, and attendance is usually required. Religious associations often occupy a prominent place among the social organizations which claim part of the student's leisure hours. It will be seen that the denominational college makes a very distinctive contribution to American higher education. The State university, owing to the nature of its support, must be nonsectarian. The large independent university, no matter under what auspices it was founded, can hardly have such complete denominational polarization. Foreign students of strong denominational attachments may well bear these facts in mind when selecting a college.

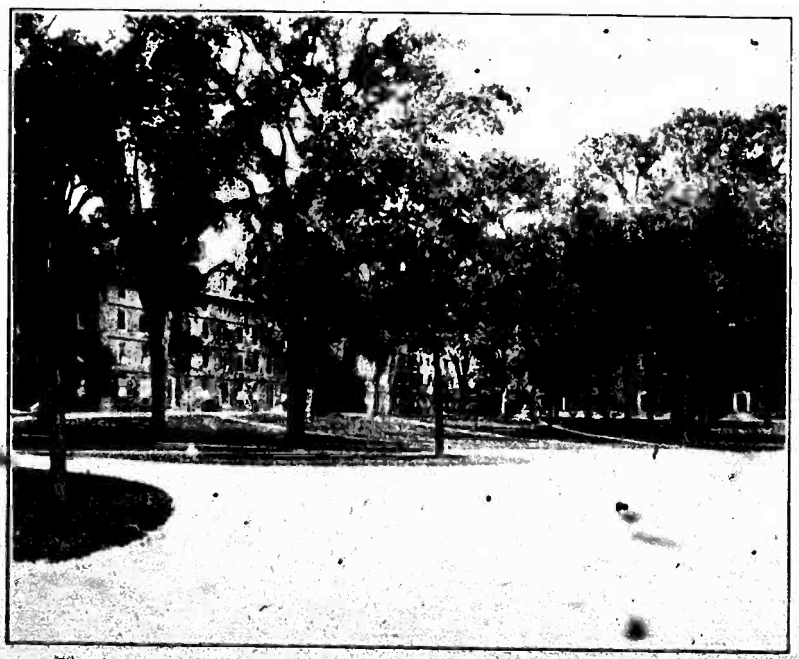
Neither in the United States nor in other countries is there consensus of opinion as to the extent to which sectarian influences and sectarian religious teaching should enter into higher education. In the last two decades the tendency has undoubtedly been toward the

[1] See Sections VII and VIII.

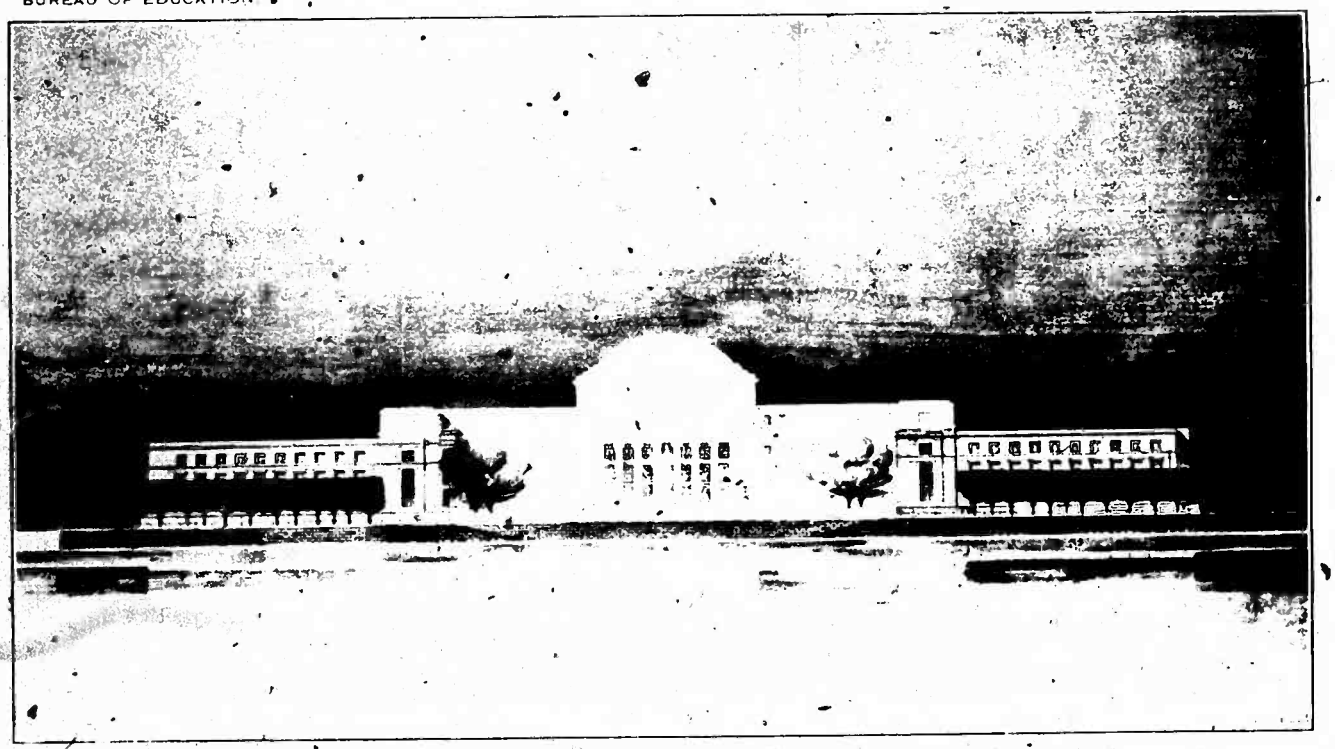
LIBRARY, COLUMBIA UNIVERSITY, NEW YORK CITY.



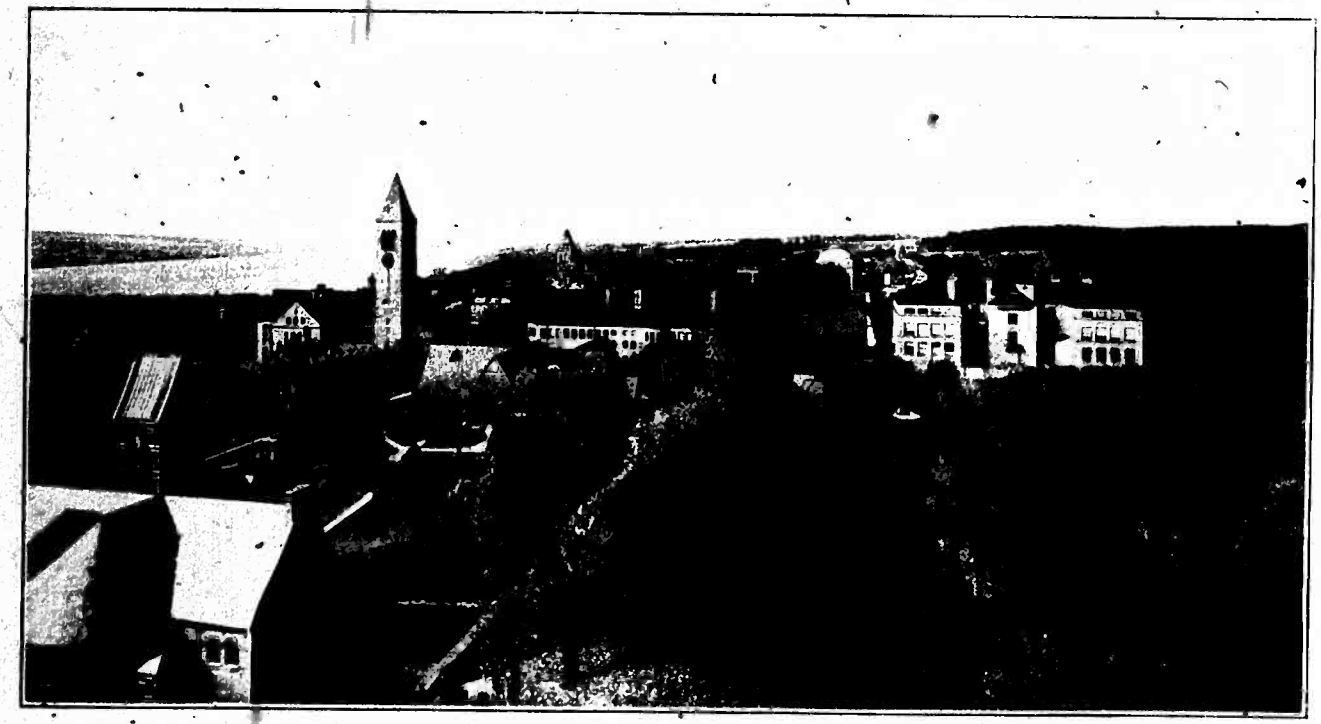
A. HARVARD HALL, ONE OF THE OLDER COLLEGE BUILDINGS, HARVARD UNIVERSITY, CAMBRIDGE, MASS.



B. HARVARD COLLEGE "YARD," HARVARD UNIVERSITY, CAMBRIDGE, MASS.



NEW BUILDINGS OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASS.



VIEW OF THE BUILDINGS OF CORNELL UNIVERSITY, ITHACA, N. Y.

divorce of higher education and sectarianism, a tendency stimulated by the evident success of State universities. Consequently the sectarian affiliations of many colleges which started as strictly denominational institutions are all the time growing weaker. Some have even renounced their denominational connections and have frankly come forth as nonsectarian institutions. On the other hand, certain denominational colleges have, perhaps by way of protest, reaffirmed still more vigorously their denominational character. Several denominations also have been especially active in founding new institutions. Apparently the success of a college in maintaining a strong denominational bias depends in a large degree upon its location. As a rule such institutions flourish in the Middle West and South. The northeastern and far western sections of the country have shown themselves of late less hospitable to the rigidly sectarian principle in higher education.

The college is coming to be regarded more and more as a local institution. It serves a larger area than does a public high school, but still the radius from which it draws its students is comparatively short and is becoming annually shorter. This is a second reason for the large number of independent colleges. The number of persons securing college training in proportion to the total population[42] has recently increased enormously. There is consequently a growing demand for colleges within easy reach, at least of the centers of population.[43] This enables many students to live at home and save much of the expense of a college course. Others need travel but a few miles and are frequently in touch with parental influences.

A third reason for the persistent vitality of the independent college is the extraordinary influence it has had on the life and ideals of the Nation. The American college graduate generally cherishes the memory of his "alma mater" with a loyalty only second in intensity to that which he bestows on his family and friends. He is on all occasions her devoted and partisan champion. If he is an alumnus of a small college he is apt to attribute to its influence and training whatever measure of success he may have achieved. This generous habit, coupled with the fact that the independent colleges actually have furnished the country with a surprisingly—one might almost say a disproportionately—large number of the national leaders in politics, in the professions, and in commerce, has served to entrench the small college in the regard of the people. In many quarters it is believed to be the peculiar repository of healthy democracy, lofty

[42] In 1893, 1 in 827 went to college; in 1903, 1 in 638; in 1913, 1 in 321.

[43] A recent development is the municipal university, supported by the municipality, articulating with the city school system, and free to students of the city. New York, Cincinnati, and Akron, for example, have flourishing institutions of this type.

ideals, and sound intellectual training. In consequence, it enjoys a prestige quite equal to that of the larger universities. Apparently it will long continue to do so.

CHAPTER V.

HIGHER EDUCATION OF WOMEN.

Substantially all of the facilities for advanced and professional training which have been described above are available for women.[a] Women seldom select certain professions, such as agriculture and engineering, from the nature of the demands which these callings make upon physical strength. On the other hand, increasingly large numbers of women are engaging in law, medicine, dentistry, teaching, and pursuing advanced studies in the arts and sciences.

The higher education of women is carried on both in institutions for the female sex alone and in colleges and universities where the sexes are educated together. In the East coeducation, as it is called, has not found general favor. The older colleges and the college departments of universities in this section of the country are usually exclusively for men. Beside them numerous colleges for women have been established, offering courses leading to the bachelor's and, in some cases, even to the master's and doctor's degrees. In general, however, the older universities like Harvard, Yale, and the University of Pennsylvania, while excluding women from the undergraduate departments, admit them freely to graduate schools.

In the Middle West and West coeducation is the accepted educational policy. Nearly all colleges and universities are open in all departments to women on the same terms as to men. In particular, the State universities have been the most prominent exponents of this policy and have done much to give it national currency. Special supervision of the boarding and rooming accommodations of the women and a certain amount of chaperonage in social affairs are enforced. Otherwise perfectly free association between the sexes prevails. The policy of coeducation has proved almost universally successful and is now indorsed by the great majority of American educators.

"In addition to the coeducational and the separate method of the education of women has also grown up a method which has been denominated the coordinate system. It represents the affiliation of

[a] The extent to which women have taken advantage of the higher educational opportunities is indicated by the following figures: Total enrollment of women in women's colleges, 1893, 12,300; 1903, 16,744; 1913, 19,142; 1916, 20,638. Total enrollment of women in coeducational institutions, 1893, 13,058; 1903, 26,990; 1913, 55,564; 1916, 69,543.

a college for women with a college for men."[45] Examples of this type of management are Barnard College, incorporated in the educational system of Columbia University; Radcliffe College, affiliated with Harvard; H. Sophie Newcomb Memorial College, affiliated with Tulane University of Louisiana; and the College for Women, affiliated with Western Reserve University. The academic relations of these colleges with the universities to which they are attached differ somewhat. Under one mode of affiliation the teaching in the woman's college is done by the faculty of the affiliated university. This plan prevails at Radcliffe. Another method is to provide an entirely separate faculty for the woman's college. This is the method of Western Reserve University.

CHAPTER VI.

COMPARISON OF AMERICAN AND FOREIGN INSTITUTIONS.

It will probably help the foreign student to adjust himself to educational conditions in the United States if his attention is called to the correspondences and differences between the principal types of American schools, on the one hand, and familiar European and Latin-American institutions on the other. These may first be suggested by showing in parallel columns the ages at which students enter and finish the various courses. (See page 36.)

The most marked differences appear in the time allotted to secondary education and the ages at which it is begun in the countries mentioned. In fact, the position accorded the secondary school may be said to determine to a large extent the character of each country's educational system. In France and Germany the elementary and secondary school systems are entirely separate. They run along constantly diverging lines. It is only possible to transfer from the elementary to the secondary school at one or two points, and after the twelfth year not at all. To a certain extent the same conditions have prevailed in England also, although they have lately been somewhat modified. In all of these countries the elementary school has generally been regarded not as a place of preparation for the secondary school, but as furnishing a distinct and measurably complete scheme of education designed especially for the children of the laboring and artisan classes. The secondary school, on the other hand, is intended for children of prosperous parents who plan to fit themselves for the professions or to enter the civil service. The original and fundamental distinction between the two systems is a social one.

[45] Quoted from Ch. V, Vol. I, Rept. Commis. of Ed. for 1903.

Age of Attendance at Various Schools.

Germany.		France.		England.	
School.	Age of attendance.	School.	Age of attendance.	School.	Age of attendance.
Volksschule	6–14	École primaire	6–14	Elementary school	7–14
Gymnasium Realgymnasium Oberrealschule	9–18	Lycée or collège	10–18	Secondary school	10–18
University:		University:		University:	
Professions	18–{21 22	Professions Philosophy Technical callings	18–22	Science and art	18–{21 22

Latin America.		United States.	
School.	Age of attendance.	School.	Age of attendance.
Elementary school	6–12	Elementary school	6–14
Liceo	12–18	High school (secondary school)	14–18
		College and technical callings	18–22
University:		University:	
Professions Philosophy Technical callings	18–{21 22	Older professions and philosophy	20{21 or more 22{25

The figure of "the educational ladder" best expresses the popular conception of education in the United States. The schools must be so organized that the child of the humblest parents may climb up in them and through them to the highest educational advantages. Anything else is felt to be undemocratic. The secondary school is therefore based on the elementary school and the college on the secondary school. This arrangement has had two consequences which are on the whole unfortunate. It has cramped the secondary school, and it has lengthened the whole school life of American boys and girls. Much work that is done by the French lycée or the German gymnasium is necessarily included here in the elementary school or the college.

The other outstanding peculiarity in the United States plan of educational organization, namely, the inclusion of the college as an extra link between the secondary school and the university, has been alluded to in the brief statement of the historical evolution of the college.[46]

The elementary schools of the United States and of Europe, notwithstanding minor differences, present nearly the same curriculum and aim at imparting approximately the same amount of training. The elementary school of Latin-American countries, like that of the United States and unlike those of Europe, is the regular preparatory institution for the secondary school or liceo. But the division line between the two institutions comes earlier in Latin America, at an age more appropriate for the beginning of secondary education. This, however, naturally reduces the range of the elementary curriculum.

European nations and Latin American countries are substantially agreed as to the purpose and compass of secondary instruction. The practices of no two countries are alike in all details, but in general the secondary course is made up of languages, ancient and modern; mathematics up to or through calculus; the elements of the natural sciences; history; the literature of the vernacular; the outlines of philosophy and logic. In other words, secondary education is conceived as properly dealing with knowledge which has general use and validity, scientifically arranged and organized to show the casual relations between facts or phenomena. It includes training in orderly and independent methods of study. It aims to sharpen the esthetic and moral perceptions. Secondary education concerns itself little with the purely empirical; that is more particularly the province of elementary training. It prepares for the philosophical or minutely specialized pursuit of knowledge, which is the field of higher education. The period of general cultural training of the individual properly terminates with the completion of the secondary school course,

[46] See p. 11.

which is fittingly recognized by the bestowal of the bachelor's degree. The six, eight, or nine years of secondary instruction in the countries mentioned are held to be sufficient for the accomplishment of this general purpose.

The function which is fulfilled in France, Germany, and Latin America by the secondary school is shared in the United States by two institutions—the secondary school and the college. It is generally admitted that the American student who has completed a secondary school course and two years of a general course in arts or sciences at an American college may be ranked with the holder of the baccalaureate of the French lycée or the Abiturientenzeugnis of the German Gymnasium. Those professional schools which demand two years of collegiate study for entrance maintain approximately the same standards of entrance, then, as the French and German universities, which are [illegible] open to holders of the two certificates just mentioned.

SECTION II.

CHAPTER I.

LIVING CONDITIONS.

Most of the larger universities are located in or near cities of considerable size. For instance, the University of California, at Berkeley, a city of 56,036[47] inhabitants, is only 8 miles from San Francisco; the University of Minnesota is at Minneapolis, a city of 380,582[47] inhabitants; the University of Wisconsin, at Madison, a city of 39,378[48] inhabitants. Within the limits of the metropolitan district of each of the great centers, Chicago, New York, Philadelphia, St. Louis, Boston, New Orleans, Baltimore, Washington, are several universities and colleges. The work of certain professional schools, in particular schools of medicine and dentistry, can hardly be successfully carried on without the facilities afforded by a large city. It is in recognition of this fact that the medical schools of the Universities of Illinois and Cornell have been established at Chicago and New York, respectively.

On the other hand, quite the majority of small colleges and independent professional institutions are located in villages and towns of from 1,000 to 20,000 inhabitants. In many cases the founders have deliberately chosen small communities in order that students might be removed from the temptations of the city and might be encouraged to live a simple, healthy life, in contact with nature. The large city and the small rural or quasi rural community each has its own peculiar advantages. The great centers of population mentioned above[49] are also centers of art and forums for the exchange of ideas. Collections of paintings and of sculpture, concerts, theaters, museums, lectures, public meetings devoted to the discussion of political and economic problems may thus be legitimately included among the instrumentalities for education and self-improvement which the city university affords. The small town or village in return allows a more vigorous development and the closer welding together of the insti-

[47] Figures of 1913.
[48] Figures of 1910.
[49] See also Sec. II, Ch. III, p. 49 et seq.

tutional community itself. "College life," so characteristic a feature of American higher institutions, flourishes especially in the country college.

EXPENSES.

The expenses of foreign students attending American institutions will vary widely for several reasons. Practically all of the privately endowed institutions charge annual tuition fees. The fee is rarely less than $50 a year for collegiate instruction, and in some cases as high as $150 or $200 a year. For example, Parsons College and Boydoin College charge tuition fees of $50 and $125, respectively. Columbia University charges $196 and Princeton University $200.[30] Professional instruction, particularly in medicine and engineering, is still more expensive. The annual tuition at Johns Hopkins University medical school is $250, for instance, as against $150 charged to collegiate students. Case School of Applied Science charges $125 a year; Massachusetts Institute of Technology charges $250 a year, and to its students in naval construction and naval architecture $500 a year.

Most State-aided institutions, on the other hand, charge only a small tuition fee to collegiate students not residents of the State, State residents being generally given instruction free of charge. But State institutions usually charge a considerable fee to students in some branches of professional study, because of the costly equipment needed for work in these departments. The practice of the University of Colorado, where the tuition fee to college students is $24 and the annual cost to the student in the medical school is $120, will serve as an illustration. In addition to tuition fees most institutions, both private and State aided, charge laboratory fees and various incidental fees. These rarely total more than $25 a year.

Living expenses, aside from tuition and other fees, vary with the location of the institution. Practically all the colleges and universites which are located in rural communities or in small towns maintain dormitories and dining halls, which generally assure the student of good boarding and rooming accommodations at a minimum rate. Dormitories and dining halls are also provided by certain city universities; for example, Yale and the University of Pennsylvania. Dormitories are commonly arranged so that two students share the same suite of two or three rooms, a study room and one or two bedrooms. Some dormitories, especially the older ones, contain chiefly single rooms, each serving as bedroom and study combined and designed for a single occupant. Where the institution has no dormitories, as is the case with the University of Michigan and the University of Illinois, an abundance of rooms are available in the houses of

[30] For information concerning tuition at other institutions, see Sec. VI.

reputable private families. As a rule, the fundamental charges—room, board, and laundry—are somewhat lower at the country institution than at those located in the cities. The possible wide variations in price (which do not altogether depend upon the size of the community) are indicated by the figure, $6, quoted as the weekly minimum by the University of Minnesota, and $12, the weekly maximum mentioned by Cornell University. The incidental expenses of city living, including amusements, should, of course, also be reckoned.[51] These vary with the tastes and standards of the individual, but even the most ascetic student will spend a little more in an urban than in a rural community.

VACATIONS AND TRAVEL.

The foreign student contemplating a three or four year period of university study in the United States should make allowance in his budget for the long vacations. American colleges and universities are in session on an average about eight months in the year. The university year generally begins about the middle of September and closes about the middle of June.[52] At most institutions it is divided into two semesters, the division line coming about the 1st of February.[53] Approximately a month is devoted to short vacations of from 1 to 14 days duration, scattered through the academic year. The prices quoted by different institutions for the rent of dormitory rooms are generally for the academic year of nine months. Occupancy of the rooms during the short vacations is included. Students are usually not allowed to occupy dormitory rooms in the long summer vacation.

It is exceedingly desirable that the foreign student should spend part of the long vacation in travel if he can possibly afford this extra expense. The United States is so large a country; it contains so great a diversity of racial stocks, many of them concentrated in certain limited areas; its industries, climate, and conditions of living are so infinitely varied that no single community can be regarded as typical. Not the least advantage to a foreign student pursuing his university work here will be the opportunity to observe the people and the customs of an alien nation. He should therefore strive to extend his observations as widely as possible. Railroad travel costs

[51] For estimates of the minimum total annual cost of attending the institutions described in this bulletin see the end of each description in Sec. VI. These estimates do not include incidentals.

[52] California institutions present an exception to this rule, the academic year there extending from the middle of August to the middle of May.

[53] It is now possible to enter almost any of the larger universities, and many colleges as well, at the beginning of either semester. Several institutions have two graduations, one in June and one in February. Classes, laboratory instruction, and courses of lectures are now usually arranged on the semester basis.

on the average 3 cents a mile; a seat in an individual chair car, called a "Pullman" car, costs approximately one-half a cent a mile extra. A berth in a sleeping car costs about 1 cent a mile extra. Good hotel accommodations may be had—depending upon the place—from $3.50 a day, including meals, up. For a longer sojourn in city communities, good board and room may be secured at rates ranging from $10 a week up. In the country one may occasionally find satisfactory board and lodging for less.

STUDENT AID AND SELF-HELP.

Nearly all the better-equipped private institutions and some State institutions possess special funds for assisting needy and deserving students. The commonest form of student aid is the so-called "scholarship," an annual stipend, generally large enough to cover the tuition fee, often somewhat larger, which is granted a student of good ability and character upon the representation of his needs. Some scholarships are awarded as prizes for high scholastic standing without reference to the student's financial status. Some, again, are bestowed only upon those students who have demonstrated marked capacity and are also known to need pecuniary assistance.

Certain institutions have loan funds from which money is lent indigent students on proper security.

Larger stipends, called "fellowships," paying from $150 to $500 or $600 a year, have been established at many universities for the benefit of graduate and professional students of unusual ability and promise. Certain of these fellowships for students in graduate schools carry the obligation of teaching from one to six hours a week in undergraduate classes.[54] A few universities also maintain traveling fellowships, some of which pay as much as $1,500 per annum. These are generally awarded to advanced students whose researches will be especially furthered by visiting some foreign country.

The foreign student is advised to apply for the catalogue of any American college or university to which he may feel attracted. The catalogue or a circular of information is sent free upon request, and generally contains full information concerning scholarships, fellowships, courses, teaching staff, and equipment.

A very large percentage of American students support themselves wholly or in part during their terms of collegiate or professional training. In the long summer vacations, in the evenings, in the spare hours not occupied with class exercises, these young men and women

[54] For example, the Austin teaching fellowships at Harvard University, holders of which receive $500 and are expected to devote about half of their time to teaching; also the Harrison senior fellowships at the University of Pennsylvania, holders of which receive $800 and are expected to offer a single course of lectures.

work at a multitude of occupations. The commonest of these are perhaps the following: Care of furnaces in private residences; janitor service in college or university buildings; waiting on table in college dining halls and eating clubs; clerical work for college officers; giving private lessons; selling commodities on commission. Some students have learned a trade before attending higher institutions, and by the occasional practice of it are able to assist themselves financially.

Nearly all the larger institutions and many of the small colleges maintain student employment bureaus. The purpose of these agencies is to ascertain the local opportunities for student labor and to put the student seeking employment in touch with a suitable occupation.

The American college or university community does not regard any of the occupations mentioned or any other form of honest manual labor on the part of students as degrading. This fact deserves especial emphasis, because in certain other countries there is quite a different attitude toward students who are obliged to work their way through college or who are recipients of scholarships, bursaries, or loans. The American student who earns his way suffers no loss of social standing. He is eligible for any social honor bestowed by his fellows, on the same terms as the son of the wealthiest parent. Indeed, the fact that a popular or talented young man waits on the table, for instance, in order to make his education possible, generally raises him in the esteem both of his fellow students and of his instructors.

Many students from other countries have taken advantage of the manifold opportunities for self-help and have thus eked out the money needed for a long and expensive university education. No discrimination in favor of native students is shown either by the employers or by the university employment agencies. However, the foreign student contemplating a course of study in the United States should be warned to bring with him enough money to defray the expenses of the first year. Before he can count on remunerative employment, he must be acquainted with the customs of the country and must be known to the officers of the institution at which he is enrolled.

CHAPTER II.

COLLEGE LIFE.

American educators are practically unanimous in the belief that the associations which the student forms with his fellows and the activities with which he fills his leisure hours are educative factors

hardly less important than the instructional work of the institution. Especially is this true in the college and the collegiate divisions of the universities. Students in the professional and graduate schools, thoroughly absorbed in preparing themselves for the practice of their professions, are likely to have less time and inclination to cultivate other interests. Encouraged by the governing authorities, there has grown up at most American colleges and universities a kind of institutional life which is distinctly national. There is, to be sure, a certain generic similarity in the ideals and interests of students the world over, which manifests itself in similar ways. Yet American "college life," as it is called, exhibits many customs and activities that seem to be entirely unlike those of European and Latin American students. To this extent it is unique and deserves brief notice. The foreign observer is perhaps first struck by the complexity and intensity of college life. The work of the classroom or the laboratory seems to be merely the focus for numerous other occupations, all pursued with a passionate earnestness.

ATHLETICS.

Chief among the extra-curricular activities is athletics, which occupies a shrine of its own not only in the hearts of college and university students but in the hearts of the whole American people. Athletic sports are of comparatively recent development. They began within the memory of men still alive. It is only within a little more than a generation that Americans have ceased to find ample scope for physical activity in the fields to be tilled, the woods to be cleared or explored, and the forces of the land to be subdued. It is the sudden urbanization of the United States that has stimulated the growth of athletic games. The city youth replaces by strenuous group sports the excitements and exertions of his pioneering fathers and grandfathers. The urban public participates vicariously and is boisterously enthusiastic over athletic exhibitions. Both the college community and the country at large are prone to make a hero of the successful college athlete. These are social phenomena of considerable significance in American life. They partly account for the large share of the college student's attention which athletics claims and for the prominence of athletic interests in most college communities.

Nearly every college and university maintains four types of athletic teams which compete with the teams of other institutions—baseball teams, football teams, basketball teams, and track teams. Track athletics, as it is called, includes running, jumping, weight throwing, etc. In addition, most of the larger institutions situated near bodies of water maintain crews for boat racing. Numerous other branches of athletics, such as hockey, fencing, tennis, etc., are cultivated at

certain universities. But the interest of the general public, and of the college or university community as well, is chiefly centered in the four sports first mentioned, particularly the first two. Baseball in the spring and football in the fall make a special appeal to all ages and classes of Americans.

College and university athletic teams are trained with great care and often at great expense. It is customary for institutions to employ a special trainer called a "coach" for each of the principal branches of athletics. The larger and wealthier institutions build costly gymnasia and training quarters and construct stadia for the public games. To be chosen to represent his institution on one of its important athletic teams is regarded by the college or university student as one of the most desirable distinctions to which he can attain. For many years it far outstripped scholarly distinctions in student estimation and in the estimation of the general public as well. Of late scholarship has been receiving more appropriate recognition, both within and without the walls. But the prestige of athletic success is still undimmed. The intercollegiate games of baseball and football are played before vast and enthusiastic crowds who are willing to pay large sums of money for the privilege of watching the spectacle. Indeed, a football game between Harvard and Yale, for example, is an event of national interest. The last one, in 1914, was played before an audience of 68,000 people, in a new amphitheater erected especially for these contests at a cost of approximately $300,000. The gate receipts were $136,000. Crowds only slightly smaller assemble for the games between the teams of other universities. The conspicuous athlete on one of these occasions acquires a publicity that, although short-lived, is for the time only matched, perhaps, by that of the favorites of the stage.

All of these influences naturally combine to make nearly every able-bodied young man strive for athletic distinction. Moreover, the absorbing devotion to athletic success has created an ideal of physical fitness which pervades practically all college and university communities and affects the lives of those who are unable to win fame in the arena. To be in good physical condition and to participate as far as possible in some kind of athletic contest have come to be among the normal ends which almost every student sets himself to reach. What has been said with regard to the devotion of men to athletic sports holds true also, with only slight modifications, with regard to college women. Less publicity and strain attend the athletic contests of women students, but the athletic ideal has conquered the colleges for women as well as the colleges for men.

The prominence of the athletic interest among the students has led to the incorporation of systematic physical training in the college curriculum. Most progressive institutions now require every candi-

date for the bachelor's degree to undergo periodic physical examinations at the hands of a physician and to take a course of physical training under the direction of a competent physical instructor. The conservation of health and the promotion of a sound physical development are thus made fundamental to effective intellectual training.

FRATERNITIES.

Next to athletics the most vital and generally influential factors in college or university life are the fraternities and clubs. Whereas athletics is a democratizing force bringing together the rich and the poor, the well-bred and the uncultivated, in sharp personal competition, or uniting them in a common enthusiasm, the fraternities and clubs tend to break the student body into cliques, on the basis of similarity of tastes, the pursuit of a particular object, or social compatibility. They represent the natural cleavages of large bodies of people into smaller congenial groups.

The American college fraternity, like the "college life" of which it is the outgrowth and the expression, has no exact counterpart in any other country. The student corps at German universities resemble it in certain features, but on the whole are quite different. The typical college fraternity is a secret order of strictly limited membership, having a Greek motto and conducting more or less mysterious rites of initiation. The fraternity is known by the initial letters of its motto (or what are taken to be such by the uninitiated public), as, for instance, Psi Upsilon, Delta Kappa Epsilon, Phi Delta Theta, Sigma Chi.

A great many fraternities are national, or at least interinstitutional. They consist of from a dozen to 50 chapters located in as many institutions in different parts of the country. So-called national fraternities generally have a central administrative body, made up wholly or partly of older men, whose duty it is to coordinate the activities and help in maintaining the standards of the fraternity. The individual chapters of a fraternity generally consist of from 15 to 30 members. At most institutions each fraternity has a clubhouse. These clubhouses vary in size, comfort, and elegance. Some are modest domiciles containing simple meeting rooms; others combine under one roof—often a very expensive roof, at that—a dormitory, meeting room, and boarding house. All, or nearly all, of the members then live in the fraternity house en famille. Under these circumstances it is natural that the fraternity should become a formative influence in a young man's character second to no other. On the whole, this influence is good. Most fraternities, like the orders of knighthood from which through Masonic associations they probably took their origin, set before themselves the pursuit of high

and noble ideals. The older members feel responsibility for maintaining both the scholarly standing and the good repute of the organization, and, indeed, frequently cooperate with the faculty to this end.

A few fraternities or individual chapters have fallen into over-luxurious and vicious habits, in which cases they have become peculiarly dangerous to the young men who join them. These are, however, the exception. The principal objection raised against the fraternity is the disintegrating effect which its close organization and interfraternity rivalries may have upon the solidarity of the college community. But this objection has not been strongly enough voiced to check as yet the growth and spread of fraternities.

Local secret orders without affiliation with other societies are also common at certain institutions. These are in all essential respects like the national fraternities just described. At a few of the most prominent universities secret fraternities, local or national, are either rare or nonexistent. For instance, at Princeton secret societies are prohibited. At Harvard the vigorous development of other types of social organizations has kept fraternities from becoming numerous or important. At these universities and at others where similar conditions prevail the place of fraternities is taken by social clubs which parallel in the variety of the purposes which they pursue the clubs of the outside world.

As a rule fraternities and other societies welcome congenial foreign members of similar social training. Of particular interest to foreign students, however, are the cosmopolitan clubs which exist at most universities and which are now united by means of a national organization. These associations bring together upon a common ground of social intercourse the citizens of every country represented in the student body of the university.

Besides social clubs there are at practically all colleges and universities other clubs organized for special purposes: for instance, debating, dramatic, and musical clubs—Cercle Français, etc. There are also professional and technical associations, such as engineering clubs, chemical clubs, and law clubs, to which students of the professional schools belong.

The musical organizations of the majority of colleges and universities are partly social clubs for the cultivation of an art and partly money-making ventures. University choral societies, glee clubs, mandolin clubs, and orchestras travel about the country in the vacation periods and at other times, as far as the work of the institution permits, giving public concerts. These are often sources of considerable profit to the members of the organizations.

RELIGIOUS ORGANIZATIONS.

At nearly all American higher institutions, including the State universities, the religious life of the student body is a matter of deep concern to the faculty and to the older students. The officers of the strictly denominational colleges usually undertake, more or less openly, the direction of the religious thought and observances of the students, in accordance with the doctrines and ritual of the sect to which the college owes allegiance. State universities are of necessity nonsectarian, and their officers never interfere with the religious affairs of the students. The larger independent universities also, even though founded by religious bodies, have for the most part outgrown sectarian limitations. The daily chapel exercises, which are held at nearly all American universities, both State and independent, are at these larger universities devoid of doctrinal content. Attendance is now generally optional.

The religious life of the students of these larger American universities is stimulated and fed by means of religious organizations for which the students themselves are chiefly responsible. The most widespread and influential of these bodies is the Young Men's Christian Association, branches of which are to be found in almost all Protestant and nonsectarian universities and colleges. In nonsectarian institutions, also, the Young Men's Catholic Association, the Intercollegiate Menorah Society, the Knights of St. Andrew, and other religious organizations, membership in which is limited to the adherents of particular sects, are frequently established.

UNIVERSITY DEMOCRACY.

Doubtless the most characteristic feature of the American college or university community is its democracy. A spirit of good comradeship in work and play pervades the typical college. No barriers are raised between groups or individuals because of wealth or family connections. A student stands or falls on the strength of his own attainments and personal likeableness. Cliques represented by the clubs and fraternities just mentioned are formed within the college itself, to be sure, but they seldom bear any relation to outside social alignments. The most influential and exclusive college fraternity may include in its membership sons of parents of every grade of wealth and every calling. Indeed, the typical American college community rather makes a cult of democracy, and since it is saturated with the idealism of youth and is more homogeneous than any other community it is able to practice democracy with comparatively little hardship.

For the most part the same informal relations exist between students and professors as among the students themselves. Few profes-

sors now assume superiority in their dealings with students or demand special deference on the strength of their position. The American university professor of to-day regards himself as a fellow student with those whom he teaches, a little older and more experienced, but essentially on the same plane. The relations between professors and students, then, are like those between younger and older men elsewhere. This condition contributes to a better mutual understanding, a more complete harmony of purpose in the university community than used to prevail in the past. It has minimized, also, the need for disciplinary action on the part of the faculty.

THE FOREIGNER AT AN AMERICAN UNIVERSITY.

It is essential that the foreign student who contemplates studying at an American college or university should first be fairly fluent in the use of English. He should at least know the language well enough to be able to read it and to follow lectures given in it. If he does not have this knowledge when he arrives in the United States, it will probably be best for him to spend several months (three or four should suffice) studying English[55] under competent instruction before attempting to register in a university for either a general or professional course.

Once having mastered the vernacular sufficiently to make his way as a student and to take an intelligent part in the social activities of the university community, the foreign student will find himself accepted as in every sense a full-fledged member of the institution.[56] Then it rests with him what his place shall be. If he is agreeable, capable, and adaptable, he will suffer no handicaps in his relations with the natives. On the contrary, he will receive a most cordial welcome.

CHAPTER III.

HIGHER EDUCATIONAL CENTERS, DISTANCES FROM THE PORTS OF ENTRY, AND COST OF TRAVEL.

In a preceding chapter[57] reference was made to the extra-academic advantages to be found in the larger American cities. These cities are also foci for numbers of higher educational institutions. There is in many cases a certain amount of reciprocity between the various

[55] See p. 27. Summer school.

[56] There are certain exceptions to the statement made above. In the Southern States persons of Negro blood attend exclusively the schools which have been established for their race.

[57] See p. 39.

institutions. Aside from the cultural advantages, therefore, the larger cities of the United States have distinct advantages as centers of professional training. In the following paragraphs the principal metropolitan centers are mentioned. The institutions of collegiate or professional grade located in them are given and the distances from the three principal ports of entry. As noted in Chapter II, the cost of travel is, in the average, about 3.6 cents a mile for railroad fares. An additional cent and a half per mile should be added for first-class Pullman accommodations.

NEW YORK CITY.

New York City, the largest American city, with a population of 5,621,151, is the seat of the following collegiate institutions and universities:

Columbia University:
- Columbia College, arts and science (for men), nonsectarian.
- Barnard College, arts and science (for women), nonsectarian.
- School of Law (for men)
- College of Physicians and Surgeons (for men).
- Schools of Mines, Engineering, and Chemistry (for men).
- Graduate Faculties—Philosophy, Political Science, and Pure Science (coeducational).
- Faculty of Fine Arts—Architecture, Music, and Design (coeducational).
- College of Pharmacy (coeducational).
- School of Journalism (coeducational).
- School of Business (coeducational).
- Teachers College (coeducational)—
  - School of Education.
  - School of Practical Arts.

College of the City of New York, arts and science, engineering (for men), under municipal control.

Fordham University (for men), under Roman Catholic control:
- St. John's College, arts and science.
- School of Law.
- School of Pharmacy.

Hunter College of the City of New York, liberal arts (for women), under municipal control.

Manhattan College, arts and science, engineering (for men), under Roman Catholic control.

New York University (coeducational), nonsectarian:
- College of Arts and Pure Science.
- School of Applied Science.
- Washington Square College (offers afternoon and evening courses equivalent to courses in the university college).
- Graduate School.
- School of Law.
- University and Bellevue Hospital Medical College.
- School of Commerce, Accounts, and Finance.
- New York-American Veterinary College.
- School of Pedagogy.

Bible Teachers' Training School (interdenominational).
General Theological Seminary of the Protestant Episcopal Church.
Jewish Theological Seminary.
Union Theological Seminary (interdenominational).
New York Law School.
Cornell University Medical College.
New York Homeopathic Medical College and Flower Hospital.
College of Dental and Oral Surgery of New York.
New York College of Dentistry.

New York is itself the principal port of entry for all persons coming from Europe and from certain portions of South America and the West Indies. It is 3,183 miles from San Francisco and 1,344 miles from New Orleans.

CHICAGO, ILL.

Chicago, the second city in the United States, with a population of 2,701,705, is also a great educational center. The following universities and colleges are located there:

Armour Institute of Technology (for men), nonsectarian; undergraduate and graduate departments.
De Paul University (for men), under Roman Catholic control:
- College of Liberal Arts and Sciences.
- College of Engineering (first two years).
- College of Law.
- College of Commerce.
- College of Music.

Lewis Institute, liberal and practical arts, engineering (coeducational), nonsectarian.
Loyola University (for men), under Roman Catholic control:
- College of Arts and Sciences.
- Department of Law.
- School of Medicine.
- School of Sociology.
- Engineering Department (first two years).

University of Chicago (coeducational), nonsectarian:
- Schools and Colleges of Arts, Literature, and Science.
- Graduate schools—
  - School of Arts and Literature.
  - Ogden School of Science.
- University College (afternoon, evening, and Saturday courses equivalent to those in the regular colleges).
- Divinity School (Baptist).
- Law School.
- Rush Medical College.
- School of Education.
- College of Commerce and Administration—
  - College of Religious and Social Sciences.

Northwestern University (located in Evanston, a suburb of Chicago), coeducational), under Methodist Episcopal control:
- College of Liberal Arts.
- Graduate School.

Northwestern University, etc.—Continued.
College of Engineering.
Medical School.
School of Pharmacy.
Union College of Law.
Dental School.
School of Commerce.
School of Music.
School of Oratory.
Garrett Biblical Institute (Methodist Episcopal).
Norwegian-Danish Theological Seminary (Methodist Episcopal).
Swedish Methodist Episcopal Theological Seminary.
Bethany Bible School (Christian Brethren).
Central States College of Pharmacy.
Chicago Theological Seminary (Congregationalist).
Evangelical Lutheran Theological Seminary (at Maywood).
McCormick Theological Seminary (Presbyterian).
Western Theological Seminary (Protestant Episcopal).
Chicago College of Law.
Chicago-Kent Law School.
Hamilton College of Law.
John Marshall Law School.
College of Medicine of the University of Illinois.
Hahnemann Medical College.
Jenner Medical College.
Chicago College of Dental Surgery of Valparaiso University.
College of Dentistry of the University of Illinois.
School of Pharmacy of the University of Illinois.
Chicago Veterinary College.
McKillip Veterinary College.

Chicago is 960 miles from New York, 2,280 miles from San Francisco, and 930 miles from New Orleans.

PHILADELPHIA, PA.

The following colleges and universities are located in the city of Philadelphia, third in size among American cities, with a population of 1,823,158:

Drexel Institute (coeducational), nonsectarian:
School of Domestic Science and Arts.
School of Engineering.
Secretarial School.
Dropsie College, a graduate school for Hebrew and cognate learning (coeducational), under Jewish control.
La Salle College (for men), under Roman Catholic control:
Department of Arts.
Department of Civil Engineering.
Temple University (coeducational), nonsectarian:
College of Liberal Arts and Sciences.
Department of Theology (nonsectarian).
School of Law.
Department of Medicine.
Teachers College.

Temple University (coeducational), nonsectarian—Continued.
Department of Pharmacy.
Philadelphia Dental College.
Department of Commerce, Accounts, and Finance.
College of Music.
Training School for Nurses.
University of Pennsylvania (for men except as noted), nonsectarian:
The College—
School of Arts.
Towne Scientific School.
Wharton School of Finance and Commerce.
School of Education (coeducational).
Graduate School (coeducational).
Law School.
School of Medicine (coeducational).
Graduate School of Medicine (coeducational).
School of Dentistry (coeducational).
School of Veterinary Medicine.
Bryn Mawr College (at Bryn Mawr, a suburb of Philadelphia), liberal arts (for women), nonsectarian:
Undergraduate and Graduate Departments.
Haverford College (at Haverford, a suburb of Philadelphia), arts and science (for men), under Friends' control.
Swarthmore College (at Swarthmore, a suburb of Philadelphia), liberal arts (coeducational), nonsectarian.
Lutheran Theological Seminary (at Mount Airy).
Protestant Episcopal Church Divinity School.
St. Vincent's Seminary (Roman Catholic).
Jefferson Medical College.
Woman's Medical College of Pennsylvania.
Philadelphia Dental College.
Philadelphia College of Pharmacy.

Philadelphia is 90 miles from New York, 3,098 miles from San Francisco, and 1,254 miles from New Orleans.

ST. LOUIS, MO.

St. Louis, the great metropolitan center of the midsouthern section of the United States, a city of 772,897 population, contains the following collegiate institutions and universities:

St. Louis University (for men), under Roman Catholic control:
College of Arts and Sciences.
School of Divinity.
School of Philosophy and Science.
School of Medicine.
St. Louis College of Dentistry.
Institute of Law.
School of Commerce and Finance.
Washington University (coeducational), nonsectarian:
Department of Arts and Science—
The College.
School of Engineering.
School of Architecture.

Washington University (coeducational), nonsectarian—Continued.
Henry Shaw School of Botany.
Law School.
Medical School.
Dental School.
St. Louis School of Fine Arts.
School of Commerce and Finance.
Concordia Theological Seminary (Evangelical Lutheran).
Eden Theological Seminary of the Evangelical Church of North America.
Kendrick Theological Seminary (Roman Catholic).
Benton College of Law.
City College of Law and Finance.
St. Louis College of Physicians and Surgeons.
St. Louis College of Pharmacy.

St. Louis is 1,127 miles from New York, 2,294 miles from San Francisco, and 717 miles from New Orleans.

BOSTON, MASS.

Boston, the seventh city in the United States, with a population of 748,060, is, with its suburbs, one of the principal educational centers. These colleges, universities, and technological schools are located either in the city itself or in the immediate vicinity:

Boston College (at Chestnut Hill, a suburb of Boston), liberal arts (for men), under Roman Catholic control.
Boston University (coeducational), under Methodist Episcopal control:
College of Liberal Arts.
College of Business Administration.
School of Theology (Methodist Episcopal).
School of Law.
School of Medicine (homeopathic).
Graduate School.
Northeastern College (for men), under Y. M. C. A. control:
School of Liberal Arts.
School of Engineering.
School of Commerce and Finance.
School of Law.
Harvard University, Cambridge (for men), nonsectarian:
Harvard College, arts and sciences.
Graduate School of Arts and Sciences.
Graduate School of Applied Science.
School of Engineering.
Mining School.
School of Architecture.
School of Landscape Architecture.
School of Forestry.
School of Applied Biology.
Graduate School of Business Administration.
Divinity School (nonsectarian).
Law School.
Medical School.
Dental School.
Graduate School of Medicine.

Radcliffe College (affiliated with Harvard University), arts and science (for women), nonsectarian: Undergraduate and graduate departments.
Massachusetts Institute of Technology, Cambridge (coeducational), nonsectarian:
Undergraduate and graduate departments.
School for Health Officers.
Simmons College, scientific courses (for women), nonsectarian.
Tufts College, Medford (coeducational), nonsectarian:
School of Liberal Arts.
Engineering School.
Medical School.
Graduate School.
Dental School.
Crane Theological School (Universalist).
Jackson College for Women.
Wellesley College, Wellesley, liberal arts (for women), nonsectarian.
Andover Theological Seminary, Cambridge (Congregationalist).
Episcopal Theological Seminary, Cambridge.
New Church Theological School (Church of New Jerusalem).
Newton Theological Institution, Newton (Baptist).
St. John's Boston Ecclesiastical Seminary (Roman Catholic).
Portia Law School.
Suffolk School of Law.
Massachusetts College of Pharmacy.

Boston is 232 miles from New York, 3,312 miles from San Francisco, and 1,576 miles from New Orleans.

BALTIMORE, MD.

Baltimore, a city of 733,820 inhabitants, is the seat of the following universities and colleges:

Goucher College, liberal arts (for women), under Methodist Episcopal control.
Johns Hopkins University (coeducational), nonsectarian.
Faculty of Philosophy (undergraduate and graduate departments of arts and sciences).
Faculty of Medicine.
Faculty of Hygiene and Public Health.
Department of Engineering.
Loyola College, liberal arts (for men), under Roman Catholic control.
Morgan College (colored), liberal arts (coeducational), under Methodist Episcopal control.
Mount St. Joseph's College, liberal arts (for men), under Roman Catholic control.
St. Mary's Seminary (Roman Catholic theological school).
Baltimore Law School.
University of Maryland Law School.
University of Maryland School of Medicine and College of Physicians and Surgeons.
Baltimore College of Dental Surgery.
University of Maryland Dental Department.
Maryland College of Pharmacy of the University of Maryland.

Baltimore is 185 miles from New York, 3,076 miles from San Francisco, and 1,158 miles from New Orleans.

SAN FRANCISCO, CALIF.

San Francisco, a city of 506,676 inhabitants and one of the chief ports of entry, is the principal educational center of the Pacific coast. In the city itself and its close vicinity are located—

Leland Stanford Junior University (coeducational), nonsectarian:
- Arts and Sciences—
  - Undergraduate.
  - Graduate.
- Department of Engineering.
- School of Education.
- Department of Medicine.
- Law School.

St. Ignatius University (for men), under Roman Catholic control:
- College of Letters, Science, and Philosophy.
- College of Law.

University of California (coeducational), under State control:
- College of Letters and Science.
- College of Commerce.
- College of Agriculture.
- College of Mechanics.
- College of Mining.
- College of Civil Engineering.
- College of Chemistry.
- College of Medicine (graduate department at Los Angeles).
- College of Dentistry.
- School of Architecture.
- School of Education.
- School of Jurisprudence.
- Graduate School.
- Hastings College of Law.
- California College of Pharmacy.

Pacific Coast Baptist Theological Seminary.
Pacific Theological Seminary (undenominational).
Pacific Unitarian School for the Ministry.
San Francisco Law School.
College of Physicians and Surgeons:
- Department of Dentistry.
- Department of Pharmacy.

San Francisco Veterinary College.

San Francisco is 3,183 miles from New York and 2,477 miles from New Orleans.

NEW ORLEANS, LA.

New Orleans, the principal seaport of the Gulf States, a city of 387,219 inhabitants, contains the following collegiate institutions and universities:

Loyola University (for men), under Roman Catholic control:
College of Arts and Sciences.
College of Pharmacy.
New Orleans University (colored) (coeducational), under Methodist Episcopal control.
Tulane University of Louisiana (for men), nonsectarian:
College of Arts and Sciences.
College of Technology.
Graduate Department.
College of Commerce and Business Administration.
College of Medicine.
School of Pharmacy.
School of Dentistry.
School of Hygiene and Tropical Medicine.
Postgraduate School of Medicine.
College of Law.
H. Sophie Newcomb Memorial College (affiliated with Tulane University of Louisiana) (for women), nonsectarian:
School of Art.
School of Music.
School of Education.
New Orleans College of Pharmacy.

New Orleans is 1,344 miles from New York and 2,477 miles from San Francisco.

WASHINGTON, D. C.

Besides being the capital of the country, and hence of peculiar interest to visitors from other nations, Washington, a city of 437,571 inhabitants, is also one of the leading educational centers. University and college education are furnished by:

American University, graduate school of arts and sciences (coeducational), under Methodist Episcopal control.
Catholic University of America (for men), under Roman Catholic control:
School of Letters.
School of Law.
School of Philosophy.
Department of Education.
School of Sacred Sciences (Roman Catholic).
School of Sciences.
Graduate Departments.
Catholic Sisters College (affiliated with the Catholic University of America), liberal arts (for the sisterhood) under Roman Catholic control.
Trinity College (affiliated with the Catholic University of America), liberal arts (for women), under Roman Catholic control.
Gallaudet College (for the deaf), liberal arts and sciences (coeducational), under national control.
Georgetown University (for men), under Roman Catholic control:
Georgetown College, arts and science.
School of Medicine.
Dental School.
School of Law.
Graduate School.
Foreign Service School.

George Washington University (coeducational), nonsectarian:
- Columbian College, arts and science.
- School of Graduate Studies.
- College of Engineering.
- Teachers College.
- Law School.
- Medical School.
- College of Pharmacy.

Howard University (colored) (coeducational), under national control:
- School of Liberal Arts.
- School of Education.
- School of Commerce and Finance.
- School of Applied Science.
- School of Music.
- School of Religion (interdenominational).
- School of Medicine—
  - Medical College.
  - Dental College.
  - Pharmaceutic College.
- School of Law.

National University Law School.
Washington College of Law.
United States College of Veterinary Surgeons.

Washington is 225 miles from New York, 3,116 miles from San Francisco, and 1,118 miles from New Orleans.

SECTION III.

CHAPTER I.

COLLEGE ENTRANCE REQUIREMENTS.

Admission to American colleges or the collegiate divisions of universities is usually based upon the completion of a four-year secondary school course or its equivalent. Since there is considerable variation in the courses and standards of secondary schools, colleges have come by common consent to express their entrance requirements in terms of "units." The following definition of a "unit" is now generally accepted by both colleges and secondary schools throughout the country:

A unit represents a year's study in any subject in a secondary school, constituting approximately a quarter of a full year's work. A four-year secondary school curriculum should be regarded as representing not more than 16 units of work.

This statement is designed to afford a standard of measurement for the work done in secondary schools. It takes the four-year high-school course as a basis, and assumes that the length of the school year is from 36 to 40 weeks, that a period is from 40 to 60 minutes in length, and that the study is pursued for four or five periods a week; but under ordinary circumstances, a satisfactory year's work in any subject can not be accomplished in less than one hundred and twenty 60-minute hours or their equivalent. Schools organized on any other than a four-year basis can, nevertheless, estimate their work in terms of this unit.

From the foregoing definition it appears that the four-year high-school course normally consists of 16 units of work. The entrance requirements of most standard colleges call for the completion of from 14 to 16 units. Colleges which require less than 14 units for admission are not regarded as standard.

Two methods of admission are common. Throughout the West and Middle West, and to a certain extent in the East also, colleges admit by certificate. Under this plan a candidate for entrance must present a statement from the principal or head master of the school which he has attended, showing the amount and character of the work he has done. If the certificate indicates that the studies required for entrance by the college have been satisfactorily pursued, and if

the standing of the school issuing the certificate is known and approved by the college authorities, the candidate is admitted without further formalities.

The other method of admission, in vogue in a number of the older institutions in the East, is by examination. In order to systematize both the entrance examinations and the courses offered by the secondary schools in preparation for them, some 30 institutions which admit by this method, together with the principal associations of colleges and secondary schools, have formed an organization to conduct examinations, known as the College Entrance Examination Board. A student is admitted by any college which is a member of the board if he passes the examination set by the board in the subjects required by the college for entrance. The standards maintained by the board are so high that a certificate showing that a candidate has passed its examinations is generally accepted for entrance by other institutions also. Nevertheless, a few institutions which admit by examination prefer to conduct their own examinations.

The statements of the entrance requirements of the 74 institutions described in Section VI indicate that there is a wide variation not only in the subjects required by different institutions, but also in the number of units prescribed and in the way in which these units are distributed. Whether a student enters on a secondary school certificate or on the certificate of the College Entrance Examination Board or takes the special examinations of the institution he means to attend, he must meet the specific requirements of that institution in the matter of subjects and units prescribed.

The examinations of the College Entrance Examination Board cover almost the whole range of subjects required or accepted for college entrance by the leading institutions of the country. Its definitions of the content of these subjects may therefore serve to show the scope of secondary education in the various branches. The essential parts of its latest circular are quoted in the following pages. By consulting it the foreign student who plans to enter an American college should be able to estimate whether his preliminary studies have fitted him for admission to the college of his choice. Most institutions are willing to make certain concessions from the strict letter of the requirements to students from foreign countries who can demonstrate an equivalent preparation in subjects other than those prescribed.

The board holds examinations in almost every State and in several foreign countries, including Canada, England, and France; also in the Canal Zone, Hawaii, and Porto Rico. A document showing places of examination will be sent on receipt of 15 cents by the secretary, 431 West 117th Street, New York, N. Y.

COLLEGE ENTRANCE SUBJECTS AS DEFINED BY THE COLLEGE ENTRANCE EXAMINATION BOARD.

English	*1.*	Grammar and composition.
	2.	Literature.[58]
History	*A.*	Ancient history.
	B.	Medieval and modern history.
	C.	Modern history.
	D.	English history.
	E.	American history.
	F.	Civil government.
	G.	American history and civil government.
Latin	*1.*	Grammar.
	2.	Elementary prose composition.
	3.	Second-year Latin.
	4.	Cicero and sight translation of prose.
	12¼.	Latin *1*, *2*, and *¼* combined.
	5.	Vergil and sight translation of poetry.
	6.	Advanced prose composition.
	P.	Sight translation of prose.
	Q.	Sight translation of poetry.
Greek	*A1.*	Grammar.
	A2.	Elementary prose composition.
	B.	Xenophon (*Anabasis*, I–IV).
	C.	Homer (*Iliad*, I–III).
	F.	Prose composition.
	G.	Sight translation of Attic prose.
	BG.	Xenophon (*Anabasis*, I–IV) and sight translation of Attic prose.
	CH.	Homer (*Iliad*, I–III) and sight translation of Homer.
French	*A.*	Elementary (first and second years).
	B.	Intermediate (third year).
	BC.	Intermediate and advanced (third and fourth years).
German	*A.*	Elementary (first and second years).
	B.	Intermediate (third year).
	BC.	Intermediate and advanced (third and fourth years).
Spanish		
Mathematics	*A.*	Elementary algebra complete.
	A1.	Algebra to quadratics.
	A2.	Quadratics and beyond.
	B.	Advanced algebra.
	C.	Plane geometry.
	D.	Solid geometry.
	CD.	Plane and solid geometry.
	E.	Plane and spherical trigonometry.
	F.	Plane trigonometry.

[58] The candidate must submit a teacher's certificate covering his reading in English literature. A suitable blank form for the certificate may be obtained from the secretary of the College Entrance Examination Board; but the certificate must be sent by mail to the *Chairman of the Committee on Admission* of the university, college, or scientific school that the candidate wishes to enter.

Biology [60]
Botany [60]
Chemistry [60]
Drawing—Freehand drawing.
Mechanical drawing.[60]
Geography [60]
Music—Harmony.
Physics [60]
Zoölogy [60]

The following scale of values of admission requirements in terms of units has received the indorsement of the College Entrance Examination Board:

	Units.
English 1	1½
2	1½
History A	1
B	1
C	1
D	1
E	1
Civil Government	½
Latin 1[61]	1
2[61]	1
3[61]	2
4[61]	1
5[61]	1
6[61]	½
Greek A1	½
A2	½
B	1
C	1
CH	1
P	½
French 1	2
B	1
C	1
German A	2
B	1
C	1
Spanish	2
Mathematics 1	2
A1	1
A2	1
B	½
C	1
D	½
E	½
F	½
Physics	1
Chemistry	1
Biology	1
Botany	1
Geography	1
Zoology	1
Drawing—	
Freehand	1
Mechanical	1
Music	1

Literature.

The second object is sought by means of the reading and study of a number of books from which may be framed a progressive course in literature. The student should be trained in reading aloud and should be encouraged to com-

[60] In each of these subjects the candidate must submit a teacher's certificate covering his laboratory work. A suitable blank form for the certificate may be obtained from the secretary of the College Entrance Examination Board; but the certificate must be mailed to the *Chairman of the Committee on Admission* of the university, college, or scientific school that the candidate wishes to enter.

[60] In mechanical drawing (but not in freehand drawing) the candidate must submit a number of certified plates. These plates should be sent by mail or express to the *Secretary of the College Entrance Examination Board* at the earliest possible date in advance of the examination in mechanical drawing. If the candidate's plates are unsatisfactory, his examination will be invalidated. A blank form indicating the character of the certificate required may be obtained from the secretary of the College Entrance Examination Board.

[61] Latin 1, 2, 4, and 5 are counted as one unit each, 3 as two units, and 6 as one-half unit; but 3 has no assigned value unless offered alone; 1, 2, and 6 have no assigned values unless offered with 4 or 5, and in no case is the total requirement to be counted as more than four units.

mit to memory notable passages both in verse and in prose. As an aid to literary appreciation, he is further advised to acquaint himself with the most important facts in the lives of the authors whose works he reads and with their place in literary history. He should read the books carefully, but his attention should not be so fixed upon details that he fails to appreciate the main purpose and charm of what he reads.

A few of these books should be read with special care, greater stress being laid upon form and style, the exact meaning of words and phrases, and the understanding of allusions.

EXAMINATION, 1920–1922.

Candidates will have the option of taking either of two examinations: (1) Comprehensive; (2) restricted. The comprehensive examination is described on page 193. The following statements apply to the restricted examination.

However accurate in subject matter, no paper will be considered satisfactory if seriously defective in punctuation, spelling, or other essentials of good usage.

Grammar and Composition.

In grammar and composition, the candidate may be asked specific questions upon the practical essentials of these studies, such as the relation of the various parts of a sentence to one another, and those good usages of modern English which one should know in distinction from current errors. The main test in composition will consist of one or more essays developing a theme through several paragraphs; the subjects will be drawn from the books read, from the candidate's other studies, and from his personal knowledge and experience quite apart from reading. For this purpose the examiner will provide several subjects, perhaps 8 or 10, from which the candidate may make his own selections. He will not be expected to write more than 400 words an hour.

DEFINITION OF REQUIREMENTS.

ENGLISH.

The requirement in English is that recommended by the National Conference on Uniform Entrance Requirements in English.

REQUIREMENT FOR 1920–1922.

The study of English in school has two main objects, which should be considered of equal importance: (1) Command of correct and clear English, spoken and written; (2) ability to read with accuracy, intelligence, and appreciation, and the development of the habit of reading good literature with enjoyment.

Grammar and Composition.

The first object requires instruction in grammar and composition. English grammar should ordinarily be reviewed in the secondary school; and correct spelling and grammatical accuracy should be rigorously exacted in connection with all written work during the four years. The principles of English composition governing punctuation, the use of words, sentences, and paragraphs should be thoroughly mastered; and practice in composition, oral as well as written, should extend throughout the secondary school period. Written exercises may well comprise letter writing, narration, description, and easy exposition and

argument. It is advisable that subjects for this work be taken from the student's personal experience, general knowledge, and studies other than English, as well as from his reading in literature. Finally, special instruction in language and composition should be accompanied by concerted effort of teachers in all branches to cultivate in the student the habit of using good English in his recitations and various exercises, whether oral or written.

Literature.

The examination will include:

A. Questions designed to test such knowledge and appreciation of literature as may be gained by an intelligent reading of the books given in List *A* below.

B. A test on the books in List *B* below. This will consist of questions upon their content, form, and structure, and upon the meaning of such words, phrases, and allusions as may be necessary to an understanding of the works and an appreciation of their salient qualities of style. General questions may also be asked concerning the lives of the authors, their other works, and the periods of literary history to which they belong.

Division of Examination.

When parts *A* and *B* of the examination are taken at different times, each will include a test in grammar and composition.

LIST OF BOOKS, 1920-1922.

A. Books for Reading.

The books provided for reading are arranged in the following groups, from each of which at least two selections are to be made, except that for any book in Group I a book from any other may be substituted.

GROUP I—CLASSICS IN TRANSLATION.

The Old Testament, at least the chief narrative episodes in Genesis, Exodus, Joshua, Judges, Samuel, Kings, and Daniel, together with the books of Ruth and Esther.

The Odyssey, with the omission, if desired, of Books I-V, XV, and XVI.

The Æneid.

The Odyssey and the Æneid should be read in English translations of recognized literary excellence.

GROUP II—DRAMA.

Shakespeare: Merchant of Venice, As You Like It, Julius Cæsar.

GROUP III—PROSE FICTION.

Dickens: A Tale of Two Cities.
George Eliot: Silas Marner.
Scott: Quentin Durward.
Hawthorne: The House of the Seven Gables.

GROUP IV—ESSAYS, BIOGRAPHY, ETC.

Addison and Steele: The Sir Roger de Coverley Papers.
Irving: The Sketch Book—selections covering about 175 pages.
Macaulay: Lord Clive.
Parkman: The Oregon Trail.

GROUP V—POETRY.

Tennyson: The Coming of Arthur, Gareth and Lynette, Lancelot and Elaine, The Passing of Arthur.

Browning: Cavalier Tunes, The Lost Leader, How They Brought the Good News from Ghent to Aix, Home Thoughts from Abroad, Home Thoughts from the Sea, Incident of the French Camp, Hervé Riel, Pheidippides, My Last Duchess, Up at a Villa—Down in the City, The Italian in England, The Patriot, The Pied Piper, "De Gustibus"—, Instans Tyrannus.

Scott: The Lady of the Lake.

Coleridge: The Ancient Mariner, and Arnold: Sohrab and Rustum.

B. **Books for Study.**

The books provided for study are arranged in four groups, from each of which one selection is to be made.

GROUP I—DRAMA.

Shakespeare: Macbeth or Hamlet.

GROUP II—POETRY.

Milton: L'Allegro, Il Penseroso, Comus.

Book IV of Palgrave's Golden Treasury (First Series), with special attention to Wordsworth, Keats, and Shelley.

GROUP III—ORATORY.

Burke: Speech on Conciliation with America.

Washington's Farewell Address, Webster's First Bunker Hill Oration, and Lincoln's Gettysburg Address.

GROUP IV—ESSAYS.

Macaulay: Life of Johnson.

Carlyle: Essay on Burns, with a brief selection from Burns's Poems.

HISTORY AND CIVIL GOVERNMENT.

The requirements in history and civil government were defined by a special Commission of Eleven authorized by the College Entrance Examination Board November, 1916, and appointed by the Committee of Review, April, 1917. The requirements are based upon the recommendations of the Committee of Seven (1898), and of the Committee of Five (1910) of the American Historical Association.

Subjects *A*, *B*, *D*, and *G* correspond, in general, respectively, to the successive subjects outlined for a four-year course in History in *The Study of History in Schools: Report to the American Historical Association by the Committee of Seven*, (New York, Macmillan, 1899), and with more detail in *A History Syllabus for Secondary Schools by a Special Committee of the New England History Teachers' Association* (Boston, Heath, 1904), though some changes of emphasis are suggested in the present statement. Subject *C* corresponds substantially with the Subject *C* suggested on page 64 *of The Study of History in Secondary Schools; Report to the American Historical Association by a Committee of Five* (New York, Macmillan, 1911). Subjects *E* and *F* represent the

same content as Subject *G*, but are arranged for the benefit of those schools which give fuller instruction in either or both of these subjects than the year contemplated for Subject *G*.

In each of the subjects, except *I*, the following preparation is required:

1. Historical instruction in a high school or academy for one year to the extent specified in the definition of the Unit of Admission Requirements.

2. The study of an accurate historical textbook, in which not less than 300 pages of text are devoted to the particular subject.

3. Collateral reading of appropriate selections, in books of a less elementary nature, amounting to at least 500 pages.

4. The ability to compare historical characters, periods, and events, and in general the power to combine in orderly fashion the results of reading, and to exercise judgment as well as memory.

5. The ability to locate places historically important and to describe territorial changes and other historical movements on an outline map, acquired from the study of physical as well as political geography with the aid of map work.

A. Ancient History.

One unit.

The course should devote one-half of the year to the study of the history of the ancient Orient and of Greece as far as the death of Alexander and the break up of his empire; with the study of Western Hellas to the death of Timoleon. The second half year should be devoted to the study of the history of Rome as far as the death of Charlemagne. During this half year time should be found for the study of the Hellenistic Period of Greek history and the merging of the story of Greece with the story of Rome.

Since not more than one-tenth of the whole time available can be allotted to the study of the history of the Orient, only so much of its narrative history should be studied as will hold the story together and fix its geography and its time relations, including some fixed dates of early chronology. Emphasis should be laid not upon the details of military and political history but upon the civilization developed by the different peoples of the Orient, with particular reference to the contributions which they made to later ages.

When we pass to the study of Greek history little time should be spent on the period prior to the Persian Wars, except to deal concretely with Homeric society and to emphasize the expansion of Hellas. From the Persian Wars to the death of Alexander the study should be exact and thorough, with special reference to the political, intellectual, and artistic development of Hellas during the Age of Pericles. Instead of trying to trace the constitutional development of Athens and of Sparta from the beginning, the working of government in these states at this, the time of their maturity, should be mastered.

In the period following the death of Alexander no attempt should be made to follow the intricate political history of the time, but opportunity should be taken either at this point or, preferably, in the second half-year, just prior to studying the Roman conquest of the East, to dwell upon federal government in Greece and bureaucratic government in Egypt; upon science, philosophy, literature, art; and especially religion—the decaying religion of Greece and the expanding cults in the East—in a word, upon the formation of the mixed Greco-Oriental culture of which Rome became the heir.

At the beginning of the second half-year the history of Rome to about the year 300 B. C. should be covered very rapidly; the Roman religion being made the most important subject of study. The attempt should be made

rather to understand the organization and working of Senatorial government in the third and second centuries B. C. than to trace the changes made in Roman institutions in the fifth and fourth centuries. From 300 B. C. to the death of Marcus Aurelius the study must be relatively detailed and thorough. After this period the course should move rapidly, lingering only on the reigns of Diocletian, Constantine, and Justinian. The period of, and after, the Barbarian Invasions must be viewed from the Roman side. Hence little attention should be given to Germanic or Mohammedan migrations and institutions and to the beginnings of the modern nations, but emphasis should be placed upon those institutions which helped to preserve and to pass on to later ages the contributions of Roman civilization; as, for example, the development of Roman law and of the Christian Church. Throughout, wherever possible, the treatment should be biographical.

B. **Medieval and Modern History.**

One unit.

The broad plan of this course should be to devote one-quarter of the year's work to the period prior to about 1300 A. D., closing with the death of Pope Boniface VIII; the second quarter should carry forward to about 1660, closing with the readjustments in the treaties of Westphalia and of the Pyrenees; the third quarter should close with the Congress of Vienna in 1815; and the work of the fourth quarter should be adjusted so as to give the last half of the time to events since 1878, with the purpose of explaining clearly the causes and the issues of the war of 1914.

The contribution of the Roman Empire, the Germans, the Christian Church, and Mohammedanism to medieval civilization, form the introduction to the study of feudalism, the Crusades, the formation of European states, and the varied aspects of medieval society. The several phases of the Renaissance and of the Reformation should be supplemented by study of the discoveries outside of Europe and of colonial rivalries. The absolute monarchy of Louis XIV, the enlightened despotism of Frederick the Great, and the republican government of Revolutionary France should be explained as types in the development of government on the continent. While the Napoleonic period should not be neglected, special emphasis should be laid upon the Industrial Revolution—its political and social aspects—upon the growth of nationalism and democracy, and upon the economic expansion of European states outside of Europe.

C **Modern History.**

One unit.

After a brief survey of the international and colonial developments since the age of discovery, the course should begin with a cross-section of the governmental, social, and cultural conditions in Europe about 1660 A. D. The absolute monarchy of Louis XIV, the parliamentary government of England, the enlightened despotism of Frederick the Great, and the republican government of Revolutionary France and the imperialism of Napoleon should be studied as types of government in the transition from medieval feudalism to present-day democracy. Attention should be given to the growth of national states and to the leading international and colonial problems since 1660 which culminate in the British Empire with its self-governing dominions, the partition of Africa, the awakening of the Far East, and the great international rivalries

of the present generation. Emphasis should be laid upon the Industrial Revolution—its political and social aspects—and some attention should be given to the leading features of the internal history of England, France, and Germany. The study of the last half century should include some account of the great material changes, important inventions, and intellectual, social, and humanitarian movements.

D. English History.

One unit.

The division of the work between the two half years should be made at about 1660.

During the first half year, the periods of the early Plantagenets (Henry II and Edward I), of the Tudors, and of the early Stuarts should receive emphasis. Though the economic conditions and the relations with Scotland and France and later with Spain are interesting as well as important, some attention should be given to such more difficult topics as Anglo-Norman feudalism; the origins of the Constitution, especially the Great Charter and the rise of Parliament; and the development from feudal monarchy toward parliamentary government. Some attempt also should be made to explain the development and character of the Christian church in England, its relations with papacy, the later severance of these relations, the establishment of the national church, and the Puritan movement.

In the second half year, starting with the Restoration, attention should first be given to the continued struggle between Crown and Parliament, culminating in the establishment of responsible government. In studying the great wars with France, attention should be directed to the commercial and colonial expansion in America and in the East. With regard to imperial policy, the causes and effects of the Scottish and Irish unions and the revolt of the American colonies should be explained. The study of the revolution in agriculture, industry, and transportation should include some consideration of the consequent political and social reforms. Since the Reform Act of 1867, emphasis should be laid upon the more important reforms affecting economic, social, and political life, and upon the problem of Ireland. Some idea should be given of the growth and nature of British power in India, and the problem of imperial organization.

In general, it is desirable to emphasize the important epochs and the greater movements rather than to give each reign equal stress; to trace developments in so far as possible; to secure a clear comprehension of the more influential personalities; and to show the relations of English history to the history of other countries, especially the United States.

E. American History.

One unit.

The course in American history should be so arranged that the work of the first half year will include the administration of John Quincy Adams, while that of the second half year will include events of recent occurrence. In the work of the first half year considerably more time should be spent on the period from 1763 to 1829 than on the period from early times to 1763; and in the work of the second half year more time should be given to the period since the Civil War than to that before.

For the guidance of both teachers and students the following suggestions are made:

1. That such topics as the routes of the principal discoverers and explorers, the resulting claims and settlements, campaigns of the principal wars, and territorial growth of the United States be studied primarily as map work.

2. That the European background should be given particular attention during the colonial period and during the national period to 1823.

3. That the various attempts at colonial union, the experiments in federal government, and the growth of federal power be especially emphasized.

4. That too much time should not be given to the topics of slavery, secession, and the reconstruction period. Instead, special attention should be paid to territorial expansion, and social and industrial growth.

5. That special importance should be accorded the policy of the United States in foreign affairs, tariff, banking, civil service, currency, corporation control, conservation of national resources, capital and labor, and other present-day problems.

6. That familiarity with the lives of great Americans should be especially encouraged.

F. Civil Government.

One-half unit.

Civil government in the United States (National, State, and local), its constitution, organization, and [illegible] working.

The candidate will be expected to show such knowledge of the field as may be acquired from the study of a good textbook of not less than 300 pages, supplemented by collateral reading and discussion.

For the guidance of both teacher and student the following list of topics is suggested:

1. The purposes of government, including prevention of crime, care of dependents, preservation of public health, education, taxation, conservation of natural resources, immigration, and control of commerce.

2. The division of power and of activities among Federal, State, and local governments.

3. The Federal Government: its organization and working.

4. State government: its organization, scope, and problems.

5. Local government, with special attention to the forms and problems of municipal government.

6. Parties: their function and organization; the machinery of nomination and election.

7. Attempts at reform: initiative and referendum, recall, short ballot, etc.

NOTE.—The above list of topics is not intended to be exhaustive, but rather to suggest such representative topics as should be included in the school course.

G. American History and Civil Government.

One unit.

Candidates who wish to offer American history and civil government should devote approximately two-thirds of the allotted time to the study of American history, and one-third to the study of civil government. How this division of time should be arranged must be left to the experience of the individual teachers, since the practice has been found to vary so widely that no general direction can be given.

In the time devoted to the study of American history the course should cover lightly the period of discovery and settlement and the colonial period to 1763.

The period from 1763 to 1837 should be covered with care. In the same way less emphasis may be placed upon the period from the end of the administration of Andrew Jackson to 1865 in order that time may be found to stress the period since the Civil War.

In the time devoted to the study of civil government the student should make a careful study of the Constitution of the United States, of the Federal Government, its powers, organization, and workings; should understand the relations between the State and the Federal Government, and the general nature and extent of the powers reserved to the States.

The examiners in preparing the question papers will be influenced by the consideration that the work of this course must be done more thinly than in course E and with much less time for collateral reading.

1. That such topics as the routes of the principal discoverers and explorers, the resulting claims and settlements, campaigns of the principal wars, and the territorial growth of the United States be studied as map work.

2. That the various attempts at colonial union, the experiments in Federal Government, and the growth of Federal power be especially emphasized.

3. That too much time should not be given to the topics of slavery, secession, and the reconstruction period. Instead special attention should be paid to territorial expansion, and social and industrial growth.

4. That special importance should be accorded the policy of the United States in foreign affairs, tariff, banking, civil service, currency, corporation control, conservation of national resources, capital and labor, and other present-day problems.

5. That familiarity with the lives of great Americans should be especially encouraged.

The following topics should be mentioned:

6. The purposes of government, including prevention of crime, care of dependents, preservation of public health, education, taxation, immigration, and control of commerce.

7. The division of power and of activities among Federal, State, and local governments.

8. The Federal Government: its organization and working.

9. State government: its organization, scope, and problems.

10. Parties: their function and organization; the machinery of nomination and election.

11. Attempts at reform: initiative and referendum, recall, short ballot, etc.

NOTE.—The above list is not intended to be exhaustive but rather to suggest such representative topics as should be included in the school course.

LATIN—NEW REQUIREMENTS.

The following requirements in Latin are in accordance with the recommendations made to the American Philological Association by the Commission on College Entrance Requirements in Latin, October, 1909.[a]

I. Amount and Range of the Reading Required.

(1) The Latin reading, without regard to the prescription of particular authors and works, shall be not less *in amount* than Cæsar, Gallic War, I–IV; Cicero, the orations against Catiline, for the Manilian Law, and for Archias; Vergil, Æneid, I–VI.

(2) The amount of reading specified above shall be selected by the schools from the following authors and works: Cæsar (Gallic War and Civil War) and

[a] This commission and its work are described in the Tenth Annual Report of the secretary of the College Entrance Examination Board, pages 4–7.

Nepos (Lives); Cicero (orations, letters, and De Senectute) and Sallust (Catiline and Jugurthine War); Vergil (Bucolics, Georgics, and Aeneid) and Ovid (Metamorphoses, Fasti, and Tristia).

II. Scope of the Examinations.

(1) *Translation at sight.*—Candidates will be examined in translation at sight of both prose and verse. The vocabulary, constructions, and range of ideas of the passages set will be suited to the preparation secured by the reading indicated above.

(2) *Prescribed Reading.*—Candidates will be examined also upon the following prescribed reading:

In 1919, Cicero, orations for the Manilian Law, and for Archias; Vergil, Aeneid, I, II, and either IV or VI, at the option of the candidate.

In 1920, 1921, and 1922, Cicero, the third oration against Catiline and the orations for Archias and Marcellus; Vergil, Aeneid, II, III, and VI.

In 1923, 1924, and 1925, Cicero, the fourth oration against Catiline and the oration for the Manilian Law; Vergil, Aeneid, I and IV; Ovid, Metamorphoses, Book III, 1–137 (Cadmus); IV, 55–166 (Pyramus and Thisbe), and 663–764 (Perseus and Andromeda); VI, 165–312 (Niobe); VIII, 183–235 (Daedalus and Icarus); X, 1–77 (Orpheus and Eurydice); XI, 85–145 (Midas).

Accompanying the different passages will be questions on subject matter, literary and historical allusions, and prosody. Every paper in which passages from the prescribed reading are set for translation will contain also one or more passages for translation at sight; and candidates must deal satisfactorily with both these parts of the paper, or they will not be given credit for either part.

(3) *Grammar and Composition.*—The examinations in grammar and composition will demand thorough knowledge of all regular inflections, all common irregular forms, and the ordinary syntax and vocabulary of the prose authors read in school, with ability to use this knowledge in writing simple Latin prose.

Suggestions Concerning Preparation.

Exercises in translation at sight should begin in school with the first lessons in which Latin sentences of any length occur, and should continue throughout the course with sufficient frequency to insure correct methods of work on the part of the student. From the outset particular attention should be given to developing the ability to take in the meaning of each word—and so, gradually, of the whole sentence—just as it stands; the sentence should be read and understood in the order of the original, with full appreciation of the force of each word as it comes, so far as this can be known or inferred from that which has preceded, and from the form and the position of the word itself. The habit of reading in this way should be encouraged and cultivated as the best preparation for all the translating that the student has to do. No translation, however, should be a mechanical metaphrase. Nor should it be a mere loose paraphrase. The full meaning of the passage to be translated, gathered in the way described above, should finally be expressed in clear and natural English.

A written examination can not test the ear or tongue; but proper instruction in any language will necessarily include the training of both. The school work in Latin, therefore, should include much reading aloud, writing from dictation, and translation from the teacher's reading. Learning suitable passages by heart is also very useful, and should be more practised.

The work in composition should give the student a better understanding of the Latin he is reading at the time, if it is prose, and greater facility in read-

ing. It is desirable, however, that there should be systematic and regular work in composition during the time in which poetry is read as well; for this work the prose authors already studied should be used as models.

Subjects for Examination.

Latin 1, 2, 4, and 5 are counted as one unit each, 3 as two units, and 6 as one-half unit; but 3 has no assigned value unless offered alone; 1, 2, and 6 have no assigned values unless offered with 4 or 5, and in no case is the total requirement to be counted as more than four units.

1. **Grammar.** The examination will presuppose the reading of the required amount of prose (see I, 1 and 2), including the prose works prescribed (see II, 2).

2. **Elementary Prose Composition.** The examination will presuppose the reading of the required amount of prose (see I, 1 and 2), including the prose works prescribed (see II, 2).

3. **Second-Year Latin.** This examination is offered primarily for candidates intending to enter colleges which require only two years of Latin or accept so much as a complete preparatory course. It will presuppose reading not less in amount than Cæsar, *Gallic War*, I–IV, selected by the schools from Cæsar (*Gallic War* and *Civil War*) and Nepos (*Lives*); but the passages set will be chosen with a view to sight translation. The paper will include easy grammatical questions and some simple composition.

4. **Cicero**[83] (orations for the Manilian Law and for Archias) **and Sight Translation of Prose.**—The examination will presuppose the reading of the required amount of prose (see I, 1 and 2).

12½. **Latin 1, 2, and 4 combined.**

5. **Vergil**[83] (*Æneid*, I, II, and either IV or VI, at the option of the candidate) **and Sight Translation of Poetry.**—The examination will presuppose the reading of the required amount of poetry (see I, 1 and 2).

6. **Advanced Prose Composition.**

LATIN—OLD REQUIREMENTS.

The recommendations of the Committee of Twelve of the American Philological Association were included in the Report of the Committee of the National Education Association on College Entrance Requirements. Some of the examinations in Latin formerly held by the board are now superseded by examinations described above.

P. **Advanced Sight Translation of Prose** of no greater difficulty than ordinary passages from Cicero's orations.

Q. **Sight Translation of Poetry** of no greater difficulty than Vergil's *Æneid*.

GREEK.

The following requirements in Greek conform as closely as possible to the recommendations of the Committee of Twelve of the American Philological Association.

A1 **Grammar.**—The inflections; the simpler rules for composition and derivation of words; syntax of cases and the verbs; structure of sentences in general, with particular regard to relative and conditional sentences, indirect discourse, and the subjunctive.[84] *One-half unit.*

[83] In 1920 there will be a change in the Latin prescribed for intensive study; see pages 70 and 71.

[84] Some colleges consider Greek *A1* and Greek *A2* as together constituting a single indivisible subject.

A. Elementary Prose Composition, consisting principally of detached sentences to test the candidate's knowledge of grammatical construction.[64] *One-half unit.*

The examination in grammar and prose composition will be based on the first two books of Xenophon's *Anabasis*.

B. Xenophon.—The first four books of the *Anabasis*. *One unit.*

C. Homer—*Iliad*, I–III: The first three books of the *Iliad* (omitting II. 494–end), and the Homeric constructions, form, and prosody. *One unit.*

D. Prose Composition, consisting of continuous prose based on Xenophon and other Attic prose of similar difficulty. *One-half unit.*

E. Sight Translation of Attic Prose of no greater difficulty than Xenophon's *Anabasis*.

BC. Xenophon and Sight Translation of Prose.

CD. Homer—*Iliad*, I–III, and Sight Translation of Homer. *One unit.*

FRENCH.

The requirements in French follow the recommendations of the Committee of Twelve of the Modern Language Association of America.[65]

1. Elementary French.

Two units.

THE AIM OF THE INSTRUCTION.

At the end of the elementary course the pupil should be able to pronounce French accurately, to read at sight easy French prose, to put into French simple English sentences taken from the language of every-day life or based upon a portion of the French text read, and to answer questions on the rudiments of the grammar as defined below.

THE WORK TO BE DONE.

During the first year the work should comprise:

1. Careful drill in pronunciation.
2. The rudiments of grammar, including the inflection of the regular and the more common irregular verbs, the plural nouns, the inflection of adjectives, participles, and pronouns; the use of personal pronouns, common adverbs, prepositions, and conjunctions; the order of words in the sentence, and the elementary rules of syntax.
3. Abundant easy exercises, designed not only to fix in the memory the forms and principles of grammar, but also to cultivate readiness in the reproduction of natural forms of expression.
4. The reading of from 100 to 175 duodecimo pages of graduated texts, with constant practice in translating into French easy variations of the sentences read (the teacher giving the English) and in reproducing from memory sentences previously read.
5. Writing French from dictation.

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[64] Some colleges consider Greek *A* and Greek *A'* as together constituting a single indivisible subject.

[65] The Report of the Committee of Twelve, which was submitted in December, 1898, may be obtained in separate book form from D. C. Heath & Co.; The lists of texts at present given in the requirements of the College Entrance Examination Board were recommended by a committee of the Modern Language Association in December, 1910.

Suitable texts for the first year are: A well graded reader for beginners; Bruno: *Le tour de la France*; Compayré: *Yvan Gall*; Laboulaye: *Contes bleus*; Malot: *Sans famille*.

During the second year the work should comprise:

1. The reading of from 250 to 400 pages of easy modern prose in the form of stories, plays, or historical or biographical sketches.
2. Constant practice, as in the previous year, in translating into French easy variations upon the texts read.
3. Frequent abstracts, sometimes oral and sometimes written, of portions of the text already read.
4. Writing French from dictation.
5. Continued drill upon the rudiments of grammar, with constant application in the construction of sentences.
6. Mastery of the forms and use of pronouns, pronominal adjectives, of all but the rare irregular verb forms, and of the simpler uses of the conditional and subjunctive.

Suitable texts for the second year are: Daudet, *La Petit Chose*; Erckmann-Chatrian, stories; Halévy, *L'Abbé Constantin*; Labiche et Martin, *Le voyage de M. Perrichon*; Lavisse, *Histoire de France*.

B. Intermediate French.

One unit.

THE AIM OF THE INSTRUCTION.

At the end of the intermediate course the pupil should be able to read at sight ordinary French prose or simple poetry, to translate into French a connected passage of English based on the text read, and to answer questions involving a more thorough knowledge of syntax than is expected in the elementary course.

THE WORK TO BE DONE.

This should comprise the reading of from 400 to 600 pages of French of ordinary difficulty, a portion to be in the dramatic form; constant practice in giving French paraphrases, abstracts or reproductions from memory of selected portions of the matter read; the study of a grammar of moderate completeness; writing from dictation.

Suitable texts for the third year are: Bazin, *Les Oberlé*; Dumas, novels; *Mérimée, Colomba*; Sandeau, *Mlle. de la Seiglière*; Tocqueville, *Voyage en Amérique*.

C. Advanced French.[a]

One unit.

THE AIM OF THE INSTRUCTION.

At the end of the advanced course the pupil should be able to read at sight, with the help of a vocabulary of special or technical expressions, difficult French not earlier than that of the seventeenth century; to write in French a short essay on some simple subject connected with the works read; to put into French a passage of easy English prose; and to carry on a simple conversation in French.

[a] The board does not hold a separate examination in advanced French; in place of it an examination is held covering the intermediate and advanced requirements in combination as a single subject.

THE WORK TO BE DONE.

This should comprise the reading of from 600 to 1,000 pages of standard French, classical and modern, only difficult passages being explained in the class; the writing of numerous short themes in French; the study of syntax.

Suitable texts for the fourth year are: Daudet, *La dernière classe*; Erckmann-Chatrian, *Le conscrit de 1813*; Labiche, *La poudre aux moineaux*; Sandeau, *Mlle de la Seiglière*; Augier, *Le gendre de M. Poirier*; Dumas, *La question d'argent*; Hugo, *Quatre-vingt-treize* or *Les misérables*; Loti, *Pêcheur d'Islande*; Taine, *L'ancien régime*; Vigny, *Cinq-Mars*; an anthology of verse.

BC. Intermediate French and Advanced French.

Two units.

GERMAN.

The requirements in German follow the recommendations of the Committee of Twelve of the Modern Language Association of America.[67]

1. Elementary German.

Two units.

THE AIM OF THE INSTRUCTION.

At the end of the elementary course in German the pupil should be able to read at sight, and to translate, if called upon, by way of proving ability to read, a passage of very easy dialogue or narrative prose, help being given upon unusual words and construction, to put into German short English sentences taken from the language of every-day life or based upon the text given for translation, and to answer questions upon the rudiments of the grammar, as defined below.

THE WORK TO BE DONE.

During the first year the work should comprise:

1. Careful drill upon pronunciation.
2. The memorizing and frequent repetition of easy colloquial sentences.
3. Drill upon the rudiments of grammar, that is, upon the inflection of the articles, of such nouns as belong to the language of every-day life, of adjectives, pronouns, weak verbs, and the more usual strong verbs; also upon the use of the more common prepositions, the simpler uses of the modal auxiliaries, and the elementary rules of syntax and word-order.
4. Abundant easy exercises designed not only to fix in mind the forms and principles of grammar, but also to cultivate readiness in the reproduction of natural forms of expression.
5. The reading of from 75 to 100 pages of graduated texts from a reader, with constant practice in translating into German easy variations upon sentences selected from the reading lesson (the teacher giving the English), and in the reproduction from memory of sentences previously read.

Suitable texts for the first year[68] are: After one of the many Readers especially prepared for beginners—Meissner's *Aus meiner Welt*; Bliithgen's *Das Peterle von Nürnberg*; Storm's *Immensee*, or any of Baumbach's short stories.

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[67] The Report of the Committee of Twelve, which was submitted in December, 1898, may be obtained in separate book form from D. C. Heath & Co. The lists of texts at present given in the requirements of the College Entrance Examination Board were recommended by a committee of the Modern Language Association in December, 1900.

[68] During each year at least six German poems should be committed to memory.

During the second year the work should comprise:

1. The reading of from 150 to 200 pages of literature in the form of easy stories and plays.
2. Accompanying practice, as before, in the translation into German of easy variations upon the matter read and also in the off-hand reproduction, sometimes orally and sometimes in writing, of the substance of short and easy selected passages.
3. Continued drill upon the rudiments of the grammar, directed to the ends of enabling the pupil, first, to use his or her knowledge with facility in the formation of sentences, and, secondly, to state his or her knowledge correctly in the technical language of grammar.

Suitable texts for the second year[*] are: Gerstäcker's *Germelshausen;* Eichendorff's *Aus dem Leben einer Taugenichts;* Waldenbruch's *Das edle Blut;* Jensen's *Die braune Erica;* Seidel's *Leberecht Hühnchen;* Fulda's *Unter vier Augen;* Benedix's *Lustspiele* (any one). For students preparing for a scientific school a scientific reader is recommended.

B. Intermediate German.

One unit.

THE AIM OF THE INSTRUCTION.

At the end of the intermediate course the pupil should be able to read at sight German prose of ordinary difficulty, whether recent or classical; to put into German a connected passage of simple English, paraphrased from a given text in German; to answer any grammatical questions relating to usual forms and essential principles of the language, including syntax and word-formation, and to translate and explain (so far as explanation may be necessary) a passage of classical literature taken from some text previously studied.

THE WORK TO BE DONE.

The work should comprise, in addition to the elementary course, the reading of about 400 pages of moderately difficult prose and poetry, with constant practice in giving, sometimes orally and sometimes in writing, paraphrases, abstracts, or reproductions from memory of selected portions of the matter read; also grammatical drill upon the less usual strong verbs, the use of articles, cases, auxiliaries of all kinds, tenses and modes (with special reference to the infinitive and subjunctive), and likewise upon word-order and word-formation.

Suitable texts for the third year[*] are: Heyse's, Riehl's, Keller's, Storm's, Meyer's, Ebner-Eschenbach's, W. Raabe's *Novellen* or *Erzählungen;* Schiller's *Wilhelm Tell;* Freytag's *Die Journalisten;* Heine's *Harzreise.*

C. Advanced German.

One unit.

THE AIM OF THE INSTRUCTION.

At the end of the advanced course the student should be able to read, after brief inspection, any German literature of the last one hundred and fifty years that is free from any unusual textual difficulties, to put into German a

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[*] At least six German poems should be committed to memory.

[†] The board does not hold a separate examination in advanced German. In place of it an examination is held covering the intermediate and advanced requirements in combination as a single subject.

passage of simple English prose, to answer in German questions relating to the lives and works of great writers studied, and to write in German a short independent theme upon some assigned topic.

THE WORK TO BE DONE.

The work of the advanced course should comprise the reading of about five hundred pages of good literature in prose and poetry, reference readings upon the lives and works of the great writers studied, the writing in German of numerous short themes upon assigned subjects, independent translation of English into German.

Suitable texts for the fourth year[11] are: Goethe's, Schiller's, Lessing's works and lives.

B[1]. Intermediate German and Advanced German.

Two units.

SPANISH.

Two units.

The requirement in Spanish, which follows the form and spirit of the recommendations made for French and German by the Committee of Twelve of the Modern Language Association, is based upon recommendations made by a committee of that association in December, 1910.

THE AIM OF THE INSTRUCTION.

At the end of the elementary course the pupil should be able to pronounce Spanish accurately, to read at sight easy Spanish prose, to put into Spanish simple English sentences taken from the language of every-day life or based upon a portion of the Spanish text read, and to answer questions on the rudiments of the grammar, as indicated below.

THE WORK TO BE DONE.

During the first year the work should comprise:

1. Careful drill in pronunciation.
2. The rudiments of grammar, including the conjugation of the regular and the more common irregular verbs, the inflection of nouns, adjectives, and pronouns, and the elementary rules of syntax.
3. Exercises containing illustrations of the principles of grammar.
4. The careful reading and accurate rendering into good English of about 100 pages of easy prose and verse, with translation into Spanish of easy variations of the sentences read.
5. Writing Spanish from dictation.

During the second year the work should comprise:

1. The reading of about 200 pages of prose and verse.
2. Practice in translating Spanish into English, and English variations of the text into Spanish.
3. Continued study of the elements of grammar and syntax.
4. Mastery of all but the rare irregular verb forms, and of the simpler uses of the modes and tenses.

[11] At least six German poems should be committed to memory.

5. Writing Spanish from dictation.
6. Memorizing of easy short poems.

The emphasis should be placed on careful thorough work, with much repetition rather than upon rapid reading. The reading should be selected from the following: A collection of easy short stories and lyrics, carefully graded; Juan Valera, *El pajaro verde*; Perez Escrich, *Fortuna*; Ramos Carrión and Vital Aza, *Zaragüeta*; Palacio Valdés, *Jose*; Pedro de Agüeron, *El Capitan Veneno*; the selected short stories of Pedro de Alarcón or Antonio de Trueba.

Every secondary school in which Spanish is taught should have in its library several Spanish-English and English-Spanish dictionaries, the all-Spanish dictionary of the Royal Spanish Academy; one or more manuals of the history of Spanish literature, such as that by Fitzmaurice-Kelly, and Ticknor's *History of Spanish Literature*.

MATHEMATICS.

The present definition of the requirements in mathematics is in accordance with recommendations made in September, 1903, by a committee of the American Mathematical Society.[a]

A. Elementary Algebra.

Two units.

The four fundamental operations for rational algebraic expressions.
Factoring, determination of highest common factor and lowest common multiple by factoring.
Fractions, including complex fractions, and ratio and proportion.
Linear equations, both numerical and literal, containing one or more unknown quantities.
Problems depending on linear equations.
Radicals, including the extraction of the square root of polynomials and of numbers.
Exponents, including the fractional and negative.
Quadratic equations, both numerical and literal.
Simple cases of equations with one or more unknown quantities, that can be solved by the methods of linear or quadratic equations.
Problems depending on quadratic equations.
The binomial theorem for positive integral exponents.
The formulas for the nth term and the sum of the terms of arithmetical and geometric progressions, with applications.

It is assumed that pupils will be required throughout the course to solve numerous problems which involve putting questions into equations. Some of these problems should be chosen from mensuration, from physics, and from commercial life. The use of graphical methods and illustrations, particularly in connection with the solution of equations, is also expected.

A1. Algebra to Quadratics.

One unit.

The first seven topics described under Elementary Algebra.

A2. Quadratics and Beyond.

One unit.

The last five topics described above under elementary algebra.

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[a] The Report of the Committee of the American Mathematical Society on Entrance Requirements in Mathematics was published in the *Bulletin of the American Mathematical Society* for November, 1903, vol. IX, no. 2.

B. Advanced Algebra.

One-half unit.

Permutations and combinations, limited to simple cases.

Complex numbers, with graphical representation of sums and differences.

Determinants, chiefly of the second, third, and fourth orders, including the use of minors and the solution of linear equations.

Theory of equations, and so much of the theory of equations, or graphical methods, as is necessary for their treatment, including Descartes' rule of signs and Horner's method, but not Sturm's functions or multiple roots.

C. Plane Geometry.

One unit.

The usual theorems and constructions of good textbooks,[7] including the general properties of plane rectilineal figures; the circle and the measurement of angles; similar polygons; areas; regular polygons and the measurement of the circle.

The solution of numerous original exercises, including loci problems.

Applications to the mensuration of lines and plane surfaces.

D. Solid Geometry.

One-half unit.

The usual theorems and constructions of good textbooks,[7] including the relations of planes and lines in space; the properties and measurement of prisms, pyramids, cylinders, and cones; the sphere and the spherical triangle.

The solution of numerous original exercises, including loci problems.

Applications to the mensuration of surfaces and solids.

CD. Plane and Solid Geometry.

One and one-half units.

E. Trigonometry.

One-half unit.

Definitions and relations of the six trigonometric functions as ratios; circular measurement of angles.

Proofs of principal formulas, in particular for the sine, cosine, and tangent of the sum and the difference of two angles, of the double angle and the half angle, the product expressions for the sum or the difference of two sines or of two cosines, etc.; the transformation of trigonometric expressions by means of these formulas.

Solution of trigonometric equations of a simple character.

Theory and use of logarithms (without the introduction of work involving infinite series).

The solution of right and oblique triangles and practical applications, including the solution of right spherical triangles.

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[7] The board's examination questions in plane and solid geometry will be limited to propositions contained in the syllabus prepared by the National Committee of Fifteen appointed by the American Federation of Teachers of the Mathematical and Natural Sciences and the National Education Association. The report of the committee was published in *The Mathematics Teacher* for December, 1912.

F. Plane Trigonometry.

One-half unit.

This subject is the same as the preceding except that no topics from spherical trigonometry are included.

PHYSICS.

One unit.

The present definition of the requirement in physics was framed by a commission, the appointment of which was authorized by the College Entrance Examination Board in May, 1907. The report of the Commission was accepted in April, 1909.[74]

General Statement.

1. The course of instruction in physics should include:

(*a*) The study of one standard textbook, for the purpose of obtaining a connected and comprehensive view of the subject. The student should be given opportunity and encouragement to consult other scientific literature.

(*b*) Instruction by lecture-table demonstrations, to be used mainly for illustration of the facts and phenomena of physics in their qualitative aspects and in their practical applications.

(*c*) Individual laboratory work consisting of experiments requiring at least the time of 30 double periods, two hours in the laboratory to be counted as equivalent to one hour of classroom work. The experiments performed by each student should number at least 30. Those named in the appended list are suggested as suitable. The work should be so distributed as to give a wide range of observation and practice.

The aim of laboratory work should be to supplement the pupil's fund of concrete knowledge and to cultivate his power of accurate observation and clearness of thought and expression. The exercises should be chosen with a view to furnishing forceful illustrations of fundamental principles and their practical applications. They should be such as yield results capable of ready interpretation, obviously in conformity with theory, and free from the disguise of unintelligible units.

Slovenly work should not be tolerated, but the effort for precision should not lead to the use of apparatus or processes so complicated as to obscure the principle involved.

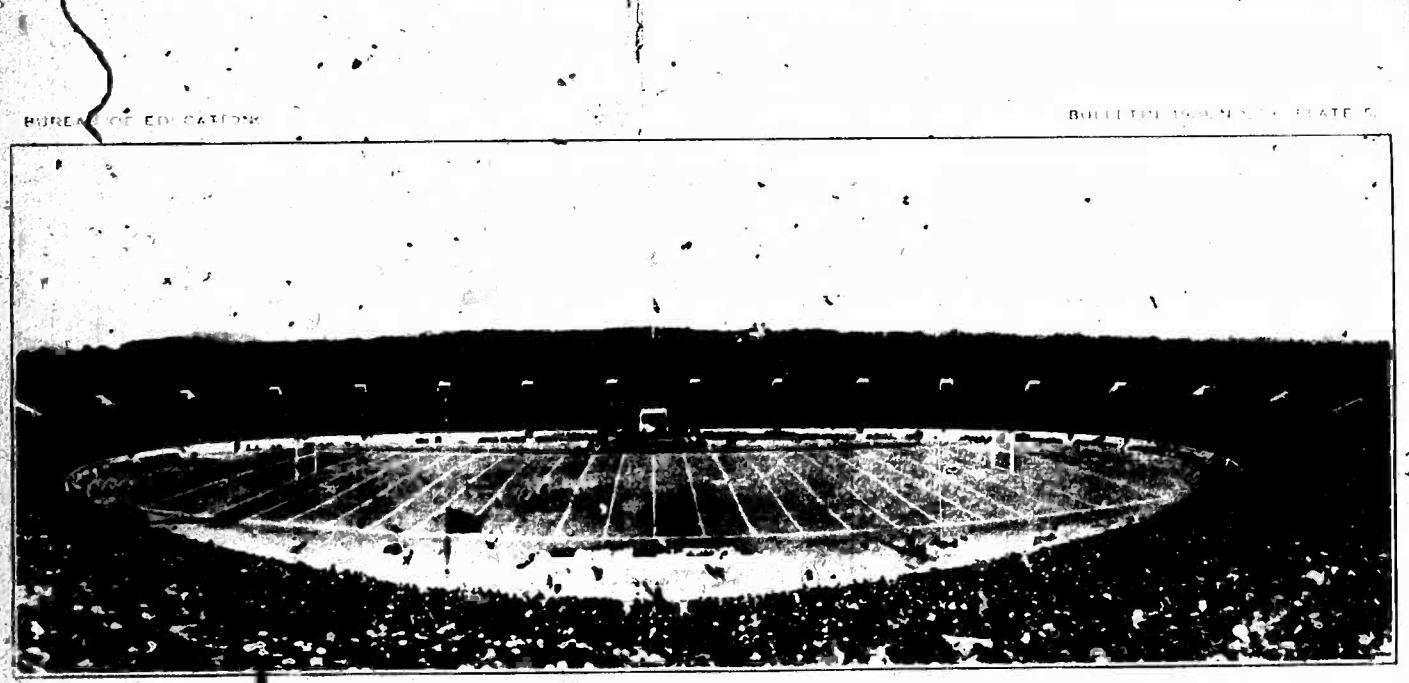
2. Throughout the whole course special attention should be paid to the common illustrations of physical laws and to their industrial applications.

3. In the solution of numerical problems, the student should be encouraged to make use of the simple principles of algebra and geometry to reduce the difficulties of solution. Unnecessary mathematical difficulties should be avoided and care should be exercised to prevent the student from losing sight of the concrete facts in the manipulation of symbols.

Syllabus.

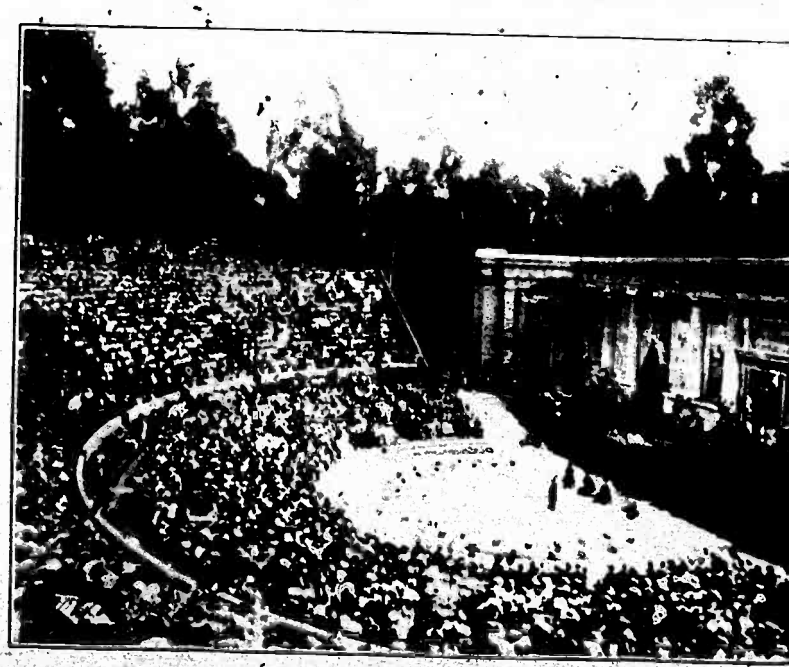
The following is a list of topics which are deemed fundamental and which should therefore be included in every well-planned course of elementary physics. Only a few of the most important applications of these topics have

[74] The commission and its work are described in the Ninth Annual Report of the Secretary of the College Entrance Examination Board, pages 4–12.

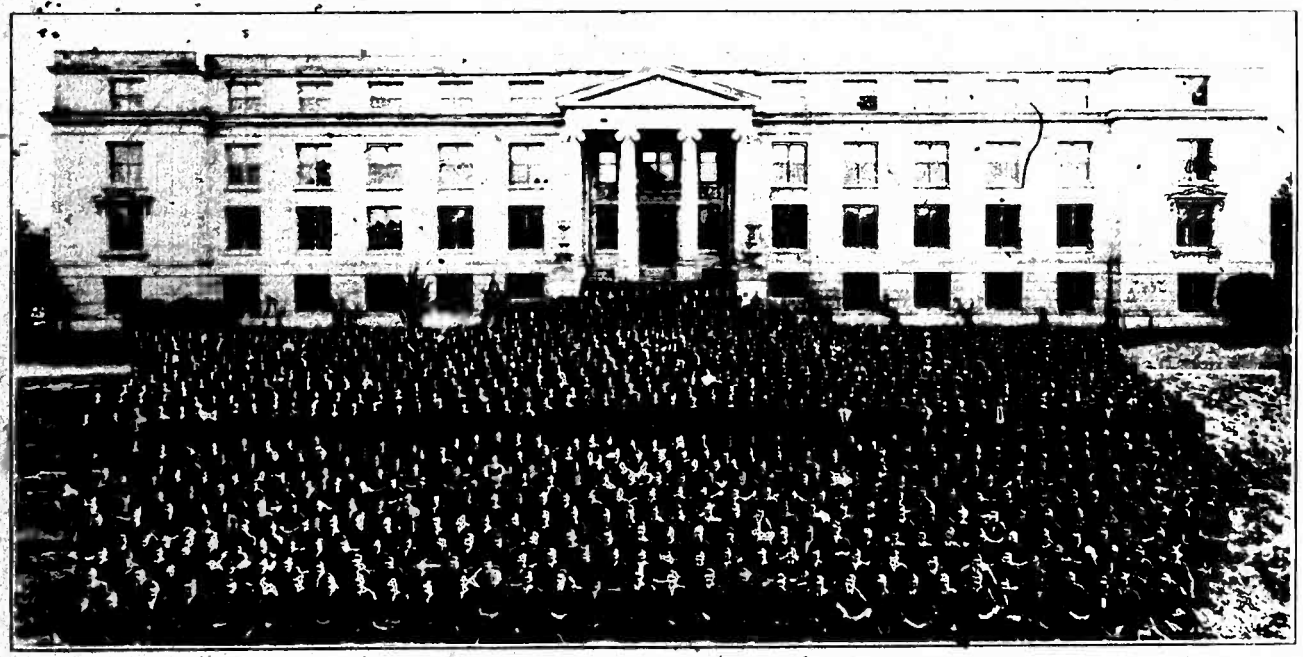


THE YALE "BOWL," WHERE YALE UNIVERSITY ATHLETIC CONTESTS ARE HELD, NEW HAVEN, CONN.

A. ADMINISTRATION BUILDING, UNIVERSITY OF CALIFORNIA, BERKELEY, CALIF.



B. GREEK THEATER, UNIVERSITY OF CALIFORNIA, BERKELEY, CALIF.



AGRICULTURAL STUDENTS AND STAFF, IOWA STATE COLLEGE, AMES, IOWA.

been mentioned; teachers should add liberally to them. It is expected that the teacher will arrange these topics in such order as will suit his individual needs.

I. INTRODUCTION:

a. Metric System.
Linear measure, units—meter, centimeter, millimeter.
Square measure—square centimeter.
Cubic measure—cubic centimeter, liter.
Mass—kilogram, gram.
b. Volume, weight, density.
c. States of matter; solids, liquids, gases.

II. MECHANICS:

Fluids.

a. Pascal's Law of Fluid Pressure. The hydraulic press.
b. Pressure due to gravity.
Pressure varying with depth and density of the liquid.
Total pressure on the bottom of a vessel.
c. Principle of Archimedes.
d. Specific gravity of solids and liquids.
e. Gases—relation between pressure and volume.
f. Atmosphere pressure, buoyancy, the barometer, pumps for liquids and gases.

Solids.

a. Principle of moments.
Parallelogram of forces (Resolution of forces, rectangular only).
b. Newton's Laws of Motion.
Force, momentum, velocity, acceleration.
Uniformly accelerated motion, when initial or final velocity is zero.
Falling bodies.
c. Mechanical work.
Energy—potential and kinetic.
Conservation of energy.
d. Machines: Principle of work applied to machines, mechanical advantage, friction, efficiency. (Use terms, effort, and resistance.)
Lever, wheel, and axle, pulleys, inclined plane.
e. Uniform circular motion; centrifugal and centripetal forces qualitatively illustrated.
f. Law of universal gravitation.
Relation of weight to mass.
Center of gravity.
Stability.

III. HEAT:

a. Heat—a form of energy.
Temperature, Centrigrade and Fahrenheit scales.
b. Conduction, convection, and radiation.

III. Heat—Continued.
- c. Expansion of solids, coefficient of linear expansion.
- Expansion of liquids, anomalous expansion of water.
- Expansion of gases, Law of Charles, absolute zero.
- d. Change of state.
- Fusion, the melting point.
- Vaporization, boiling, evaporation.
- e. Measurement of heat, latent and specific heat.
- f. Mechanical equivalent of heat.

IV. Sound:
- a. Nature and origin of sound.
- b. Pitch, loudness, quality.
- c. Velocity.
- d. Reflection of sound, echoes.
- e. Resonance.

V. Light:
- a. Definitions:
  - Light, luminous bodies, illuminated bodies, transparent, translucent, and opaque bodies.
- b. Rectilinear propagation of light in a homogeneous medium, shadows, pinhole camera.
- c. Photometry.
  - Intensity of light (source) and intensity of illumination distinguished.
  - Law of inverse squares.
- d. Reflection.
  - Law of reflection. Regular and diffused reflection.
  - Plane and spherical mirrors, position and character of images.
- e. Refraction.
  - Laws of refraction (qualitative).
  - Refraction by plates, prisms, and lenses.
  - Lenses: Converging and diverging, conjugate foci, principal focus, principal axis.
  - Position and character of real and virtual images formed by converging lenses.
  - Dispersion, color, and the spectrum.
  - Applications: The camera, the human eye, the compound microscope, the telescope.

VI. Magnetism:
- a. Magnets, permanent and temporary.
- b. Polarity, magnetic attraction, and repulsion.
- c. Magnetic induction, magnetic field and lines of force, permeability.
- d. The earth as a magnet, compass, declination, dip.

VII. Static Electricity:
- a. Electrification by friction; two kinds.
- b. Electrical attraction and repulsion; electroscopes.
- c. Conductors and insulators; electrification by induction.
- d. Condensers.

VIII. Current Electricity:
- a. Simple voltaic cell.
  - Electro-chemical action.
  - Local action and polarization; prevention of polarization.

VIII. Current Electricity—Continued.

b. Types of cells (Daniel, Leclanché).

c. Electrolysis.
The ampere.
Electrolysis of water, electro-deposition of metals.
Storage cell.

d. Electro-magnetism.
Magnetic field around a current.
Relation between direction of current and lines of magnetic force.
Electro-magnets, ampere turns (qualitative).
The electric bell and the telegraph.

e. Resistance.
The ohm.
Ohm's law.
The volt.
Power: the watt and the watt hour.

f. Heating effects.
Fuse wire and electric heater.
Arc and incandescent lamps.

g. Measuring instruments: galvanometer, ammeter, voltmeter, resistance box.

h. Series and parallel connection of cells, lamps, etc.

i. Fall of potential in a circuit.

j. Electro-magnetic induction.
Direction and magnitude of the induced electro-motive force.
Simple two-pole dynamo and motor.
Simple alternating and direct current generator.
Transformer, induction coil, telephone.

List of Experiments.

Mechanics:

1. Weight of unit volume of a substance, prism or cylinder.
2. Principle of Archimedes.
3. Specific gravity of a solid body that will sink in water.
4. Specific gravity of a liquid, two methods (bottle and displacement methods); or,
5. Specific gravity of a liquid by balancing columns.
6. Boyle's law.
7. Density of air.
8. Hooke's law.
9. Strength of material.
10. The straight lever, principle of moments.
11. Center of gravity and weight of a lever.
12. Parallelogram of forces.
13. Four forces at right angles in one plane.
14. Coefficient of friction between solid bodies—on a level and by sliding on an incline.
15. Efficiency test of some elementary machine, either pulley, inclined plane, or wheel and axle.
16. Laws of the pendulum.
17. Laws of accelerated motion.

HEAT:

18. The mercury thermometer; relation between pressure of steam and its temperature.
19. Linear expansion of a solid.
20. Increase of pressure of a gas heated at constant volume; or,
21. Increase of volume of a gas heated at constant pressure.
22. Heat of fusion of ice.
23. Cooling curve through change of state (during solidification).
24. Heat of vaporization of water.
25. Determination of the dew point.
26. Specific heat of a solid.

SOUND:

27. Velocity of sound.
28. Wave length of sound.
29. Number of vibrations of a tuning fork.

LIGHT:

30. Use of photometer.
31. Images in a plane mirror.
32. Images formed by a convex mirror.
33. Images formed by a concave mirror.
34. Index of refraction of glass; or,
35. Index of refraction of water.
36. Focal length and conjugate foci of a converging lens.
37. Shape and size of a real image formed by a lens.
38. Magnifying power of a lens.
39. Construction of model of telescope or compound microscope.

MAGNETISM AND ELECTRICITY:

40. Study of magnetic field.
41. Magnetic induction.
42. Study of a single fluid voltaic cell.
43. Study of a two-fluid voltaic cell.
44. Magnetic effect on an electric current.
45. Electrolysis.
46. Laws of electrical resistance of wires; various lengths, cross-section, and in parallel.
47. Resistance measured by a volt-ammeter method.
48. Resistance measured by Wheatstone's bridge.
49. Battery resistance—combination of cells.
50. Study of induced currents.
51. Power or efficiency test of a small electric motor.

Laboratory Notebook.

The College Entrance Examination Board does not require the submission of the candidate's laboratory notebook as part of the examination in physics. The notebook, if required by the college or scientific school that the candidate wishes to enter, should be forwarded directly to the proper authorities of that institution.

Teacher's Laboratory Certificate.

The laboratory certificate, if required by the college or scientific school that the candidate wishes to enter, should be forwarded directly to the proper authorities of that institution.

(School)

_____

(Post Office Address of School)

_____

(Date)

_____

(College or scientific school that candidate purposes entering)

_____

I certify that during the academic years_____

(Name in full)

_____

has personally performed and properly recorded in a suitable notebook _____ experiments in the physical laboratory of_____School.

The time given to laboratory work has been _____ periods of _____ minutes each, equivalent to _____ periods of 60 minutes each.

The time given to lectures and recitations has been _____ periods of _____ minutes each, equivalent to _____ periods of 60 minutes each.

Half the number of hours given to laboratory work plus the full number of hours given to lectures and recitations is equal to _____ hours.[75]

*(Signed)*_____

Teacher of Physics.

The teacher may here enter the final grade of _____ per cent.

CHEMISTRY.

One unit.

The requirement in chemistry was framed by a representative commission, the appointment of which was authorized by the College Entrance Examination Board in April, 1911. The report of the commission was adopted by the board in April, 1913.[76]

The following requirement has been planned so as to make it equally suitable for the instruction of the student preparing for college and for the student not going beyond the secondary school. To this end the requirement is divided into two parts.

Part I contains a minimum list of essential topics. In the examination papers there will be no optional questions on this part, and these questions will count 60 per cent.

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[75] To meet the board's requirement the number of hours here entered must be at least 120.

[76] An account of the commission and its work will be found in the Thirteenth Annual Report of the Secretary of the College Entrance Examination Board, pages 6–17.

Part II is supplementary, and provides for a more extended programme along three main lines, namely:

A. Descriptive chemistry.

B. Chemical principles or theories.

C. Applications of chemistry in the household or in the arts.

This part of the examination paper offers a choice of questions and will count 40 per cent. In his answers the candidate must confine himself to two out of three groups of questions.

The teacher may thus devote the time to any two of the three groups indicated, and so adapt his course to local conditions or personal preference. It should be clearly recognized that thoroughness in teaching must not be sacrificed to an attempt to cover the topics named in all three of the groups.

It is required that the candidate's preparation in chemistry should include:

(1) Individual laboratory work, comprising at least 40 exercises selected from a list of 60 or more, not very different from the list below.

(2) Instruction by lecture-table demonstrations, to be used mainly as a basis for questioning upon the general principles involved in the pupil's laboratory investigations.

(3) The study of at least one standard textbook, to the end that the pupil may gain a comprehensive and connected view of the most important facts and laws of elementary chemistry.

Part I. Minimum List of Essentials.

The following outline includes such representative topics as should be studied in the classroom and laboratory. The material is, for the most part, common to all elementary textbooks and laboratory manuals. For convenience of statement the topics are classified without reference to the proper order for presentation. The actual order will be determined by that employed in the textbook, or by the individual teacher himself.

The preparation, properties and uses of the following elements—hydrogen, oxygen, atmospheric nitrogen, chlorine; the properties and uses of carbon (including allotropic forms), sulphur, sodium, zinc, iron, copper, and gold. In the case of the metals mentioned, the action of air, of water, and of dilute acids should be discussed.

The preparation (one method), properties and uses of the following compounds—hydrochloric acid, sodium chloride, silver chloride; sulphur dioxide, sulphuric acid (preparation by the contact process), hydrogen sulphide; calcium phosphate; carbon dioxide, including its relation to vital processes; carbon monoxide; calcium carbonate, calcium oxide, calcium hydroxide); ammonia, ammonium hydroxide; nitric acid (including action on copper), nitric oxide; sodium nitrate, potassium nitrate; the properties and uses only of sodium carbonate and sodium acid carbonate.

The preparation, properties and uses of a few common organic substances, namely petroleum products, ethyl alcohol, acetic acid, glucose, cane-sugar and starch.

The properties of the elements and compounds studied should be those which serve for recognition, or those which are related to some important use. The uses considered should be those of household or industrial importance.

A detailed study of air, including the nitrogen, oxygen, carbon dioxide, and water vapor; water and its properties; impure water and its relation to health, its treatment by boiling, distillation, and filtration.

Simple types of chemical action—direct combination; decomposition; displacement of an element in a compound by another element; double decomposition; radicles as units in chemical action; order of activity of the common metallic elements; acids, bases, neutralization, and salts; the identification of a few substances by means of characteristic properties and reactions; quantitative character of chemical action as illustrated by one or two experiments.

The laws of Boyle and Charles, quantitatively, with simple problems in each separately; instances and statement of the laws of conservation of mass, conservation of energy, and definite proportions; illustration of the law of multiple proportions; reacting weights of elements; elementary statement of the atomic theory and its relation to the law of definite proportions; significance and use of atomic weights.

Valence in an elementary way; nomenclature as illustrated by simple inorganic compounds; use of formulæ in constructing and balancing equations; simple exercises in chemical arithmetic, the atomic weights and the formulæ of the compounds involved being given, calculation of (*a*) percentage composition, (*b*) weights of substances concerned in chemical reactions, (*c*) the volume of a gas resulting from a chemical reaction (the weight of a liter of the gas under the conditions of the experiment being given).

Energy change as characteristic of chemical action; combustion (in an elementary way); effect of concentration as illustrated by combustion in air and in oxygen; flame; oxidation by oxygen, and reduction by hydrogen and by carbon; catalysis, as illustrated by one or two simple examples of contact action; solution, saturated solution, degrees of solubility; separation of solids from solution, precipitation including crystallization (not crystallography); electrolysis, as illustrated by one or two cases.

Chemical terms should be defined and explained, and the pupil should be able to illustrate and apply the ideas they embody. The theoretical topics are not intended to form separate subjects of study, but should be taught only so far as is necessary for the correlation and explanation of the experimental facts.

It should be the aim of the teacher to emphasize, as opportunity offers, the essential importance of chemistry to modern civilization.

Part II. Supplementary Requirement.

A. Descriptive: The chief physical and chemical characteristics, the preparation and the recognition of the following *elements:* Oxygen (ozone), hydrogen, carbon, nitrogen, chlorine, bromine, iodine, sulphur, phosphorus, sodium, aluminium, zinc, iron, lead, and copper.

The chief physical and chemical characteristics, the preparation and the recognition of some important *compounds*, namely, the compounds mentioned in Part I, and also the following substances: Hydrogen peroxide; nitrous oxide; nitrogen peroxide; hypochlorous acid and one salt; sulphurous acid and sodium sulphite; the sulphate and the chloride of calcium; aluminium sulphate and alum; the sulphate and the chloride of zinc; ferrous sulphate, ferrous chloride, ferric chloride, ferric oxide and ferric hydroxide; the acetate and the carbonates of lead; litharge and red lead; cupric sulphate; the chlorides of mercury (preparation not required); silver nitrate.

In the case of the elements and compounds listed in both Part I and Part II, a more extended study is expected to be made for Part II.

B. Principles: Natural grouping of the elements; solvents and solubility of gases, liquids and solids, saturation; correction of gas volumes; law of multiple proportions; the atomic theory as a means of interpreting the fundamental chemical laws; two cases illustrating Gay Lussac's law of combining volumes; Avogadro's hypothesis derivation of the hydrogen molecule as H_2, proportionality between weights of like volumes of gases and molecular weights; simpler aspects of the theory of electrolytic dissociation in so far as necessary to explain electrolysis, neutralization and reactions to litmus paper of copper sulphate and sodium carbonate solutions; reversibility of chemical actions.

C. Applications: In the treatment of all the above topics, due consideration should be given to the more familiar industrial and household applications of the substances involved. In addition, the following topics may be considered in some detail: treatment of waters for laundry and industrial purposes; soaps and washing powders; common fuels; operation of household stoves and furnaces; general classes of foods; simpler metallurgy of iron and steel; electrolysis as applied to electroplating and the refining of metals; the simple chemistry of the internal combustion engine.

The examination questions will be confined to the above topics, but it must be understood that the College Entrance Examination Board does not suggest that the instruction be thus limited. In case the number of assigned periods is above the average, the teacher may include a larger amount of descriptive and theoretical chemistry, or interesting applications of chemistry to subjects like the removal of grease, rust, ink, and mildew stains; glass; cement; typical alloys; metallurgy of zinc and aluminium; important fertilizers; photography; organic compounds like wood alcohol, ether, chloroform, carbon tetrachloride, carbon disulphide and explosives.

List of Suggested Experiments in Chemistry.[77]

1. Heating of substances in air.
2. Weight change on heating a metal in air.
3. Products obtained by heating "red precipitate."
4. Preparation and properties of oxygen.
5. Weight of a liter of oxygen.
6. Interaction of metals and acids.
7. Preparation and properties of hydrogen.
8. Reduction of copper oxide.
9. Equivalent weight of zinc (or magnesium) by displacing hydrogen.
10. Distillation of water.
11. Solvent power of water.
12. Water of crystallization.
13. Determination of water of crystallization.
14. Preparation and properties of chlorine.
15. Preparation and properties of hydrogen chloride.
16. Action of sodium on water and recognition of products formed.
17. Neutralization of sodium hydroxide with hydrochloric acid.
18. Determination of concentration of hydrochloric acid by titration.
19. Combining weights of zinc and chlorine (or of zinc and oxygen).
20. Flame tests.
21. Tests for three common acids.

[77] Other experiments of similar standard may be substituted.

22. Preparation of soluble salts.
23. Preparation of insoluble salts.
24. Boiling points of solutions.
25. Freezing points of solutions.
26. Preparation of pure sodium chloride.
27. Incomplete reactions.
28. Forms of sulphur.
29. Preparation and properties of sulphur dioxide.
30. Preparation and properties of hydrogen sulphide.
31. Preparation of metallic sulphides.
32. Volumetric composition of air.
33. Preparation and properties of ammonia.
34. Preparation and properties of nitric acid.
35. Preparation and properties of nitric oxide.
36. Preparation and properties of nitrous oxide.
37. Preparation of potassium nitrate (crystallization).
38. Preparation and properties of bromine.
39. Preparation and properties of iodine.
40. Comparison of the halogen acids.
41. Preparation of charcoal
42. Properties of carbon.
43. Preparation and properties of carbon dioxide.
44. Hard waters.
45. Molecular weight of carbon dioxide.
46. Preparation and properties of carbon monoxide.
47. Preparation and properties of lime.
48. Cobalt nitrate tests.
49. Relative replacement of common metals (electrochemical series).
50. Equivalent of silver.
51. Tests for iron salts.
52. Reduction of ferric to ferrous chloride.
53. Oxidation of ferrous to ferric chloride.
54. Qualitative separation of lead, silver, and mercury.
55. Fermentation.
56. Preparation of ethyl acetate.
57. Soap making.
58. Testing of milk for nutrients.
59. Determination of carbon dioxide in air.
60. Explosive mixtures of gasoline and air.

Laboratory Notebook.

The College Entrance Examination Board does not require the submission of the candidate's laboratory notebook as part of the examination in chemistry. The notebook, if required by the college or scientific school that the candidate wishes to enter, should be forwarded directly to the proper authorities of that institution. It should contain:

(1) A brief description in the pupil's own words of the materials and apparatus employed and the operations performed in each experiment, sketches being used to represent apparatus where this is practicable.

(2) Records in the pupil's own words of phenomena as actually observed in the course of each experiment.

(3) A statement of the important conclusions which may be properly drawn from the phenomena as observed.

Special importance should be attached to the evidence which the notebook affords of independent and careful thought on the part of the pupil, as indicated by ability to recognize and express clearly the significance of the work actually performed. Statements which have been merely transcribed from textbooks or manuals are by no means satisfactory. The notebook should contain an index of experiments.

Teacher's Laboratory Certificate.

The laboratory certificate, if required by the college or scientific school that the candidate wishes to enter, should be forwarded directly to the proper authorities of that institution.

(*School*)

_____

(*Post Office address of school*)

_____

(*Date*)

(*College or scientific school that candidate purposes entering*)

_____

I certify that during the academic years _____

(*Name in full*)

_____

has personally performed and properly recorded in a suitable notebook _____ experiments in the chemical laboratory of _____ School, the experiments being not very different from the list suggested by the College Entrance Examination Board, and that the notebook constitutes a true and original record of the experiments.

The time given to the laboratory work has been _____ periods of _____ minutes each, equivalent to _____ periods of 60 minutes each.

The time given to lectures and recitations has been _____ periods of _____ minutes each, equivalent to _____ periods of 60 minutes each.

Half the number of hours given to laboratory work plus the full number of hours given to lectures and recitations is equal to _____ hours.[a]

(*Signed*) _____,

Teacher of Chemistry.

BIOLOGY, BOTANY, ZOÖLOGY.

One unit each.

The requirement in biology, botany, and zoölogy was framed by a representative commission, the appointment of which was authorized by the College Entrance Examination Board in April, 1914. The report of the commission was adopted by the board in November, 1915.[b]

INTRODUCTION.

The following outline includes the principles of biology, or of botany, or of zoölogy which are indispensable to a general survey of these sciences. It is not intended to indicate order of study of the topics—this must be left to the teacher and the textbook.

The courses named below should be developed on the basis of laboratory study guided by definite directions. This should be supplemented by the care-

[a] To meet the board's requirement the number of hours here entered must be at least 120.

[b] An account of the commission and its work will be found in the Fifteenth Annual Report of the Secretary of the College Entrance Examination Board, page 12.

ful study of at least one modern elementary textbook. At least one-half of the time should be devoted to the practical studies of the laboratory. Pupils should be encouraged to do supplementary work in the line of natural history, *especially* if good nature studies have not preceded the high-school course. A notebook with carefully labeled outline drawings of the chief structures studied anatomically, with notes on demonstrations, and in explanation of drawings, with descriptions of experiments, with dates and with index, should be prepared by the pupil in connection with practical work.

The College Entrance Examination Board does not require the submission of the laboratory notebook as part of the examination. The notebook, or the laboratory certificate, if required by the college or scientific school that the candidate wishes to enter, should be forwarded directly to the proper authorities of that institution. A suitable blank form for the laboratory certificate may be obtained from the secretary of the board.

This syllabus provides for four different types of courses:

Course I—a year of biology with emphasis on the applications of biology to human welfare.

Course II—a year of biology with emphasis on the structure and functions of plants and animals.

Course III—a year of botany.

Course IV—a year of zoölogy.

Examination in Biology.

The examination papers in biology (Courses I and II) will consist of three groups of five questions each, and the student must choose at least *two* questions from *each* group; four other questions may be chosen from any of the groups.

Group 1 will consist of five questions on the structure of plants and animals.

Group 2 will consist of five questions on physiology, life history, and classification.

Group 3 will consist of five questions on applications of biology to human welfare.

Students in Course I who wish to prepare for examination with special reference to the applications of biology to human welfare should study the topics (except those marked *Optional*) under A, B, C, and F III of the Outline of Work below that relate to one alga, three fungi (bacteria, yeasts, molds), one angiosperm, one protozoan, one insect, two vertebrates (human body and frog recommended), together with a consideration of cells and heredity.

Students in Course II who wish to prepare for examination with special reference to the structure and functions of plants and animals should study the topics (except those marked *Optional*) suggested below under A, B, C, F, I, and F II that relate to at least one alga, one fungus, one moss *or* one fern, two angiosperms, one protozoan, an annelid *or* a crustacean, two insects and two vertebrates, together with the economic aspects of the forms studied, and the simple principles of classification of one plant group (*e. g.*, angiosperms) and of one animal group (*e. g.*, insects *or* vertebrates).

The examination in botany will consist of three groups of five questions each, and the student must choose at least *three* questions from *each* group; a tenth question may be chosen from any of the groups.

Group 1 will consist of five questions on the structure of plants.

Group 2 will consist of five questions on physiology, life history, and classification of plants.

Group 3 will consist of five questions on the relation of plants to human welfare.

Students in Course III who take a year's course in botany should be prepared on all topics, including those marked *Optional*, under the following heads: A I, B I, C I and III, and F I.

Examination in Zoölogy.

The examination in zoölogy will consist of three groups of five questions each, and the student must choose at least *three* questions from *each* group; a tenth may be chosen from any of the groups.

Group 1 will consist of five questions on the structure of animals.

Group 2 will consist of five questions on physiology, life history, and classification of animals.

Group 3 will consist of five questions on the relation of animals to human welfare.

Students in Course IV who take a year's course in zoölogy should be prepared on all topics, including those marked *Optional*, under the following heads: A II, B II, C II and III, D II, and F II.

Outline of Work.

A. Structure.

I. *Plants.*

1. Suggested material for laboratory study: Pleurococcus, spirogyra, bacteria, yeasts, molds, a moss, a fern, a pine, a monocotyledon, three types of dicotyledons.

2. Suggested topics for study of higher plants:

(*a*) *The seed.*—Three types (dicotyledon with and without endosperm and monocotyledon); food supply (experimental determination of its nature and value); germination and growth of embryo into a seedling.

(*b*) *The root.*—Gross anatomy of a typical root: position and origin of the secondary roots; root hairs; root cap; and growing point.

(*Optional*) General structure and distribution of the leading tissues of the root.

(*c*) *The shoot.*—Gross anatomy of a typical shoot, including stem, leaf, and bud; annual growth.

(*Optional*) General structure and distribution of the leading tissues of the shoot.

(*d*) *The flower.*—Structure of a typical flower; functions of the parts; comparative study of three or more types.

(*e*) *The fruit.*—Structure of a typical fruit; functions of the parts; comparative study of four or more types.

(*f*) *The cell* (to be studied in connection with the preceding topics).—Cytoplasm, nucleus, cell sap, cell wall.

II. *Animals.*

1. Suggested material for laboratory study: a protozoan (*e. g.* paramecium or amoeba), a coelenterate (*e. g.* hydra or sea anemone), an annelid (*e. g.* an earthworm or nereis), two types of insects (*e. g.* butterfly, grasshopper, beetle, bee), crayfish, *or* clam *or* other mollusk, two vertebrates (fish *or* frog, bird *or* mammal).

2. Suggested topics for the study of animals: general plan of external structure of all the forms, and of the internal structure of crayfish *or* annelid, and of a vertebrate.

(*Optional*) Tissues should be examined first with the naked eye, in such a structure as a leg of frog or other animal, and then with a microscope a demonstration should be given of the relations of cells and intercellular substance in epithelium and cartilage, and if possible in other tissues.

B. PHYSIOLOGY.

NOTE.—Although for convenience of reference, the physiological topics are here grouped together, they should by no means be studied by themselves and apart from structure.

I. *Plant physiology.*

(*a*) Functions of water in the plant; absorption (osmosis); path of transfer; transpiration; turgidity and its mechanical value.

(*b*) Photosynthesis; dependence on chlorophyll, light, and carbon dioxide; evolution of oxygen.

(*c*) Respiration; necessity for oxygen; evolution of carbon dioxide.

(*d*) Enzymes; digestion and the translocation of foods; other reactions.

(*e*) (*Optional*) Nature of stimulus and response; irritability; geotropism; heliotropism; hydrotropism.

II. *Animal physiology.*

The general physiology of the types in A II 1 above, involving the essentials of food getting, digestion, absorption, circulation, respiration, cell metabolism, secretion, excretion, locomotion, and nervous functions. This study should apply comparatively the elements of human physiology. So far as practical, structure and function should be studied together.

III. *Comparison of the general life-processes in plants, animals and man.*

C. REPRODUCTION, LIFE-HISTORY, AND CLASSIFICATION.

I. *Plants.*

1. Asexual and sexual reproduction in so far as it occurs in each of the forms studied in A I 1 above; pollination and fertilization; alternation of generations in mosses and ferns.

2. Classification of plants into the great divisions and prominent subdivisions of angiosperms.

NOTE.—The teaching of classification should be by practical work, so as to train the pupil to recognize plants and to point out the chief taxonomic features. The meaning of species, genera, and the larger groups should be developed by constructive practical work with representatives of plant orders. So far as possible familiar forms should be used.

The ability to use manuals for the determination of the species of flowering plants is not considered essential in this course, although it is regarded as desirable. It should not be cultivated to the exclusion of any part of the course, but may well be made voluntary work for those showing a taste for it.

The preparation of an herbarium is not required. If made, it should not constitute a simple accumulation of species, but should represent some distinct idea of plant associations, or of morphology, or of the representation of the groups, etc. Protection of wild flowers should be encouraged.

II. *Animals.*

1. Asexual reproduction of a protozoan (preferably paramecium); reproduction and regeneration in hydra; typical life-histories of insects; the very general external features of embryological development of a fish or a frog; metamorphosis of an amphibian.

(*Optional*) Alteration of generations in hydroids.

C. Reproduction, Life-History, and Classification—Continued.

II. Animals—Continued.

2. The classification of animals into phyla and leading classes (except the modern classification of the worms) and the great characteristics of these groups. In the case of insects and vertebrates the characteristics of the prominent orders.

Note.—The teaching of classification should be by practical work, so as to train the pupil to recognize animals and to point out the chief taxonomic features. The meaning of species, genera, and the larger groups should be developed by constructive practical work with representatives of insect or vertebrate orders. So far as possible familiar forms should be used.

III. 1. Mendelian laws; heredity in plants and animals.

2. The general cellular nature of germ-cells; fertilization and cell division in developing eggs.

D. (*Optional*). Natural History (Ecology).

I. *Plants.*

Modification of parts for special functions: *e. g.*, seed dispersal; cross-pollination; leaf exposure; mesophytes; hydrophytes; halophytes; xerophytes; climbers; epiphytes; parasites; saprophytes; insectivora.

The topics in ecology, like those in physiology, are to be studied not by themselves, but along with the structures with which they are most closely related.

II. *Animals.*

The natural history (including external structure in relation to adaptions, life histories, geographical range, relations to other plants and animals, and economic relations) of common vertebrates and invertebrates, so far as the representatives of these groups are obtainable in the region where the course is given.

Actual examination of common animals should be supplemented by reading. It is not expected that there will be time for making extensive notebooks on this natural-history work. So far as time permits, drawings and notes should be made.

E. (*Optional*) History and Theory of Biology.

I. Some leading facts regarding the epoch-making discoveries of biological history and the careers of such eminent naturalists as Linnæus, Darwin, Huxley, Pasteur, and Agassiz should be presented.

II. The prominent evidences of relationship, suggesting evolution within such groups as the angiosperms, the decapods, the insects, and the vertebrates should be demonstrated. A few facts regarding the struggle for existence, adaptation to environment, variations of individuals, and man's selective influence should be pointed out.

F. Applications of Biology to Human Welfare.

I. *Plants.*

1. Importance of plants to man for food, clothing, medicine, fuel, furniture, building, and decoration. Examples of each.

2. Importance of forests and other vegetation in giving off moisture, in preventing floods (with consequent loss of life and property), and in maintaining a more uniform flow of streams. Dangers to forests from fire, insects, and improper methods of lumbering; methods of forest protection; necessity for reforesting; work of the Department of Agriculture; need of forest conservation.

3. Plant propagation and plant breeding.

4. (*Optional*) Soils in their relation to plant growth. Improvements of soils by tillage, by fertilizers, and by the rotation of crops.

F. APPLICATIONS OF BIOLOGY TO HUMAN WELFARE—Continued.

II. *Animals.*

1. Importance of protozoa as food for aquatic animals; as a cause of certain diseases.

2. Economic importance of grasshoppers, butterflies, moths, bees, silkworms, and other insects beneficial or injurious to man; methods of exterminating injurious insects.

3. The relation of mosquitoes to malaria and yellow fever, and of the house-fly to typhoid and other diseases; methods of extermination of flies and mosquitoes; work of the National and State Governments in the extermination of insect pests.

4. Importance to man of several of the commonest food fishes; necessity and methods of fish protection; work of the National and State Governments in protecting and propagating food fishes.

5. Value of birds to agriculture as destroyers of harmful insects, weeds, and certain rodents; value as scavengers; harm done by certain birds, such as the English sparrow and certain hawks; economic importance of domestic birds; necessity for bird protection. Work of National and State Governments and Audubon Societies.

III. *Micro-organisms and Human Welfare; Hygiene and Sanitation.*

NOTE.—In the study of bacteria, yeasts, and molds there should be as much laboratory work as possible.

1. Beneficial and injurious effects of yeasts and molds.

2. Beneficial forms of bacteria; nitrogen-fixing bacteria; soil bacteria; dairy bacteria; bacteria in relation to the preservation of foods by canning, salting, drying, and pickling.

3. The more important diseases due to bacteria and other micro-organisms; manner of infection.

4. Prevention of disease by the individual.

(*a*) Fresh air; pure food; pure water; healthful exercise; sufficient sleep.

(*b*) Cleanly habits at home and in public places; dangers of dust; proper methods of dusting and sweeping; care of home premises and of foods; treatment of wounds; cooperation with civic authorities.

5. Prevention of disease by civic authorities.

(*a*) Care of streets, public places, water supply, sewage and drainage; supervision of milk and other foods.

(*b*) Vaccinations; antitoxins; quarantine; disinfection; diagnosis of infectious diseases.

6. Personal hygiene: (*a*) habits of eating; (*b*) care of teeth; (*c*) care of skin; (*d*) hygiene of skeleton and muscles; (*e*) habit formation.

GEOGRAPHY.

One Unit.

The requirement in geography is based on the report of the Committee on Physical Geography of the Science Department of the National Education Association.

The following outline includes only the most essential facts and principles of physical geography, which must be studied in the classroom and laboratory. The order of presentation is not essential; it is recommended, however, that the topics be treated in general in the order given.

OUTLINE:

Recognizing that the field of physical geography in secondary schools should include (1) the earth as a globe, (2) the ocean, (3) the atmosphere, and (4) the land, the following outline is planned to cover these several large topics, with the further recommendation that the time allowance be proportionately increased in the order named:

The Earth as a Globe—

Shape of earth, how proved, consequences of shape.
Size: how earth is measured; effects of size.
Rotation: character of motion; latitude, longitude, and time.
Revolution: rate, path, direction, and the consequences.
Magnetism: compass, poles, variation.
Map projection.

The Ocean—

Form, divisions, and general characteristics of the ocean.
Depth, density, temperature of ocean waters.
Characteristics of ocean floor.
Distribution of life in oceans.
Movement of ocean waters.
Waves—cause and effect.
Currents—causes, proofs of causes, important currents, effect of currents.
Tides—character of motion, cause of tides, variation of tides, bores.
Work of the ocean.
Classes of shore lines and importance of shore lines.

The Atmosphere—

Composition and offices of atmosphere.
Instruments used in study of atmosphere.
Temperature.
Source and variation of atmospheric temperatures.
Isothermal charts of world, January and July, with special study of isothermals of northern and southern hemispheres, of location of heat equator, of cold pole, of crowded isotherms, etc.
Pressure.
Measurement of pressure.
Use of pressure in altitude determinations.
Relation to temperature.
Study of isobars on United States Weather Map.
Distribution of pressure over world in January and July.
Relations of isobars to isotherms.
Circulation of atmosphere.
Winds, classes, directions, causes, effects.
Moisture.
Source, forms, measurement, precipitation.
Storms.
Paths and characters of storms of United States.
Daily weather at different seasons.
Relation of storms to general weather conditions.
Relation of weather to climate.

The Land—

Several features of land as compared with ocean.
Distribution of land.

The Land—Continued.

Map representation of topography.
Changes in land forms, effects of elevation and depression.
Plains.
- Kinds of plains.
- Characteristics of different kinds.
- Development of plains.
- Coastal plain of eastern United States in parts.
- Alluvial plains, their formation and importance.
- Relation of life conditions to different forms of plains.

Plateaus.
- Young plateaus.
- Dissected plateaus.
- Old plateaus.
- Broken plateaus.

Mountains.
- Block mountains.
- Folded mountains.
- Domed mountains.
- Massive mountains.

Volcanoes.
- Distribution.
- Character at different stages.

Rivers.
- Life history of river—work of rivers, topography of valleys at different stages, lakes and lake basins.
- Revived rivers.
- Drowned valleys.
- The great drainage basins of the United States.

Glaciers.
- Existing ice sheets.
- Kinds of glaciers.
- Work of glaciers.
- Characteristics of glaciated area of northern United States.

Summary—

Relation of man, plants, and animals, to climate, land forms, and oceanic areas.

The outline given can but present the larger topics to be covered, and in a way suggest the point of view desired. Each topic should be treated so as to show its causal relations to other topics, and, so far as possible, the effects of earth features on life conditions should be emphasized.

The candidate's preparation should include:

(1) The study of one of the leading secondary textbooks in physical geography, that a knowledge may be gained of the essential principles, and of well-selected facts illustrating those principles.

(2) Individual laboratory work, comprising at least 40 exercises selected from a list not very different from the one given below. From one-third to one-half of the candidate's classroom work should be devoted to laboratory exercises. In the autumn and spring field trips should take the place of laboratory exercises.

List of Possible Exercises.[a]

Earth as a Globe—

Construct a diagram showing inclination of earth's axis, and effects of an axis at right angles, and parallel to plane of orbit. [1]

Cause of day and night, and extent of sunlight over surface. [1]

Construct a diagram showing position of earth, moon, sun at the several phases of moon. [1]

Construct a series of lines to some adopted scale, showing circumference and diameter of earth, and distance of several leading large cities from New York. [1]

Determination of latitude, north and south line, and high noon. [1]

Ocean—

Study of ocean current maps. [1]

Study of tide charts. [1]

Study of types of shore lines. [2]

Study of positions of lighthouses, life-saving stations, and large cities in relation to southern Atlantic shore. [1]

Study of map of world, showing heights of land and depths of sea. [1]

Explain selected steamer routes across Atlantic and Pacific. [1]

Atmosphere—

Determination of altitude of hill by barometer. [1]

Determination of dew point. [1]

Comparison of January and July temperature of 40° N. and S. Lat. [2]

Location and migration of heat equator and cold pole. [2]

Comparison of temperature over land and water at different seasons. [2]

Study distribution of wind systems by seasons, and compare with pressure conditions. [2]

Make isotherm and isobar maps from furnished data. [2]

Find average wind directions about a storm center. [1]

Make complete weather maps from furnished data. [2]

Study distribution of cloudiness and rainfall about a storm center. [1]

Predict weather conditions from data furnished. [1]

Find average rate and direction of motion of storm centers. [1]

Study condition of "cold waves" and "northeasters." [1]

Land—

Comparison of areas to scale. [1]

Making cross sections of contour maps to scale. [4]

Cross sections of hachure map, and changing hachure to contour map. [2]

Writing description of models. [4]

Writing description of picture and accompanying map. [2]

Construction of river profile. [1]

Making drainage map of United States. [1]

Written description of selected maps illustrating classes of land forms. [4]

Planning a journey and describing country to be seen. [1]

Locating illustrations of common land-forms on some special contour map. [1]

Four excursions in autumn, described in detail. [8]

Four excursions in spring, described in detail. [8]

The candidate's practical exercises should be distributed about as follows: Mathematical geography 5, ocean 5, atmosphere 12, land 18. In connection with them the candidate should prepare a notebook in which are recorded with dates the steps and the results of his laboratory exercises. This book

[a] Numbers in brackets indicate the value that should be given in estimating the total number of forty.

should contain an index of subjects, and should be a true and original record of the pupil's work.

The College Entrance Examination Board does not require the submission of the laboratory notebook as part of the examination in geography. The notebook, or the laboratory certificate, if required by the college or scientific school that the candidate wishes to enter, should be forwarded to the proper authorities of that institution. A suitable blank form for the laboratory certificate required may be obtained from the secretary of the board.

DRAWING.

Freehand Drawing.

One unit.

The requirement in freehand drawing is based upon the statement of entrance requirements in this subject as contained in the catalogues of colleges and universities represented in the College Entrance Examination Board.

The candidate's preparation in freehand drawing should be directed toward training him in accurate observation and in definite and truthful representation of form, without attempt to represent color or color values.

The candidate should be able to draw correctly and with lines of good quality simple form in correct perspective in the size in which it is felt in the plane of the drawing, or larger or smaller. It is recommended that pupils should be taught to draw from the object itself rather than from the flat.

Correctness of proportion and accuracy in the angles and curves and structural relations of the parts of every object drawn are of the highest importance.

The elementary principles of perspective are to be thoroughly learned, and the candidate should be able to apply them in freehand drawing from the object or from the imagination.

No definite prescription as to method of teaching is made. The examination will test the preparation of the candidate in the following points:

1. Ability to sketch from the object with reasonable correctness as to proportion, structure, and form. It is recommended that the subjects drawn include simple geometrical objects and simple natural objects, such as living plant forms.

2. Ability to sketch freehand from dictation with reasonable accuracy any simple geometrical figure or combination of figures.

3. Ability to represent accurately in perspective a simple geometrical solid of which projection drawings are given, and ability to make consistent projection drawings of a simple geometrical solid of which a perspective representation is given.

4. Ability to answer questions in regard to the principles involved in making these drawings.

Mechanical Drawing.

One unit.

The requirement in mechanical drawing was framed by a representative commission, the appointment of which was authorized by the Joint Committee May, 1915. The report of the commission was adopted by the College Entrance Examination Board November, 1915.[a]

INTRODUCTION.

The commission appointed to formulate the definition of the requirement in mechanical drawing is of the opinion that in the time available for the subject in most secondary schools only very elementary courses in mechanical

[a] An account of the commission will be found in the Fifteenth Annual Report of the secretary of the College Entrance Examination Board, page 12.

drawing should be undertaken, and that thoroughness in fundamentals should be the main feature of such courses. Thus, for example, instead of requiring the student to make elaborate drawings, inked, tinted, and shaded, the effort should be, first of all, to teach him the correct methods of making drawings in pencil. When a student is learning to use the drawing instruments he may acquire bad habits of work which will cling to him long afterwards, and teachers of mechanical drawing should be particularly watchful during the early part of a course to insist that the student use only the correct methods until they become second nature to him. Likewise, in studying any form of projection, the object should be to understand the fundamental principles rather than to make elaborate drawings. For this reason, a large variety of problems which involve the projections of *simple* objects in many different positions is better than a few elaborate problems which involve *complex* objects in simple positions. In drawing plans and elevations of complex or other unfamiliar objects the student is in need of constant help from the instructor, but, once he understands the principles of projection, he can reasonably be required to draw the projections of any simple solid in any specified position with very little, if any, help from the instructor. Work which is merely copying or which can be done only by depending constantly upon help from the instructor is not the kind of training desired. A course in mechanical drawing should be one in the application of fundamental principles and not one in copying.

REQUIREMENT.

The commission has formulated the definition of the requirement with the foregoing objects in view, and it is believed that the work of preparation for the requirement can be accomplished in approximately two hundred periods of sixty minutes each.

1. *Use of Drawing Instruments.*—Knowledge of the proper methods of using the T-square, triangles, and other drawing instruments, with special reference to their use in drawing parallel lines, erecting perpendiculars, and in drawing arcs of circles and irregular curves. *Skill* as judged by the accuracy, neatness, and finish of drawings submitted prior to the examination.

It is of great importance that the student should form correct habits of work when learning to use the drawing instruments, and that he should aim from the beginning to make his work in *pencil* clear cut and accurate regardless of whether or not it is to be inked.

2. *Geometric Constructions* commonly needed in drafting, particularly those which involve special methods of using instruments singly or in combination. Accuracy and speed in such methods are desired rather than mere practice in the construction of useless geometric designs. A knowledge of the geometric constructions of the common curves, such as the ellipse, the parabola, and the hyperbola, is included in the requirements.

3. *Orthographic Projection.*—Drawings of solids in specified positions in the third angle of projection as given in the examination by descriptions, isometric sketches, or models. The student should be able to determine sections of solids when the cutting planes are perpendicular to at least one plane of projection and to develop any portion of the surface of the solid so cut.

Solids may be irregular in shape, hollow, grooved, or with raised strips or blocks on their surfaces. Sections should be shown not only in projection but in their true outlines.

4. *Isometric Projection.*—Isometric drawings of solids with dimensions properly indicated. Isometric drawing is used mainly as a substitute for perspective

drawing, but the student should understand that the drawing of an object thus represented is exactly the same as an orthographic projection of the object in a certain position with respect to the planes of projection, and he should determine what this position is when first beginning the subject of isometric projection. The student should be prepared to construct an isometric scale, and, if required, to use it instead of a true scale.

5. *Working Drawings* of simple objects with special reference to—

(*a*) Conventional methods of representing sections.

(*b*) Proper methods of showing dimensions.

(*c*) Some standard form of single stroke freehand lettering such as Reinhardt's. Letters should be of a uniform slope, height, and thickness of stroke, well proportioned, well spaced, and well finished.

(*d*) Proper method of putting on the drawing explanatory notes for materials, methods of construction, finish, etc.

6. *Plates.*—Drawings previously made by the candidate must be certified by the teacher (or school principal) under whose direction they were drawn, and sent, previous to the date of the examination in June, to the secretary of the College Entrance Examination Board, 431 West 117th Street, New York, N. Y.[82]

It is not desirable that all the plates should be inked; on the contrary, only enough inking should be required to afford sufficient practice in the use of the inking pen. A considerable portion of this inking should be done on tracing cloth placed over the pencil drawings. It is suggested that the inking be deferred in the course until the student can make satisfactory drawings in pencil, and that the time saved by not inking all of the plates be spent in a more thorough and extensive course in pencil drawing. The student's ability can be judged quite as well by the pencil work submitted as by the plates which he has finished in ink.

7. *Length of Course.*—The time required to accomplish the work outlined above is approximately 200 hours, not less than 150 hours of which should be spent in the class room under proper supervision.

DIRECTIONS TO CANDIDATES.

Instruments Needed for the Examination.—The following must be brought by the candidate to the examination:

A 6H drawing pencil, a pencil eraser, a pair of compasses, a protractor, two triangles (45° and 30°–60°), and an accurate 12-inch scale divided to sixteenths of an inch.

The drawing board, T-square, paper, and thumb tacks will be supplied to the candidate.

Additional Suggestions in Regard to Plates.—It will materially lighten the labor of examining the plates and facilitate more prompt and accurate reports if the candidates will give attention to the following suggestions:

1. The student should write or print on each plate (preferably near the lower right-hand corner) his name, the name of the school at which the plate was drawn, and the date on which it was completed.
2. The plates should be submitted flat, not rolled.
3. All of the plates of any candidate should be fastened together or placed in a single envelope or container.
4. Attached to the plates or envelope should be the certificate and a mailing address for returning the plates.
5. A convenient size for plates is approximately 11 by 15 inches.

[82] A blank form of the certificate may be obtained from the secretary upon request.

MUSIC.

The requirement in music is based on the report of a joint committee representing the Eastern Educational Musical Conference and the New England Education League.

Harmony.

One unit.

The examination in harmony will consist only of a written test; there will be no test in performance. The candidate should have acquired:

(1) The ability to harmonize, in four vocal parts, simple melodies of not fewer than eight measures, in soprano or in bass—these melodies will require a knowledge of triads and inversions, of diatonic seventh chords and inversions, in the major and minor modes; and of modulation, transient or complete, to nearly related keys.

(2) Analytical knowledge of ninth chords, all nonharmonic tones, and altered chords (including augmented chords). [Students are encouraged to apply this knowledge in their harmonization.]

It is urgently recommended that systematic ear training (as to interval, melody, and chord) be a part of the preparation for this examination. Simple exercises in harmonization at the pianoforte are recommended. The student will be expected to have a full knowledge of the rudiments of music, scales, intervals, and staff notation, including the terms and expression marks in common use.

LIST OF COMPREHENSIVE EXAMINATIONS.

English	**Cp.**	
History	**Cp.**[83]	Ancient history. Medieval and modern. Modern European history. English history. American history and civil government.
Latin	**Cp.2**	Two-year Latin.
	Cp.3	Three-year Latin.
	Cp.4	Four-year Latin.
Greek	**Cp.2**	Two-year Greek.
	Cp.3	Three-year Greek.
French	**Cp.2**	Two-year French.
	Cp.3	Three-year French.
	Cp.4	Four-year French.
German	**Cp.2**	Two-year German.
	Cp.3	Three-year German.
	Cp.4	Four-year German.
Spanish	**Cp.2**	Two-year Spanish.
	Cp.3	Three-year Spanish.
	Cp.4	Four-year Spanish.
Mathematics	**Cp.3**	Elementary mathematics.
	Cp.4	Elementary and advanced mathematics.[84]
Physics	**Cp.**	
Chemistry	**Cp.**	

[83] The comprehensive examination in history will be so arranged that a candidate may offer any historical field indicated above or any combination of two or more such fields.

[84] This examination may be so arranged that the candidate may offer in addition to elementary algebra and plane geometry one or more of the following branches: Solid geometry, logarithms and trigonometry, advanced algebra.

DESCRIPTION OF EXAMINATIONS.

Chemistry.

The examination will be adapted to the proficiency of those who have received systematic instruction in the principles of chemistry and their applications in a school course in which laboratory experiments are performed by the pupil. In order to make due allowance for diversity of instruction in different schools, the paper will contain more questions than the candidate is expected to answer, and will require the recognition of the phenomena and of the laws that are of general significance, and the illustration of such phenomena and laws by well-chosen examples. It will include not only questions on the chemistry of laboratory practice but also, in an elementary fashion, questions on the chemistry of the household and of industry.

English.

The purpose of this examination will be to test the ability of the candidate to define clearly in writing ideas gained both from books and from the life around him, and to read with accuracy and appreciation literature as varied in subject matter and form as that listed under "Uniform Entrance Requirements in English." Accuracy in the technique of writing will be insisted upon, but no paper will be considered satisfactory which does not show, in addition to this accuracy, that the student is able to think for himself and to apply what he has learned to the solution of unexpected problems. Although knowledge of the subject matter of the particular books prescribed in the "Uniform Entrance Requirements in English" is not necessary, yet the requisite ability can not be gained without a systematic and progressive study of good literature.

French.

The examination will be adapted to the proficiency of those who have studied French in school for two, three, or four years.

The paper will include passages of French prose or verse or both of varying degrees of difficulty to be translated into simple and idiomatic English. It will also contain passages in English of varying degrees of difficulty to be translated into French, and questions on grammar. Opportunity will be given to those who have had special training in French to show their ability to express themselves in that language.

German.

The examination will be adapted to the proficiency of those who have studied German in school for two, three, or four years.

The paper will include passages of German prose or verse or both of varying degrees of difficulty to be translated into simple and idiomatic English. It will also contain passages in English of varying degrees of difficulty to be translated into German, and questions on grammar. Opportunity will be given to those who have had special training in German to show their ability to express themselves in that language.

Greek.

The examination will be adapted to the proficiency of those who have studied Greek in a systematic school course of five exercises a week, extending through two or three school years.

The paper will include passages of simple Attic prose and of Homer to be translated at sight, and questions, based upon these passages, to afford the candidate means of showing his mastery of the ordinary forms, constructions, and idioms of the language. The paper will also include passages in English to be turned into Greek, and questions on prosody, on the Homeric poems, and on Homeric life.

History.

The paper will consist of five divisions made up of questions on ancient history, medieval and modern history, modern European history (including English history from 1760), English history, and American history (including civil government). The questions on each division will be partly prescribed and partly optional. If the candidate has studied but one of these divisions, he will be expected to answer the prescribed questions on that division, one of them being a map question. He should spend about two hours on these prescribed questions and should devote the remaining hour to the optional questions on the same division. If, on the other hand, the candidate has studied two or more of these divisions, he will be expected to answer, in addition to the prescribed questions on *one* of these divisions, questions on such other divisions as he may have studied.

In reading the papers, account will be taken of the year of the school program in which the subject has been studied. As further evidence of the candidate's proficiency, notebooks [85] may be submitted.

Latin.

The examination will be adapted to the proficiency of those who have studied Latin in a systematic school course of five lessons each week, extending through two, three, or four years.

The paper will include passages of Latin prose and verse of varying degrees of difficulty to be translated at sight, and passages for Latin composition of varying degrees of difficulty. Accompanying the different passages set upon the paper will be questions on forms, syntax, and the idioms of the language, as well as questions on the subject matter, literary and historical, connected with the authors usually read in schools.

Each candidate will choose those parts of the paper which are designed to test such proficiency in the language as may properly be acquired in two, three, or four years' study; but a candidate who has studied Latin four years may not select the more elementary parts of the paper. The proper parts will be indicated on the examination paper.

Mathematics.

The examination will be adapted to the proficiency of those who have had not less than the usual school course in elementary mathematics, comprising algebra through quadratics and plane geometry, and will also provide the means by which those who have extended their study to one or more branches of advanced mathematics, namely, solid geometry, logarithms and trigonometry, and advanced algebra, may exhibit their proficiency in any or all of these branches of mathematics. There will be two papers, one for those who have had no instruction beyond elementary mathematics, and one for those whose instruction has gone farther. Every candidate who has received instruction beyond elementary

[85] The College Entrance Examination Board does not require or receive notebooks. Candidates wishing to submit notebooks must forward them directly to the proper authorities of the university, college, or scientific school concerned.

mathematics will be expected to take the paper containing questions on advanced mathematics, and to devote at least half his time to those questions which are based on the advanced mathematics he has studied.

Physics.

The examination will be adapted to the proficiency of those who have had such a course of school training in the elementary facts and principles of physics as is described in the detailed definition of physics. In order to make due allowance for diversity of instruction in different schools, the paper will contain more questions than the candidate is expected to answer.

Spanish.

The examination will be adapted to the proficiency of those who have studied Spanish in school for two, three, or four years.

The paper will include passages of Spanish prose or verse or both of varying degrees of difficulty to be translated into simple and idiomatic English. It will also contain passages in English of varying degrees of difficulty to be translated into Spanish and questions on grammar. Opportunity will be given to those who have had special training in Spanish to show their ability to express themselves in that language.

CHAPTER II.

TYPICAL CURRICULA.

Curriculum of public elementary schools, Minneapolis, Minn.

Studies.	First grade.		Second grade.		Third grade.		Fourth grade.		Fifth grade.		Sixth grade.		Seventh grade.		Eighth grade.	
	Periods.	Minutes.	Periods.	Minutes.	Periods.	Minutes.	Periods.	Minutes.	Periods.	Minutes.	Periods.	Minutes.	Periods.	Minutes.	Periods.	Minutes.
Opening exercises	5	50	5	50	5	50	5	25	5	25	5	25	5	25	5	25
Recesses	10	150	10	150	10	150	10	150	10	150	10	150	10	150	10	150
Physical training	5	50	5	50	5	50	5	50	5	50	5	50	5	50	5	50
Hygiene	1	20	1	20	1	20	1	20	1	30	1	30	1	30	1	30
Phonics and word study	10	200	10	200	10	150	5	100	3	75	2	50	2	50	2	50
Spelling	5	25	5	75	5	75	5	75	5	75	5	*75	5	*75	5	*75
Reading	*25	400	20	365	15	365	5	250	5	240	5	220	4	*120	4	*120
Oral language	5	90	5	90	5	90	5	90	3	90	3	90	1	30	1	30
Written language	5	50	3	60	3	60	4	120	4	120	3	120	2	60	2	60
Grammar													3	180	3	180
Arithmetic			5	150	5	200	5	200	5	225	5	225	3	180	3	180
Geography and nature study	2	25	3	50	3	50	4	120	4	120	4	120	2	*70	2	*70
History and civics							5	60	3	60	3	75	3	*105	3	*105
Penmanship	5	60	5	75	5	75	5	75	5	75	5	75	3	60	3	60
Music	5	75	5	75	5	75	5	75	5	75	5	75	5	75	5	75
Drawing and construction work	4	80	3	90	3	90	3	90	3	90	2	60	3	60	2	60
Manual training or domestic art and science											1	60	1	180	1	180
Supervised study								150		150		150		150		150
Total		1,275		1,500		1,500		1,650		1,650		1,650		1,650		1,650

[1] The amount of time given each week to home study in starred subjects is as follows: Grades VII and VIII—reading and spelling, 1½ hours; geography, ½ hour; history and civics, ½ hour. Grades V and VI—spelling, 1 hour.

The following typical high-school curricula have been taken from Monroe's "Principles of Secondary Education," published by the Macmillan Co., 1914:

CURRICULUM OF A SMALL RURAL HIGH SCHOOL.

First year:
- English composition and literature.
- Ancient history.
- Latin.
- Algebra.

Second year:
- English composition and literature.
- Medieval history.
- Latin.
- Geometry.

Third year:
- English literature.
- Modern English history.
- Latin (or German).
- Physics (or bookkeeping and business arithmetic).

Fourth year:
- English literature.
- American history and government.
- Latin (or German).
- Chemistry (or typewriting and shorthand).

HIGH-SCHOOL CURRICULUM IN CITY OF MEDIUM SIZE.

I. Ancient classical course.

First year:
- Latin.
- Ancient history.
- English.
- Algebra.

Second year:
- Latin.
- Greek.
- English.
- Geometry.

Third year:
- Latin.
- Greek.
- English.
- Physics.

Fourth year:
- Latin.
- Greek.
- English.
- (Elective.)

II. Modern language course.

First year:
- German.
- Ancient history.
- English.
- Algebra.

Second year:
- German.
- Medieval history.
- English.
- Geometry.

Third year:
- French (or Spanish) American history.
- American history and government.
- English.
- (Elective.)

Fourth year:
- American history and government.
- English.
- (Elective.)
- (Elective.)

III. History-English course.

First year:
- Latin or German.
- Ancient history.
- English.
- Algebra.

Second year:
- Latin or German.
- Medieval history.
- English.
- Geometry.

Third year:
- Modern history.
- English.
- Physics.
- Drawing.

Fourth year:
- American history and government.
- English.
- (Elective.)
- (Elective.)

IV. Scientific course.

First year:
- German.
- Botany.
- English.
- Algebra.

Second year:
- German.
- Zoology.
- English.
- Geometry.

Third year:
- Physics.
- Drawing.
- Trigonometry.
- (Elective.)

Fourth year:
- Chemistry.
- Drawing.
- American history and government.
- (Elective.)

V. Business course.

First year:
- (Any other course.)

Second year:
- (Any other course.)

Third year:
- Spanish.
- Business arithmetic.
- Bookkeeping.
- Typewriting.

Fourth year:
- Spanish.
- Business practice.
- (Commercial geography.)
- (Commercial law.)
- (Shorthand.)

HIGH-SCHOOL CURRICULUM OF A LARGE CITY WHERE FIXED COURSES HAVE BEEN ABANDONED.

The school offers a wide range of subjects, requires certain fixed units by groups, and makes up a different course of study for each high-school pupil. The following studies are offered, the numbers in parentheses following each indicating the number of years of each subject offered by the school.

Group I—Languages:
- Latin (4).
- Greek (3).
- German (4).
- French (2).
- Spanish (2).

Group II—English:
- English composition (2).
- English literature (4).
- History, English and American literature (1).

Group III—History:
- Ancient history (1).
- Medieval history (1).
- Modern English history (1).
- General world history (1).
- American history and government (1).

Group IV—Mathematics:
- Algebra (1, 1½).
- Geometry (1, 1½).
- Trigonometry (½).
- Surveying (½).
- Business arithmetic (½).

Group V—Science:
- Botany (1).
- Zoology (1).
- Biology (1).
- Physical geography (1).
- Physics (1).
- Chemistry (1).
- Geology (½).
- Astronomy (½).

Group VI—Miscellaneous:
- Music (2).
- Freehand drawing (2).
- Vocal expression (2).
- Physical training (4).

Group VII—Vocational:
- Mechanical and geometrical drawing (2).
- Manual training (3).
- Domestic science (2).
- Household management (1).
- Bookkeeping (1).
- Business practice (1).
- Shorthand (1).
- Typewriting (1).

Rules governing combinations and graduation.—(1) Students, to graduate, must complete 15 years' work, viz, four studies each year for three years, and three studies one year. (2) Students may, on permission, take as many as five studies or as few as three studies each half year. (3) Students, to graduate, must have had two years' work in Groups I and II, one year's work in each of the other groups, and four years' work in some one group.

SECTION IV.

LIST OF THE PRINCIPAL DEPARTMENTS OR SCHOOLS OF THE INSTITUTIONS DESCRIBED IN SECTION VI DEVOTED TO VARIOUS BRANCHES OF LIBERAL, SCIENTIFIC, AND PROFESSIONAL STUDY.

The three sections of the bulletin immediately following set forth in as great detail as space will permit the offerings of certain American colleges, universities, and technological schools which have already attracted foreign students in some numbers and which have good standing among the educational institutions of the country. In Section IV the list of these institutions is first given. This is followed by lists showing which of the institutions offer courses leading to degrees, diplomas, or certificates in undergraduate departments of liberal arts, in graduate schools or departments, and in professional or technological schools. Section V is a key to the abbreviations commonly used to designate the degrees granted by all of the institutions mentioned in the bulletin. Section VI contains brief accounts of the organization and offerings of the institutions selected for special treatment.

List of Institutions Named in Section VI.

Alabama:
1. Alabama Polytechnic Institute.

Arizona:
2. University of Arizona.

California:
3. Leland Stanford Junior University.
4. University of California.
5. University of Southern California.

Colorado:
6. Colorado School of Mines.

Connecticut:
7. Yale University.

District of Columbia:
8. Catholic University of America.
9. Georgetown University.
10. George Washington University.
11. Howard University.

Hawaii:
12. College of Hawaii.

Illinois:
13. Armour Institute of Technology.
14. University of Chicago.
15. University of Illinois.
16. Northwestern University.

Indiana:
17. Indiana University.
18. University of Notre Dame.
19. Purdue University.

Iowa:
20. Iowa State College.
21. State University of Iowa.

Kansas:
22. Kansas State Agricultural College.
23. University of Kansas.

Louisiana:
24. Louisiana State University.
25. Tulane University of Louisiana.

Maryland:
26. Goucher College.
27. Johns Hopkins University.

Massachusetts:
28. Amherst College.
29. Clark University.
30. Harvard University.
31. Massachusetts Agricultural College.
32. Massachusetts Institute of Technology.
33. Mount Holyoke College.
34. Simmons College.

Massachusetts—Continued.
35. Smith College.
36. Tufts College.
37. Worcester Polytechnic Institute.
Michigan:
38. Michigan College of Mines.
39. University of Michigan.
Minnesota:
40. University of Minnesota.
Missouri:
41. St. Louis University.
42. University of Missouri.
43. Washington University.
Nebraska:
44. University of Nebraska.
New Hampshire:
45. Dartmouth College.
New Jersey:
46. Princeton University.
47. Stevens Institute of Technology.
New York:
48. Columbia University.
49. Cornell University.
50. New York University.
51. Rensselaer Polytechnic Institute.
North Carolina:
52. University of North Carolina.
Ohio:
53. Case School of Applied Science.
54. Oberlin College.
Ohio—Continued.
55. Ohio State University.
56. University of Cincinnati.
57. Western Reserve University.
Oregon:
58. Oregon State Agricultural College.
59. University of Oregon.
Pennsylvania:
60. Bryn Mawr College.
61. Lehigh University.
62. Pennsylvania State College.
63. University of Pennsylvania.
64. University of Pittsburgh.
South Carolina:
65. Clemson Agricultural College.
Tennessee:
66. George Peabody College for Teachers.
67. Vanderbilt University.
Texas:
68. University of Texas.
69. Agricultural and Mechanical College of Texas.
Virginia:
70. Randolph - Macon Woman's College.
71. University of Virginia.
Washington:
72. University of Washington.
73. State College of Washington.
Wisconsin:
74. University of Wisconsin.

UNDERGRADUATE DEPARTMENTS (OR COLLEGES OR SCHOOLS OR DIVISIONS) OF ARTS AND SCIENCES.

Degrees: A. B. or B. A., B. S. or B. Sc. or S. B., Ph. B., L. H. B., B. L., Lit. B. or Litt B., B. S. in General Science, B. S. in Pure Science; certificates.

1. Alabama Polytechnic Institute (Undergraduate Department)—B. S. (4 years).
2. Amherst College (Undergraduate Department)—B. A. (4 years).
3. Bryn Mawr College (Undergraduate Department)—A. B. (4 years).
4. Catholic University of America (School of Philosophy—Undergraduate Department)—A. B. (4 years), Ph. B. (4 years).
(School of Letters—Undergraduate Department)—A. B. (4 years), L. H. B. (4 years).
(School of Sciences—Undergraduate Department)—B. S. (4 years), A. B. (4 years).
5. Clark College—A. B. (3 years).
6. Clemson Agricultural College—B. S. (4 years).
7. College of Hawaii (Undergraduate Department)—B. S. (4 years).

8. Columbia University (Columbia College)—A. B. (4 years).
(Barnard College)—A. B. (4 years).
9. Cornell University (College of Arts and Sciences)—A. B. (4 years).
10. Dartmouth College (Undergraduate Department of Arts and Sciences)—A. B. (4 years), B. S. (4 years).
11. George Washington University (Columbian College)—A. B. (4 years).
12. Georgetown University (The College—Undergraduate Department)—A. B. (4 years), B. S. (4 years).
13. Goucher College (Undergraduate Department)—A. B. (4 years).
14. Harvard University (Harvard College)—A. B. (4 years), S. B. (4 years).
(Radcliffe College—Undergraduate Department)—A. B. (4 years).
15. Howard University (School of Liberal Arts)—A. B. (4 years), B. S. (4 years).
16. Indiana University (College of Liberal Arts)—A. B. (4 years), B. S. (4 years, combined arts and medicine).
17. Johns Hopkins University (Faculty of Philosophy)—A. B. (4 years).
18. Kansas State Agricultural College (Division of General Science)—B. S. (4 years).
19. Lehigh University (Undergraduate Department)—B. A. (4 years).
20. Leland Stanford Junior University (Undergraduate Department)—A. B. (4 years).
21. Louisiana State University (Department of Arts and Sciences)—B. A. (4 years).
22. Massachusetts Institute of Technology (Undergraduate Department)—B. S. (General Science) (4 years).
23. Mount Holyoke College (Undergraduate Department)—A. B. (4 years).
24. Municipal University of Akron (Buchtel College of Liberal Arts)—A. B. (4 years), B. S. (4 years).
25. New York University (College of Arts and Pure Science)—A. B. (4 years), B. S. in Pure Science (4 years).
(Washington Square College) (evening courses)—A. B. (8 years), B. S. (8 years).
26. Northwestern University (College of Liberal Arts)—B. A. (4 years), B. S. (4 years).
27. Oberlin College (College of Arts and Sciences)—A. B. (4 years).
28. Ohio State University (College of Arts, Sciences, and Philosophy)—A. B. (4 years).
29. Pennsylvania State College (School of Liberal Arts)—A. B. (4 years).
(School of Natural Sciences)—B. S. (4 years).
30. Princeton University (Undergraduate Department)—A. B. (4 years), Lit. B. (4 years), B. S. (4 years).
31. Purdue University (Undergraduate Department)—B. S. (4 years).
32. Randolph-Macon Woman's College (Undergraduate Department)—A. B. (4 years).
33. Rensselaer Polytechnic Institute (Undergraduate Department)—B. S. (4 years).
34. St. Louis University (College of Arts and Sciences)—A. B. (4 years), B. S. (4 years).
(School of Philosophy and Science.)
35. Simmons College (Undergraduate Department)—B. S. (4 years), certificate (short course).
36. Smith College (Undergraduate Department)—A. B. (4 years).
37. State College of Washington (College of Sciences and Arts)—B. A. (4 years), B. S. (4 years).

38. State University of Iowa (College of Liberal Arts)—B. A. (4 years), B. S. (6 years combined course).
39. Tufts College (School of Liberal Arts)—A. B. (4 years), B. S. (4 years).
(Jackson College)—A. B. (4 years), B. S. (4 years).
40. Tulane University of Louisiana (College of Arts and Sciences)—B. A. (4 years), B. S. (4 years).
(H. Sophie Newcomb Memorial College)—B. A. (4 years).
41. University of Arizona (Undergraduate Department)—A. B. (4 years), B. S. (4 years).
42. University of California (College of Letters and Science)—A. B. (4 years).
43. University of Chicago (The Colleges)—A. B. (4 years), B. S. (4 years); Ph. B. (4 years).
44. University of Cincinnati (McMicken College of Liberal Arts)—A. B. (4 years).
45. University of Illinois (College of Liberal Arts and Sciences)—A. B. (4 years), B. S. (4 years).
46. University of Kansas (College of Liberal Arts and Sciences)—A. B. (4 years), B. S. (4 years).
47. University of Michigan (College of Literature, Science, and the Arts)—A. B. (4 years), B. S. (4 years).
48. University of Minnesota (College of Science, Literature, and the Arts)—A. B. (4 years), B. S. (combined Arts and Med.) (4 years).
49. University of Missouri (College of Arts and Science)—A. B. (4 years).
(School of Mines and Metallurgy)—B. S. in General Science (4 years).
50. University of Nebraska (College of Liberal Arts)—A. B. (4 years), B. Sc. (4 years).
51. University of North Carolina (College of Liberal Arts)—A. B. (4 years).
52. University of Notre Dame (College of Arts and Letters)—A. B. (4 years), Lit. B. (4 years); Ph. B. (4 years).
(College of Science)—B. S. (4 years).
53. University of Oregon (College of Literature, Sciences, and the Arts)—A. B. (4 years), B. S. (4 years).
54. University of Pennsylvania (Undergraduate Department of Arts and Sciences)—A. B. (4 years).
55. University of Pittsburgh (The College)—A. B. (4 years), B. S. (4 years).
56. University of Southern California (College of Liberal Arts—Undergraduate Department)—A. B. (4 years).
57. University of Texas (College of Arts)—B. A. (4 years).
58. University of Virginia (The College)—A. B. (4 years), B. S. (4 years).
59. University of Washington (College of Liberal Arts)—A. B. (4 years).
(College of Science)—B. S. (4 years).
(College of Mines)—B. S. (4 years).
60. University of Wisconsin (College of Letters and Sciences)—A. B. (4 years), Ph. B. (4 years), Ph. B. (2-year course for normal school graduates).
61. Vanderbilt University (The College)—A. B. (4 years), B. S. (4 years).
62. Washington University (St. Louis) The College—A. B. (4 years), B. S. (4 years, combined arts and medicine).
63. Western Reserve University (Adelbert College)—A. B. (4 years).
(College for Women)—A. B. (4 years), B. S. (4 years).
(Adelbert College and Case School of Applied Science)—A. B. and B. S. (5 years).
64. Worcester Polytechnic Institute (Undergraduate Department)—B. S. (4 years).
65. Yale University (Yale College)—B. A. (4 years), Ph. B. (4 years).
(Sheffield Scientific School)—B. S. (4 years).

GRADUATE SCHOOLS (OR DEPARTMENTS OR COLLEGES) OF ARTS AND SCIENCES.

Degrees granted M. S. or S. M., A. M. or M. A., Ph. M., Ph. D., L. H. M., L. H. D., Sc. D. or D. Sc., or S. D., M. L., etc.

1. Amherst College (Graduate Department)—M. A. (1 year).
2. Armour Institute of Technology (Graduate Department)—M. S. (1 year).
3. Bryn Mawr College (Graduate Department)—A. M. (1 to 3 years), Ph. D. (3 years).
4. Case School of Applied Science (Graduate Department)—M. S. (1 year).
5. Catholic University of America (School of Philosophy)—Graduate department—Ph. M. (2 years), Ph. D. (3 years).
   School of Letters (Graduate Department)—A. M. (1 year), L. H. M. (2 years), Ph. D. (3 years), L. H. D. (3 years).
   School of Sciences (Graduate Department)—A. M. (1 year), M. S. (2 years), Sc. D. (3 years), Ph. D. (3 years).
6. Clark University—A. M. (1 year), Ph. D. (1 to 3 years).
7. College of Hawaii (Graduate Department)—M. S. (1 year).
8. Columbia University (Graduate Department)—A. M. (1 year), Ph. D. (2 years or more).
9. Cornell University (Graduate School)—A. M. (1 year), M. S. (1 year), Ph. D. (3 years).
10. Dartmouth College (Graduate Department)—A. M. (1 year), M. S. (1 year).
11. George Washington University (School of Graduate Studies)—A. M. (1 year), S. M. (1 year), Ph. D. (3 years).
12. Georgetown University (Graduate School)—A. M. (1 year), Ph. D. (3 years).
13. Harvard University (Graduate School of Arts and Sciences)—A. M. (1 year), Ph. D. (2 years or more).
    Radcliffe College (Graduate Department)—A. M. (1 year), Ph. D. (2 years).
14. Iowa State College (Graduate Department)—M. S. (1 year), Ph. D. (3 years).
15. Johns Hopkins University (Graduate Department)—A. M. (2 years), Ph. D. (3 years).
16. Kansas State Agricultural College (Graduate Department—M. S. (1 year), M. S. (in specific subjects) (1 year).
17. Lehigh University (Graduate Department)—M. A. (1 year), M. S. (1 year).
18. Leland Stanford Junior University (Graduate Department)—A. M. (1 year), Ph. D. (3 years).
19. Louisiana State University (Graduate School)—M. A. (1 or 2 years), M. S. (1 or 2 years).
20. Massachusetts Institute of Technology (Graduate Department)—M. S. (1 year), Ph. D. (3 years).
21. Mount Holyoke College (Graduate Department)—A. M. (1 year).
22. New York University (Graduate School)—M. A. (1 year), M. S. (1 year), Ph. D. (3 years), Sc. D. (3 years).
23. Northwestern University (Graduate School)—M. A. (1 year), Ph. D. (3 years).
24. Oberlin College (Graduate Department)—A. M. (1 year).
25. Ohio State University (Graduate School)—A. M. (1 year), M. S. (1 year), Ph. D. (3 years).

26. Pennsylvania State College (Graduate Department)—A. M., M. S. (time not designated).
27. Princeton University (Graduate School)—A. M. (1 year), Ph. D. (2 or 3 years).
28. Purdue University (Graduate Department)—M. S. (1 year).
29. Randolph-Macon Woman's College (Graduate Department)—A. M. (1 year).
30. Rensselaer Polytechnic Institute (Graduate Department)—M. S. (1 year), Ph. D. (3 years), Sc. D. (3 years).
31. Simmons College (Graduate Department)—M. S. (1 year).
32. Smith College (Graduate Department)—A. M. (1 year), Ph. D. (3 years).
33. State College of Washington (Graduate Department)—M. A. (1 year), M. S. (1 year).
34. State University of Iowa (Graduate College)—M. S. (1 year), M. A. (1 year), Ph. D. (3 years).
35. Tufts College (Graduate School)—M. A. (1 year), M. S. (1 year).
36. Tulane University of Louisiana (Department of Graduate Studies)—M. A. (1 year), M. S. (1 year), Ph. D. (3 years).
37. University of Arizona (Graduate School)—A. M. (1 year), M. S. (1 year).
38. University of California (Graduate School)—M. A. (1 year), M. S. (1 year), Ph. D. (2 years).
39. University of Chicago (Graduate School of Arts and Literature, and Ogden School of Science)—A. M. (1 year), M. S. (1 year), Ph. D. (3 years).
40. University of Cincinnati (Graduate School)—A. M. (1 year), Ph. D. (3 years).
41. University of Illinois (Graduate School)—M. A. (1 year), M. S. (1 year), Ph. D. (3 years).
42. University of Kansas (Graduate School)—A. M. (1 year), M. S. (1 year), Ph. D. (3 years).
43. University of Michigan (Graduate School)—A. M. (1 year), M. S. (1 year), Ph. D. (3 years), Sc. D. (3 years).
44. University of Minnesota (Graduate School)—M. A. (1 year), M. S. (1 year), Ph. D. (3 years).
45. University of Missouri (Graduate School)—A. M. (1 year), Ph. D. (3 years).
46. University of Nebraska (Graduate College)—A. M. (1 year), Ph. D. (3 years).
47. University of North Carolina (Graduate School)—A. M. (1 year), S. M. (1 year); Ph. D. (3 years).
48. University of Notre Dame (Graduate School)—M. A. (1 year), M. S. (1 year); Ph. D. (3 years).
49. University of Oregon (Graduate School)—M. A. (1 year), M. S. (1 year).
50. University of Pennsylvania (Graduate School)—A. M. (1 year), M. S. (1 year), Ph. D. (3 years).
51. University of Pittsburgh (Graduate School)—M. A. (1 year), M. S. (1 year), Ph. D. (3 years).
52. University of Southern California (College of Liberal Arts—Graduate Department)—A. M. (1 year).
53. University of Texas (Graduate School)—A. M. (1 year), Ph. D. (3 years).
54. University of Virginia (Department of Graduate Studies)—M. A. (1 year), M. S. (1 year), Ph. D. (3 years).
55. University of Washington (Graduate School)—M. A. (1 year), M. S. (1 year), Ph. D. (3 years).
56. University of Wisconsin (Graduate School)—M. A. (1 year), M. S. (1 year), Ph. M. (1 year), Ph. D. (3 years).

57. Vanderbilt University (Graduate Department)—M. A. (1 year), M. S. (1 year), Ph. D. (3 years), D. Sc. (3 years).
58. Washington University (St. Louis) (Graduate School)—A. M. (1 year), Ph. D. (3 years).
59. Western Reserve University (Graduate School)—A. M. (1 year).
60. Worcester Polytechnic Institute (Graduate Department)—M. S. (1 year), Sc. D. (3 years).
61. Yale University:
(Graduate School)—M. A. (2 years), Ph. D. (3 years).
(Sheffield Scientific School)—M. S. (2 years).

ENGINEERING COURSES.

(General Engineering Colleges (or Departments or Schools or Divisions).

(Includes also courses in two or more engineering subjects.)

UNDERGRADUATE COURSES.

Degrees: B. S., B. S. in E. M. and Met., B. S. in Engineering (or B. S. in Eng.), B. E., B. Eng., B. S. in Structural Engineering, B. S. in M. E. and E. E., B. S. in Civil and Highway Engineering.

1. Agricultural and Mechanical College of Texas (Undergraduate Department)—B. S. (4 years).
2. Iowa State College (Division of Engineering)—B. S., and B. S. in specific subjects (4 years).
3. Johns Hopkins University (Department of Engineering)—B. E. (4 years).
4. Massachusetts Institute of Technology (Undergraduate Department)—B. S. (4 years).
5. Northwestern University (College of Engineering)—B. S. (4 years).
6. Ohio State University (College of Engineering)—B. E. (4 years).
7. Pennsylvania State College (School of Engineering)—B. S. (4 years).
8. State University of Iowa (College of Applied Science)—B. Eng. (4 years), B. S. (4 years).
9. Tufts College (Engineering School)—B. S. in Structural Engineering (4 years).
10. University of Arizona (Undergraduate Department)—B. S. in E. M. and Met. (4 years).
11. University of California (College of Mechanics)—B. S. (Mechanical and Electrical Engineering) (4 years).
(College of Civil Engineering)—B. S. (Railway Engineering, Sanitary Engineering, Irrigation Engineering (4 and 5 years).
12. University of Kansas (School of Engineering)—B. S. in Eng. (4 years), B. S. (5 years).
13. University of Michigan (College of Engineering and Architecture)—B. S. in Eng. (4 years).
14. University of Minnesota (College of Engineering and Architecture)—B. S. in Eng. (4 years).
15. University of Missouri (School of Engineering)—B. S. in Eng. (4 years).
16. University of North Carolina (School of Applied Science)—B. S. in Civil and Highway Engineering (4 years).

GRADUATE COURSES.

Degrees: M. S., M. S. in Eng., M. S. (with mention of specific subject), Ph. D., D. Eng. (or Eng. D.), Sc. D.

1. Johns Hopkins University (Department of Engineering)—Ph. D. (3 years).
2. Massachusetts Institute of Technology (Graduate Department)—M. S. (1 year), Ph. D. (3 years), D. Eng. (3 years).
3. Ohio State University (Graduate School)—M. S. in Eng. (1 year).
4. Rensselaer Polytechnic Institute (Graduate Department)—Eng. D. (3 years), Sc. D. (3 years), Ph. D. (3 years).
5. University of Illinois (Graduate School)—M. S. (with mention of specific subject) (1 year).
6. University of Kansas (Graduate School)—M. S. (1 year).
7. University of Michigan (Graduate School)—M. S. in Eng. (1 year).
8. University of Nebraska (College of Engineering)—Ph. D. (3 years).

CHEMICAL ENGINEERING COLLEGES (OR SCHOOLS OR DEPARTMENTS).

UNDERGRADUATE COURSES.

Degrees: B. S. (or S. B.) in Chem. (or Ch.) E., Chem. (or Ch.) E., B. Chem. (or Ch.) E., B. S., B. E., B. S. in Eng.

1. Agricultural and Mechanical College of Texas (Undergraduate Department)—B. S. in Ch. E. (4 years).
2. Alabama Polytechnic Institute (College of Engineering, Mines and Architecture)—B. S. (4 years).
3. Armour Institute of Technology (Undergraduate Department)—B. S. in Ch. E. (4 years).
4. Case School of Applied Science (Undergraduate Department)—B. S. (4 years).
5. Catholic University of America (School of Sciences)—B. S. in Chem. E. (4 years).
6. Clemson Agricultural College—B. S. (4 years).
7. George Washington University (College of Engineering)—B. S. in Chem. E. (4 years).
8. Harvard University (School of Engineering)—S. B. (4 years).
9. Iowa State College (Division of Engineering)—B. S. in Chem. E. (4 or 5 years).
10. Johns Hopkins University (Department of Engineering)—B. S. in Chem. (4 years).
11. Lehigh University (Undergraduate Department)—Ch. E. (4 years).
12. Louisiana State University (College of Engineering)—B. S. (4 years).
13. Massachusetts Institute of Technology (Undergraduate Department)—B. S. (4 or 5 years).
14. New York University (School of Applied Science)—B. S. in Chem. E. (4 years).
15. Ohio State University (College of Engineering)—B. Ch. E. (4 years).
16. Oregon State Agricultural College (School of Engineering)—B. S. in Ch. E. (4 years).
17. Pennsylvania State College (School of Engineering)—B. S. (4 years).
18. Purdue University (Undergraduate Department)—B. S. in Chem. E. (4 years).
19. Rensselaer Polytechnic Institute (Undergraduate Department)—Ch. E. (4 years).

20. State College of Washington (College of Mechanic Arts and Engineering)—B. S. in Ch. E. (4 years).
21. State University of Iowa (College of Applied Science)—B. S. in Chem. (5 years).
22. Tufts College (Engineering School)—B. S. in Chem. E. (4 years).
23. Tulane University of Louisiana (College of Technology)—B. E. (4 years).
24. University of California (College of Chemistry)—B. S. (4 years).
25. University of Cincinnati (College of Engineering)—B. S. in Chem. E. (4 years); Ch. E. (5-year cooperative course).
26. University of Kansas (School of Engineering)—B. S. in Eng. (4 years), B. S. (5 years).
27. University of Michigan (College of Engineering)—B. S. in Eng. (4 years).
28. University of Minnesota (School of Analytical and Applied Chemistry)—Chem. E. (5 years).
29. University of Missouri (School of Engineering)—Ch. E. (5 years); (School of Mines and Metallurgy)—B. S. in Ch. E. (4 years).
30. University of Notre Dame (College of Engineering)—Chem. E. (4 years).
31. University of Pennsylvania (Towne Scientific School)—B. S. in Chem. E. (4 years).
32. University of Pittsburgh (School of Engineering)—B. S. in Chem. E. (4 years).
33. University of Southern California (College of Liberal Arts—Undergraduate Department—2 years' course).
34. University of Texas (College of Engineering)—B. S. in Ch. E. (4 years).
35. University of Virginia (Department of Engineering)—Ch. E. (4 years).
36. University of Washington (College of Engineering)—B. S. in Ch. E. (4 years).
37. University of Wisconsin (College of Engineering)—B. S. in Chem. E. (4 years).
38. Vanderbilt University (Engineering Department)—B. E. (4 years).
39. Washington University (St. Louis) (School of Engineering)—B. S. in Chem. E. (4 years).
40. Worcester Polytechnic Institute (Undergraduate Department)—B. S. (4 years).
41. Yale University (Sheffield Scientific School)—B. S. (4 years).

GRADUATE COURSES.

Degrees: M. S. (or S. M.), M. S. (or S. M.) in Ch. E., S. M. in Industrial Chem., M. Ch. E., M. S. in Eng., Ch. E. (or Chem. E.).

1. Agricultural and Mechanical College of Texas (Graduate Department)—Ch. E. (1 year).
2. Alabama Polytechnic Institute (Graduate Department)—Ch. E. (1 year).
3. Armour Institute of Technology (Graduate Department)—Ch. E. (3 years).
4. Case School of Applied Science (Graduate Department)—Chem. E. (3 years).
5. Columbia University (School of Chemistry)—Chem. E. (3 years).
6. Harvard University (School of Engineering)—S. M. in Industrial Chem. (1 year).
7. Iowa State College (Graduate Division)—Ch. E. (2 or 5 years).
8. Leland Stanford Junior University (Graduate Department)—Ch. E. (1 year).

9. Louisiana State University (Graduate Department)—Ch. E. (1 or 2 years).
10. Massachusetts Institute of Technology (Graduate Department)—M. S. (1 year).
11. New York University (School of Applied Science)—Chem. E. (1 year).
12. Ohio State University (Graduate School)—M. S. in Eng. (1 year); Ch. E. (2 to 4 years).
13. Oregon State Agricultural College (School of Engineering)—Ch. E. (1 year).
14. Purdue University (Graduate Department)—Ch. E. (1 year).
15. Rensselaer Polytechnic Institute (Graduate Department)—M. Ch. E. (1 year).
16. State College of Washington (College of Mechanic Arts and Engineering)—Ch. E. (1 or 3 years).
17. State University of Iowa (College of Applied Science)—Ch. E. (4 years).
18. Tulane University of Louisiana (Faculty of Graduate Studies)—Chem. E. (1 or 2 years).
19. University of Kansas (Graduate School)—Chem. E. (3 years).
20. University of Michigan (Graduate School)—M. S. in Eng. (1 year); Ch. E. (1 year—registration for the degree not less than 5 years after award of bachelor's degree).
21. University of Pittsburgh (School of Engineering)—Chem. E. (3 years).
22. University of Washington (College of Engineering)—M. S. in Ch. E. (1 year).
23. University of Wisconsin (Graduate School)—Ch. E. (1 to 3 years).
24. Washington University (St. Louis) (School of Engineering)—Chem. E. (3 years).
25. Worcester Polytechnic Institute (Graduate Department)—Ch. E. (1 to 3 years).
26. Yale University (Graduate School)—Chem. E. (1 year); M. S. (2 years).

CIVIL ENGINEERING DEPARTMENTS (SCHOOLS OR COLLEGES OR DIVISIONS).

UNDERGRADUATE COURSES.

Degrees: B. S. (or S. B. or B. Sc.) in C. E., B. S. in Eng., B. C. E., B. E., C. E.

1. Agricultural and Mechanical College of Texas (School of Engineering)—B. S. in C. E. (4 years).
2. Alabama Polytechnic Institute (College of Engineering, Mines, and Architecture)—B. S. (4 years).
3. Armour Institute of Technology (Undergraduate Department)—B. S. in C. E. (4 years).
4. Case School of Applied Science (Undergraduate Department)—B. S. in C. E. (4 years).
5. Catholic University of America (School of Sciences)—B. S. in C. E. (4 years).
6. Clemson Agricultural College—B. S. in C. E. (4 years).
7. College of Hawaii (Undergraduate Department)—B. S. in C. E. (4 years).
8. Cornell University (College of Civil Engineering)—C. E. (4 or 5 years).
9. George Washington University (College of Engineering)—B. S. in C. E. (4 years).
10. Harvard University (School of Engineering)—S. B. in C. E. (4 years).
11. Howard University (School of Applied Science)—B. S. in C. E. (4 years).
12. Iowa State College (Division of Engineering)—B. S. in C. E. (4 or 5 years).
13. Johns Hopkins University (Department of Engineering)—B. E. (4 years).

11. Kansas State Agricultural College (Division of Engineering)—B. S. in C. E. (4 years).
15. Lehigh University (Undergraduate Department)—C. E. (4 years).
16. Louisiana State University (Undergraduate Department)—B. S. (4 years).
17. Massachusetts Institute of Technology (Undergraduate Department)—B. S. (4 or 5 years).
18. Municipal University of Akron (College of Engineering)—C. E. (5-year cooperative course).
19. New York University (School of Applied Science)—B. S. in C. E. (4 years).
20. Northwestern University (College of Engineering)—B. S. (4 years).
21. Ohio State University (College of Engineering)—B. C. E. (4 years).
22. Oregon State Agricultural College (School of Engineering)—B. S. in C. E. (4 years).
23. Pennsylvania State College (School of Engineering)—B. S. (4 years).
24. Princeton University (Undergraduate Department)—C. E. (4 years).
25. Purdue University (Undergraduate Department)—B. S. in C. E. (4 years).
26. Rensselaer Polytechnic Institute (Undergraduate Department)—C. E. (4 years).
27. State College of Washington (College of Mechanic Arts and Engineering)—B. S. in C. E. (4 years).
28. State University of Iowa (College of Applied Science)—B. Eng. (4 years).
29. Tufts College (Engineering School)—B. S. in C. E. (4 years).
30. Tulane University of Louisiana (College of Technology)—B. C. E. (4 years).
31. University of Arizona (Undergraduate Department)—B. S. in C. E. (4 years).
32. University of California (College of Civil Engineering)—B. S. (4 years).
33. University of Cincinnati (College of Engineering)—B. S. in C. E. (4 years); C. E. (5-year cooperative course).
34. University of Illinois (College of Engineering)—B. S. in C. E. (4 years).
35. University of Kansas (School of Engineering)—B. S. in Eng. (4 years); B. S. (5 years).
36. University of Michigan (College of Engineering)—B. S. in Eng. (4 years).
37. University of Minnesota (College of Engineering and Architecture)—B. S. in Eng. (4 years).
38. University of Missouri (School of Engineering)—C. E. (5 years). School of Mines and Metallurgy—B. S. in C. E. (4 years).
39. University of Nebraska (College of Engineering)—B Sc. in C. E. (4 years).
40. University of North Carolina (School of Applied Science)—B. S. in Civil and Highway Engineering (4 years).
41. University of Notre Dame (College of Engineering)—C. E. (4 years).
42. University of Pennsylvania (Towne Scientific School)—B. S. in C. E. (4 years).
43. University of Pittsburgh (School of Engineering)—B. S. in C. E. (4 years).
44. University of Texas (College of Engineering)—B. S. in C. E. (4 years).
45. University of Virginia (Department of Engineering)—C. E. (4 years).
46. University of Washington (College of Engineering)—B. S. in C. E. (4 years).
47. University of Wisconsin (College of Engineering)—B. S. in C. E. (4 years).
48. Vanderbilt University (Engineering Department)—B. E. (4 years).
49. Washington University (St. Louis) (School of Engineering)—B. S. in C. E. (4 years).
50. Worcester Polytechnic Institute (Undergraduate Department)—B. S. (4 years).
51. Yale University (Sheffield Scientific School)—B. S. (4 years).

GRADUATE COURSES.

Degrees: M. S. (or S. M.) in C. E., M. S. in Eng., C. E., M. C. E.

1. Agricultural and Mechanical College of Texas (School of Engineering)—C. E. (1 year).
2. Alabama Polytechnic Institute (Graduate Department)—C. E. (1 year).
3. Armour Institute of Technology (Graduate Department)—C. E. (3 years).
4. Case School of Applied Science (Graduate Department)—C. E. (3 years).
5. Catholic University of America (School of Sciences)—C. E. (2 years).
6. College of Hawaii (Graduate Department)—C. E. (1 year).
7. Columbia University (School of Engineering)—C. E. (3 years).
8. Cornell University (Graduate School)—M. C. E. (1 year).
9. Dartmouth College (Thayer School of Civil Engineering)—C. E. (2 years).
10. George Washington University (School of Graduate Studies)—C. E. (1 year).
11. Harvard University (School of Engineering)—S. M. in C. E. (1 year).
12. Iowa State College (Graduate Division)—C. E. (2 or 5 years).
13. Johns Hopkins University (Department of Engineering)—M. C. E. (2 years).
14. Leland Stanford Junior University (Graduate Department)—C. E. (1 year).
15. Louisiana State University (Graduate Department)—C. E. (1 or 2 years).
16. Massachusetts Institute of Technology (Graduate Department)—M. S. (1 year or more).
17. New York University (School of Applied Science)—C. E. (1 year).
18. Northwestern University (College of Engineering)—C. E. (1 year).
19. Ohio State University (Graduate School)—M. S. in Eng. (1 year); C. E. (2 to 4 years).
20. Oregon State Agricultural College (School of Engineering)—C. E. (1 year).
21. Pennsylvania State College (Graduate Department)—C. E. (time not designated).
22. Purdue University (Graduate Department)—C. E. (1 year).
23. Rensselaer Polytechnic Institute (Graduate Department)—M. C. E. (1 year).
24. State College of Washington (College of Mechanic Arts and Engineering)—C. E. (1 or 3 years).
25. State University of Iowa (College of Applied Science)—C. E. (1 years).
26. Tulane University of Louisiana (Faculty of Graduate Studies)—C. E. (1 or 2 years).
27. University of California (Graduate School)—C. E. (3 years).
28. University of Illinois (Graduate School)—C. E. (3 years).
29. University of Kansas (Graduate School)—C. E. (3 years).
30. University of Michigan (Graduate School)—M. S. in Eng. (1 year); C. E. (1 year—registration for the degree 5 years after bachelor's degree).
31. University of Minnesota (College of Engineering and Architecture)—C. E. (1 year).
32. University of Nebraska (Graduate College)—M. S. in C. E. (1 year); C. E. (1 year—registration for degree 5 years after bachelor's degree).
33. University of Pittsburgh (School of Engineering)—C. E. (3 years).
34. University of Texas (College of Engineering)—C. E. (1 year).
35. University of Washington (College of Engineering)—M. S. in C. E. (1 year); C. E. (1 or 2 years).
36. University of Wisconsin (Graduate School)—C. E. (1 to 3 years).
37. Vanderbilt University (Engineering Department)—C. E. (1 year).
38. Washington University (St. Louis) (School of Engineering)—C. E. (3 years).

39. Worcester Polytechnic Institute (Graduate Department)—C. E. (1 or 3 years).
40. Yale University (Graduate School)—C. E. (1 year); M. S. (2 years).

ELECTRICAL ENGINEERING DEPARTMENTS (OR SCHOOLS OR DIVISIONS OR COLLEGES).

UNDERGRADUATE COURSES.

Degrees: B. S. (or S. B. or B. Sc.) in E. E., B. S. (or S. B.), B. E. E., B. E., B. S. in Hydro-Electrical Engineering.

1. Agricultural and Mechanical College of Texas (School of Engineering)—B. S. in E. E. (4 years).
2. Alabama Polytechnic Institute (College of Engineering, Mines, and Architecture)—B. S. (4 years).
3. Armour Institute of Technology (Undergraduate Department)—B. S. in E. E. (4 years).
4. Case School of Applied Science (Undergraduate Department)—B. S. (4 years).
5. Catholic University of America (School of Sciences)—B. S. in E. E. (4 years).
6. Clemson Agricultural College—B. S. in E. E. (4 years).
7. George Washington University (College of Engineering)—B. S. in E. E. (4 years).
8. Harvard University (School of Engineering)—S. B. in E. E. (4 years).
9. Howard University (School of Applied Science)—B. S. in E. E. (4 years).
10. Iowa State College (Division of Engineering)—B. S. in E. E. (4 or 5 years).
11. Johns Hopkins University (Department of Engineering)—B. E. (4 years).
12. Kansas State Agricultural College (Division of Engineering)—B. S. in E. E. (4 years).
13. Lehigh University (Undergraduate Department)—E. E. (4 years).
14. Louisiana State University (College of Engineering)—B. S. (4 years).
15. Massachusetts Institute of Technology (Undergraduate Department)—B. S. (4 or 5 years).
16. Municipal University of Akron (College of Engineering)—E. E. (5-year cooperative course).
17. Northwestern University (College of Engineering)—B. S. (4 years).
18. Ohio State University (College of Engineering)—B. E. E. (4 years).
19. Oregon State Agricultural College (School of Engineering)—B. S. in E. E. (4 years).
20. Pennsylvania State College (School of Engineering)—B. S. (4 years).
21. Purdue University (Undergraduate Department)—B. S. in E. E. (4 years).
22. Rensselaer Polytechnic Institute (Undergraduate Department)—E. E. (4 years).
23. State College of Washington (College of Mechanic Arts and Engineering)—B. S. in E. E. (4 years), B. S. in Hydro-Electrical Engineering (4 years).
24. State University of Iowa (College of Applied Science)—B. Eng. (4 years).
25. Tufts College (Engineering School)—B. S. in E. E. (4 years).
26. Tulane University of Louisiana (College of Technology)—B. E. (4 years).
27. University of Arizona (Undergraduate Department)—B. S. in E. E. (4 years).
28. University of California (College of Mechanics)—B. S. (4 years).
29. University of Cincinnati (College of Engineering)—B. S. in E. E. (4 years); E. E. (5-year cooperative course).

30. University of Illinois (College of Engineering)—B. S. in E. E. (4 years).
31. University of Kansas (School of Engineering)—B. S. in Eng. (4 years), B. S. (5 years).
32. University of Michigan (College of Engineering)—B. S. in Eng. (4 years).
33. University of Minnesota (College of Engineering and Architecture)—B. S. in Eng. (4 years).
34. University of Missouri (School of Engineering)—E. E. (5 years); (School of Mines and Metallurgy)—B. S. in E. E. (4 years).
35. University of Nebraska (College of Engineering)—B. Sc. in E. E. (4 years).
36. University of North Carolina (School of Applied Science)—B. S. in E. E. (4 years).
37. University of Notre Dame (College of Engineering)—E. E. (4 years).
38. University of Pennsylvania (Towne Scientific School)—B. S. in E. E. (4 years).
39. University of Pittsburgh (School of Engineering)—B. S. in E. E. (4 years).
40. University of Texas (College of Engineering)—B. S. in E. E. (4 years).
41. University of Virginia (Department of Engineering)—E. E. (4 years).
42. University of Washington (College of Engineering)—B. S. in E. E. (4 years).
43. University of Wisconsin (College of Engineering)—B. S. in E. E. (4 years).
44. Vanderbilt University (Engineering Department)—B. E. (4 years).
45. Washington University (St. Louis) (School of Engineering)—B. S. in E. E. (4 years).
46. Worcester Polytechnic Institute (Undergraduate Department)—B. S. (4 years).
47. Yale University (Sheffield Scientific School)—B. S. (4 years).

GRADUATE COURSES.

Degrees: M. S. (or S. M.) in E. E., E. E., M. E. E., M. S. in Eng.

1. Agricultural and Mechanical College of Texas (School of Engineering)—E. E. (1 year).
2. Alabama Polytechnic Institute (Graduate Department)—E. E. (1 year).
3. Armour Institute of Technology (Graduate Department)—E. E. (3 years).
4. Case School of Applied Science (Graduate Department)—E. E. (3 years).
5. Catholic University of America (School of Sciences)—E. E. (2 years).
6. College of Hawaii (Graduate Department)—E. E. (1 year).
7. Columbia University (School of Engineering)—E. E. (3 years).
8. George Washington University (School of Graduate Studies)—E. E. (1 year).
9. Harvard University (School of Engineering)—S. M. in E. E. (1 year).
10. Iowa State College (Graduate Division)—E. E. (2 or 5 years).
11. Johns Hopkins University (Department of Engineering)—M. E. E. (2 years).
12. Leland Stanford Junior University (Graduate Department)—E. E. (1 year).
13. Louisiana State University (Graduate Department)—E. E. (1 or 2 years).
14. Massachusetts Institute of Technology (Graduate Department)—M. S. (1 year).
15. Northwestern University (College of Engineering)—E. E. (1 year).
16. Ohio State University (Graduate School)—M. E. in Eng. (1 year); E. E. (2 to 4 years).
17. Oregon State Agricultural College (School of Engineering)—E. E. (1 year).
18. Pennsylvania State College (Graduate Department)—E. E. (time not designated).

19. Princeton University (School of Electrical Engineering)—E. E. (2 years).
20. Purdue University (Graduate Department)—E. E. (1 year).
21. Rensselaer Polytechnic Institute (Graduate Department)—M. E. E. (1 year).
22. State College of Washington (College of Mechanic Arts and Engineering)—E. E. (1 or 3 years).
23. State University of Iowa (College of Applied Science)—E. E. (4 years).
24. Tulane University of Louisiana (Faculty of Graduate Studies)—E. E. (1 or 2 years).
25. University of California (Graduate Department)—E. E. (3 years).
26. University of Illinois (Graduate School)—E. E. (3 years).
27. University of Kansas (Graduate School)—E. E. (3 years).
28. University of Michigan (Graduate School)—M. S. in Eng. (1 year); E. E. (1 year—registration for degree not less than 5 years after award of bachelor's degree).
29. University of Minnesota (College of Engineering and Architecture)—E. E. (1 year).
30. University of Nebraska (Graduate College)—M. S. in E. E. (1 year); E. E. (1 year—registration 5 years after award of bachelor's degree).
31. University of Pittsburgh (School of Engineering)—E. E. (3 years).
32. University of Texas (College of Engineering)—E. E. (1 year).
33. University of Washington (College of Engineering)—M. S. in E. E. (1 year); E. E. (1 or 2 years).
34. University of Wisconsin (Graduate School)—E. E. (1 to 3 years).
35. Vanderbilt University (Engineering Department)—E. E. (1 year).
36. Washington University (St. Louis) (School of Engineering)—E. E. (3 years).
37. Worcester Polytechnic Institute (Graduate Department)—E. E. (1 to 3 years).
38. Yale University (Graduate School)—E. E. (1 year); M. S. (2 years).

Mechanical Engineering Departments (or Schools or Colleges or Divisions or Institutes)

Undergraduate courses.

Degrees: B. S. (or S. B. or B. Sc.) in M. E., B. S., B. S. in Eng., M. E. (or Mech. E.), B. M. E., B. E., B. Eng.

1. Agricultural and Mechanical College of Texas (Undergraduate Department)—B. S. in M. E. (4 years).
2. Alabama Polytechnic Institute (College of Engineering, Mines, and Architecture)—B. S. (4 years).
3. Armour Institute of Technology (Undergraduate Department)—B. S. in M. E. (4 years).
4. Case School of Applied Science (Undergraduate Department)—B. S. in M. E. (4 years).
5. Catholic University of America (School of Sciences)—B. S. in M. E. (4 years).
6. Clemson Agricultural College—B. S. in M. E. (4 years).
7. Cornell University (Sibley College of Mechanical Engineering and Mechanic Arts)—M. E. (4 or 5 years).
8. George Washington University (College of Engineering)—B. S. in M. E. (4 years).
9. Harvard University (School of Engineering)—S. B. in M. E. (4 years).

10. Howard University (School of Applied Science)—B. S. in M. E. (4 years).
11. Iowa State College (Division of Engineering)—B. S. in M. E. (4 or 5 years).
12. Johns Hopkins University (Department of Engineering)—B. E. (4 years).
13. Kansas State Agricultural College (Division of Engineering)—B. S. in M. E. (4 years).
14. Lehigh University (Undergraduate Department)—M. E. (4 years).
15. Louisiana State University (College of Engineering)—B. S. (4 years).
16. Massachusetts Institute of Technology (Undergraduate Department)—B. S. (4 or 5 years).
17. Municipal University of Akron (College of Engineering)—M. E. (5-year cooperative course).
18. New York University (School of Applied Science)—B. S. in M. E. (4 years).
19. Ohio State University (College of Engineering)—B. M. E. (4 years).
20. Oregon State Agricultural College (School of Engineering)—B. S. in M. E. (4 years).
21. Pennsylvania State College (School of Engineering)—B. S. (4 years).
22. Purdue University (Undergraduate Department)—B. S. in M. E. (4 years).
23. Rensselaer Polytechnic Institute (Undergraduate Department)—M. E. (4 years).
24. State College of Washington (College of Mechanic Arts and Engineering)—B. S. in M. E. (4 years).
25. State University of Iowa (College of Applied Science)—B. Eng. (4 years).
26. Stevens Institute of Technology—M. E. (4 years).
27. Tufts College (Engineering School)—B. S. in M. E. (4 years).
28. Tulane University of Louisiana (College of Technology)—B. E. (4 years).
29. University of Arizona (Undergraduate Department)—B. S. in M. E. (4 years).
30. University of California (College of Mechanics)—B. S. (4 years).
31. University of Cincinnati (College of Engineering)—B. S. in M. E. (4 years); M. E. (5-year cooperative course).
32. University of Illinois (College of Engineering)—B. S. in M. E. (4 years).
33. University of Kansas (School of Engineering)—B. S. in Eng. (4 years); B. S. (5 years).
34. University of Michigan (College of Engineering)—B. S. in Eng. (4 years).
35. University of Minnesota (College of Engineering and Architecture)—B. S. in Eng. (4 years).
36. University of Missouri (School of Engineering)—M. E. (5 years); (School of Mines and Metallurgy)—B. S. in M. E. (4 years).
37. University of Nebraska (College of Engineering)—B. Sc. in M. E. (4 years).
38. University of Notre Dame (College of Engineering)—M. E. (4 years).
39. University of Pennsylvania (Towne Scientific School)—B. S. in M. E. (4 years).
40. University of Pittsburgh (School of Engineering)—B. S. in M. E. (4 years).
41. University of Texas (College of Engineering)—B. S. in M. E. (4 years).
42. University of Virginia (Department of Engineering)—M. E. (4 years).
43. University of Washington (College of Engineering)—B. S. in M. E. (4 years).
44. University of Wisconsin (College of Engineering)—B. S. in M. E. (4 years).
45. Vanderbilt University (Engineering Department)—B. E. (4 years).
46. Washington University (St. Louis) (School of Engineering)—B. S. in M. E. (4 years).
47. Worcester Polytechnic Institute (Undergraduate Department)—B. S. (4 years).
48. Yale University (Sheffield Scientific School)—B. S. (4 years).

GRADUATE COURSES.

Degrees: M. S. (or S. M.), M. S. in M. E., M. E. M. M. E.

1. Agricultural and Mechanical College of Texas (Graduate Department)—M. E. (1 year).
2. Alabama Polytechnic Institute (Graduate Department)—M. E. (1 year).
3. Armour Institute of Technology (Graduate Department)—M. E. (3 years).
4. Case School of Applied Science (Graduate Department)—M. E. (3 years).
5. Catholic University of America (School of Sciences)—M. E. (2 years).
6. Columbia University (School of Engineering)—M. E. (3 years).
7. Cornell University (Graduate School)—M. M. E. (1 year).
8. George Washington University (School of Graduate Studies)—M. E. (1 year).
9. Harvard University (School of Engineering)—S. M. in M. E. (1 year).
10. Iowa State College (Graduate Division)—M. E. (2 or 3 years).
11. Johns Hopkins University (Department of Engineering)—M. M. E. (2 years).
12. Leland Stanford Junior University (Graduate Department)—M. E. (1 year).
13. Louisiana State University (Graduate Department)—M. E. (1 or 2 years).
14. New York University (School of Applied Science)—M. E. (1 year).
15. Ohio State University (Graduate School)—M. S. in Eng. (1 year); M. E. (2 to 4 years).
16. Oregon State Agricultural College (School of Engineering)—M. E. (1 year).
17. Pennsylvania State College (Graduate Department)—M. E. (time not designated).
18. Purdue University (Graduate Department)—M. E. (1 year).
19. Rensselaer Polytechnic Institute (Graduate Department)—M. M. E. (1 year).
20. State College of Washington (College of Mechanic Arts and Engineering)—M. E. (1 or 3 years).
21. State University of Iowa (College of Applied Science)—M. E. (4 years).
22. Tulane University of Louisiana (Faculty of Graduate Studies)—M. E. (1 or 2 years).
23. University of California (Graduate School)—M. E. (3 years).
24. University of Illinois (Graduate School)—M. E. (3 years).
25. University of Kansas (Graduate School)—Mech. E. (3 years).
26. University of Michigan (Graduate School)—M. S. in Eng. (1 year); M. E. (1 year—registration for degree not less than 5 years after award of bachelor's degree).
27. University of Minnesota (College of Engineering and Architecture)—M. E. (1 year).
28. University of Nebraska (Graduate College)—M. S. in M. E. (1 year); M. E. (1 year—registration for degree not less than 5 years after bachelor's degree is awarded).
29. University of Pittsburgh (School of Engineering)—M. E. (3 years).
30. University of Washington (College of Engineering)—M. S. in M. E. (1 year); M. E. (1 or 2 years).
31. University of Wisconsin (Graduate School)—M. E. (1 to 3 years).
32. Vanderbilt University (Engineering Department)—M. E. (1 year).
33. Washington University (St. Louis) (School of Engineering)—M. E. (3 years).
34. Worcester Polytechnic Institute (Graduate Department)—M. E. (1 to 3 years).
35. Yale University (Graduate School)—M. E. (1 year); M. S. (2 years).

METALLURGICAL ENGINEERING SCHOOLS (OR DEPARTMENTS OR COLLEGES).

UNDERGRADUATE COURSES.

Degrees: B. S. (or S. B.) in Metallurgy, B. S. in Met. E., B. S. in Mining Engineering, and Met. Engineer, Met. E., B. S.

1. Case School of Applied Science (Undergraduate Department)—B. S. in Metallurgy (4 years).
2. Harvard University (School of Engineering)—S. B. in Metallurgy (4 years).
3. Lehigh University (Undergraduate Department)—Met. E. (4 years).
4. Massachusetts Institute of Technology (Undergraduate Department)—B. S. (4 or 5 years).
5. University of Arizona (Undergraduate Department)—B. S. in Mining, Engineering, and Metallurgy (4 years).
6. University of California (College of Mining)—B. S. (4 years).
7. University of Cincinnati (College of Engineering)—Met. E. (5-year cooperative course).
8. University of Minnesota (School of Mines)—Met. E. (4 years).
9. University of Missouri (School of Mines and Metallurgy)—B. S. in Metallurgy (4 years).
10. University of Pittsburgh (School of Mines)—Met. E. (4 years).
11. University of Washington (School of Mines)—B. S. in Met. E. (4 years).
12. Yale University (Sheffield Scientific School)—B. S. (4 years).

GRADUATE COURSES.

Degrees: Met. E. (or Metallurgical Engineer, Metallurgical E.), M. S., S. D.

1. Columbia University (School of Mines)—Met. E. (3 years).
2. Harvard University (School of Engineering)—Met. E. (1 year), S. D. (time not designated).
3. Massachusetts Institute of Technology (Graduate Department)—M. S. (1 year).
4. University of California (Graduate School)—Metallurgical E. (3 years).
5. University of Missouri (School of Mines and Metallurgy)—Metallurgical Engineer (2 years).
6. University of Washington (College of Mines)—Met. E. (3 years).
7. Yale University (Graduate School)—Met. E. (1 year), M. S. (2 years).

MINING ENGINEERING COLLEGES (OR SCHOOLS OR DIVISIONS OR DEPARTMENTS).

UNDERGRADUATE COURSES.

Degrees: B. S. (or S. B.) in Mining Engineering, E. E., M. E., B. S., B. S. in Coal Mining Engineering, B. S. in Mining Engineering, and Metallurgy, E. M. in Geology.

1. Alabama Polytechnic Institute (College of Engineering, Mines, and Architecture)—B. S. (4 years).
2. Case School of Applied Science (Undergraduate Department)—B. S. (4 years).
3. Colorado State School of Mines—E. M. (4 years).
4. Harvard University (School of Engineering)—S. B. in Mining Engineering [redacted] years).
5. Iowa State College (Division of Engineering)—B. S. in Mining Engineering (4 or 5 years).
6. Lehigh University (Undergraduate Department)—E. M. (4 years).

7. Massachusetts Institute of Technology (Undergraduate Department)—B. S. (4 or 5 years).
8. Michigan College of Mines—E. M. (4 years), B. S. (4 years).
9. Northwestern University (College of Engineering)—E. M. (4 years).
10. Ohio State University (College of Engineering)—B. E. M. (4 years).
11. Oregon State Agricultural College (School of Mines)—B. S. in Mining Engineering (4 years).
12. Pennsylvania State College (School of Mines)—B. S. (4 years).
13. State College of Washington (School of Mines)—B. S. in Mining Engineering (4 years).
14. University of Arizona (Undergraduate Department)—B. S. in Mining, Engineering, and Metallurgy (4 years).
15. University of California (College of Mining)—B. S. (4 years).
16. University of Illinois (College of Engineering)—B. S. in Mining Engineering (4 years).
17. University of Kansas (School of Engineering)—B. S. in Engineering (4 years), B. S. (5 years).
18. University of Minnesota (School of Mines)—E. M. (4 years), E. M. in Geology (4 years).
19. University of Missouri (School of Mines and Metallurgy)—B. S. in Mine Engineering (4 years).
20. University of Notre Dame (College of Engineering)—E. M. (4 years).
21. University of Pittsburgh (School of Mines)—E. M. (4 years).
22. University of Southern California (College of Liberal Arts—Undergraduate Department)—2-year course.
23. University of Virginia (Department of Engineering)—E. M. (4 years).
24. University of Washington (College of Mines)—B. S. in Mining Engineering (4 years), B. S. in Coal Mining Engineering (4 years).
25. University of Wisconsin (College of Engineering)—B. S. in Mining Engineering (4 years).
26. Yale University (Sheffield Scientific School)—B. S. (4 years).

GRADUATE COURSES.

Degrees: E. M., M. S., M. S. in Mining Engineering, S. D.

1. Alabama Polytechnic Institute (Graduate Department)—E. M. (1 year).
2. Case School of Applied Science (Graduate Department)—E. M. (1 year).
3. Colorado State School of Mines (Graduate Department)—M. S. (1 year).
4. Columbia University (School of Mines)—E. M. (3 years).
5. Harvard University (School of Engineering)—E. M. (1 year), S. D. (time not designated).
6. Iowa State College (Graduate Division)—E. M. (2 or 5 years).
7. Leland Stanford Junior University (Graduate Department)—E. M. (1 year).
8. Massachusetts Institute of Technology (Graduate Department)—M. S. (1 year).
9. Pennsylvania State College (Graduate Department)—E. M. (time not designated).
10. State College of Washington (School of Mines)—E. M. (1 or 3 years).
11. University of Arizona (Graduate Department)—E. M. (1 year).
12. University of California (Graduate School)—E. M. (3 years).
13. University of Kansas (Graduate School)—E. M. (3 years).
14. University of Missouri (School of Mines and Metallurgy)—E. M. (2 years).

15. University of Washington (College of Mines)—E. M. (3 years), M. S. in Mining Engineering (1 year).
16. University of Wisconsin (Graduate School)—E. M. (1 or 3 years).
17. Yale University (Graduate School)—E. M. (1 year), M. S. (2 years).

ARCHITECTURAL ENGINEERING SCHOOLS (OR COLLEGES OR DEPARTMENTS).

UNDERGRADUATE COURSES.

Degrees: B. S. (or B. Sc.) in Arch. E., B. Arch. E., B. S.

1. Alabama Polytechnic Institute (College of Engineering, Mines and Architecture)—B. S. (4 years).
2. Catholic University of America (School of Sciences—Undergraduate Department)—B. S. in Arch. E. (4 years).
3. Iowa State College (Division of Engineering)—B. S. in Arch. E. (4 or 5 years).
4. Massachusetts Institute of Technology (Undergraduate Department)—B. S. (4 or 5 years).
5. Ohio State University (College of Engineering)—B. Arch. E. (4 years).
6. University of Illinois (College of Engineering)—B. S. in Arch. E. (4 years).
7. University of Kansas (School of Engineering)—B. S. in Eng. (4 years), B. S. (5 years).
8. University of Nebraska (College of Engineering)—B. Sc. in Arch. E. (4 years).
9. University of Notre Dame (College of Architecture)—B. S. in Arch. E. (4 years).
10. University of Pennsylvania (Towne Scientific School)—B. S. in Arch. E. (4 years).
11. University of Texas (College of Engineering)—B. S. in Arch. E. (4 years).

GRADUATE COURSES.

Degrees: Arch. E., M. S. in Arch. E., M. S.

1. Iowa State College (Graduate Division)—M. S. in Arch. E. (2 or 3 years).
2. Massachusetts Institute of Technology (Graduate Department)—M. S. (1 year).
3. Ohio State University (Graduate School)—Arch. E. (2 or 3 years).
4. University of Illinois (Graduate School)—Arch. E. (3 years).
5. University of Kansas (Graduate School)—Arch. E. (3 years).
6. University of Minnesota (College of Engineering and Architecture—Arch. E. (5 years).
7. University of Notre Dame (College of Architecture)—M. S. in Arch. E. (1 year).
8. University of Texas (College of Engineering)—M. S. in Arch. E. (1 year).

AERONAUTICAL ENGINEERING.

GRADUATE COURSES.

Degrees: Ae. E., Aeronautical Engineer.

1. Massachusetts Institute of Technology (Graduate Department)—Aeronautical Engineer (1 year).
2. University of Michigan (Graduate School)—Ae. E. (1 year—registration for degree not less than 5 years after bachelor's degree).

CERAMIC ENGINEERING.

UNDERGRADUATE COURSES.

Degrees: B. S. in Ceramic Engineering, B. Cr. E.

1. Iowa State College (Division of Engineering)—B. S. in Ceramic Engineering (4 years).
2. Ohio State University (College of Engineering)—B. Cr. E. (4 years).
3. Oregon State Agricultural College (School of Mines)—B. S. in Ceramic Engineering (4 years).

GRADUATE COURSE.

Degree: Cr. E.

1. Ohio State University (Graduate School)—Cr. E. (2 to 4 years).

GEOLOGICAL ENGINEERING DEPARTMENTS.

UNDERGRADUATE COURSES.

Degrees: B. S., E. M. (Geology).

1. Massachusetts Institute of Technology (Undergraduate Department)—B. S. (4 years).
2. University of Minnesota (School of Mines)—E. M. (Geology) (4 years).

GRADUATE COURSE.

Degree: M. S.

1. Massachusetts Institute of Technology (Graduate Department)—M. S. (1 year).

MUNICIPAL AND SANITARY ENGINEERING (COLLEGES OR DEPARTMENTS OR SCHOOLS).

UNDERGRADUATE COURSES.

Degrees: B. S. (or S. B.) in Municipal and Sanitary Engineering, B. S., B. S. in San. E.

1. Harvard University (School of Engineering)—S. B. in Sanitary Engineering (4 years).
2. Massachusetts Institute of Technology (Undergraduate Department)—B. S. (4 or 5 years).
3. University of Illinois (College of Engineering)—B. S. in Municipal and Sanitary Engineering (4 years).
4. University of Pittsburgh (School of Engineering)—B. S. in San. Eng. (4 years).

GRADUATE COURSES.

Degrees: C. E., M. S., S. M. in Sanitary Engineering, San. E.

1. Harvard University (School of Engineering)—S. M. in Sanitary Engineering (1 year).
2. Massachusetts Institute of Technology (Graduate Department)—M. S. (1 year).
3. University of Illinois (Graduate School)—C. E. (3 years).
4. University of Pittsburgh (School of Engineering)—San. E. (3 years).

Railway Engineering Colleges (or Schools).

UNDERGRADUATE COURSES.

Degrees: B. S. in Railway C. E., B. S. in Railway E. E., B. S. in Railway M. E., B. S. in R. M. E.

1. University of Illinois (College of Engineering)—B. S. in Railway C. E. (4 years), B. S. in Railway E. E. (4 years), B. S. in Railway M. E. (4 years).
2. University of Pittsburgh (School of Engineering)—B. S. in R. M. E. (4 years).

GRADUATE COURSES.

Degrees: C. E., E. E., M. E.

1. University of Illinois (Graduate School)—C. E. (3 years), E. E. (3 years), M. E. (3 years).
2. University of Pittsburgh (School of Engineering)—R. M. E. (3 years).

Naval Architecture and Marine Engineering Departments.

UNDERGRADUATE COURSES.

Degrees: B. S., N. E.

1. Lehigh University (Undergraduate Department)—N. E. (4 years).
2. Massachusetts Institute of Technology (Undergraduate Department)—B. S. (4 or 5 years).
3. University of Michigan (College of Engineering)—B. S. (4 years).

GRADUATE COURSES.

Degrees: Nav. Arch., Mar. E.

1. Massachusetts Institute of Technology (Graduate Department)—M. S. (1 year).
2. University of Michigan (Graduate School)—Nav. Arch., Mar. E. (1 year registration for degree not less than 3 years after bachelor's degree).

Fire Protection Engineering Department.

UNDERGRADUATE COURSE.

Degree: B. S. in Fire Protection Engineering.

1. Armour Institute of Technology (Undergraduate Department)—B. S. in Fire Protection Engineering (4 years).

GRADUATE COURSE.

Degree: Fire Protection E.

1. Armour Institute of Technology (Graduate Department)—Fire Protection E. (3 years).

Agricultural Engineering Colleges (or Divisions).

UNDERGRADUATE COURSES.

Degree: B. S. in Agr. Eng. (or B. Sc. in Agr. Eng.)

1. Agricultural and Mechanical College of Texas (Undergraduate Department)—B. S. in Agr. Eng. (4 years).
2. Iowa State College (Division of Agriculture)—B. S. in Agr. Eng. (4 years). (Division of Engineering)—B. S. in Agr. Eng. (4 years).
3. Kansas State Agricultural College (Division of Engineering)—B. S. in Agr. Eng. (4 years).
4. University of Missouri (School of Engineering)—B. S. (4 years).
5. University of Nebraska (College of Engineering)—B. Sc. in Agr. Eng. (4 years).

GRADUATE COURSES.

Degrees: M. S. in Agr. Eng., A. E. (or Agr. E.).

1. Iowa State College (Division of Agriculture)—M. S. in Agr. Eng. (1 year). (Division of Engineering)—M. S. in Agr. Eng. (1 year), A. E. (2 or 5 years).
2. University of Missouri (School of Engineering)—A. E. (1 year).
3. University of Nebraska (Graduate College)—M. S. in Agr. Eng. (1 year), Agr. E. (1 year).

Engineering Administration Department.

UNDERGRADUATE COURSE.

Degree: B. S.

1. Massachusetts Institute of Technology (Undergraduate Department)—B. S. (4 years).

GRADUATE COURSE.

Degree: M. S.

1. Massachusetts Institute of Technology (Graduate Department)—M. S. (1 year).

Petroleum Engineering.

UNDERGRADUATE COURSES.

Degrees: B. S., Pet. E.

1. University of California (College of Mining)—B. S. (4 years).
2. University of Pittsburgh (School of Mines)—Pet. E. (4 years).

Sugar Engineering (or Sugar Technology) Schools or Departments.

UNDERGRADUATE COURSES.

Degrees: B. S., B. S. in Sugar Technology.

1. College of Hawaii (Undergradute Department)—B. S. in Sugar Technology (4 years).
2. Louisiana State University (Audubon Sugar School)—B. S. (5 years).

AGRICULTURE.

AGRICULTURAL COLLEGES (OR DEPARTMENTS OR DIVISIONS OR SCHOOLS).

UNDERGRADUATE COURSES.

Degrees: B. S. (or B. Sc.), B. S. (Agr.), B. S. (or B. Sc.) in Agr., B. S. in Farm Crops and Soils, B. S. in Farm Management, B. S. in Sugar Technology, B. S. in Floriculture, B. S. in Agronomy, B. S. in Animal Husbandry, B. S. in Dairying, B. S. in Horticulture, B. S. in Entomology, Certificate in Agr., Graduate in Agr.

1. Agricultural and Mechanical College of Texas (Undergraduate Department, B. S. in Agr. (4 years).
2. Alabama Polytechnic Institute (College of Agricultural Sciences)—B. S. (4 years).
3. Clemson Agricultural College—B. S. in Agr. (4 years).
4. College of Hawaii (Undergraduate Department)—B. S. in Agr. (4 years).
5. Cornell University (New York State College of Agriculture)—B. S. (4 years).
6. Iowa State College (Division of Agriculture)—B. C. in Agriculture and Manual Training (4 years), B. S. in Animal Husbandry (4 years), B. S. in Dairying (4 years), B. S. in Horticulture (4 years), B. S. in Farm Crops and Soils (4 years), B. S. in Farm Management (5 years), B. S. (in specified subjects) (5 years), Certificate in Agriculture (2 years).
7. Kansas State Agricultural College (Division of Agriculture)—B. S. in Agriculture (4 years).
8. Louisiana State University (Department of Agriculture)—B. S. (4 years).
9. Massachusetts Agricultural College (Undergraduate Department)—B. S. (4 years).
10. Ohio State University (College of Agriculture)—B. S. in Agr. (4 years), B. S. in Horticulture (4 years), B. S. in Entomology (4 years).
11. Oregon State Agricultural College (School of Agriculture)—B. S. (4 years).
12. Pennsylvania State College (School of Agriculture)—B. S. (4 years).
13. Purdue University (Undergraduate Department)—B. S. in Agr. (4 years).
14. State College of Washington (College of Agriculture)—B. S. in Agr. (4 years).
15. University of Arizona (Undergraduate Department)—B. S. in Agr. (4 years).
16. University of California (College of Agriculture)—B. S. (4 years).
17. University of Illinois (College of Agriculture)—B. S. in Agr. (4 years); B. S. in Floriculture (4 years).
18. University of Minnesota (College of Agriculture)—B. S. (4 years).
19. University of Missouri (College of Agriculture)—B. S. in Agr. (4 years).
20. University of Nebraska (College of Agriculture)—B. Sc. in Agr. (4 years).
21. University of Wisconsin (College of Agriculture)—B. S. in Agr. (4 years), Graduate in Agriculture (2 years).

GRADUATE COURSES.

Degrees: M. S., M. S. in Agr., M. S. A., M. S. (in specific subjects), Ph. D. Agr.

1. College of Hawaii (Graduate Department)—M. S. A. (1 year).
2. Cornell University (Graduate School)—M. S. in Agr. (1 year).
3. Iowa State College (Division of Agriculture)—M. S. and M. S. (in specific subjects) (2 years).
4. Louisiana State University (Graduate Department)—M. S. (1 year).
5. Massachusetts Agricultural College (Graduate School)—M. S. (1½ years), M. S. Agr. (1½ years), Ph. D. Agr. (3 years).

6. Ohio State University (Graduate School)—M. S. (1 year).
7. Oregon State Agricultural College (School of Agriculture)—M. S. (1 year).
8. Purdue University (Graduate Department)—M. S. in Agr. (1 year).
9. State College of Washington (College of Agriculture)—M. S. in Agr. (1 year).
10. University of California (College of Agriculture)—M. S. (1 year), (Graduate School of Tropical Agriculture)—M. S. (1 year).
11. University of Illinois (Graduate School)—M. S. (in specific subjects). (1 year).
12. University of Minnesota (Graduate School)—M. S. (1 year).
13. University of Wisconsin (Graduate School)—M. S. (1 year).

Forestry Schools (or Divisions or Colleges).

UNDERGRADUATE COURSES.

Degrees: B. S., B. S. (or B. Sc.) in Forestry.

1. Iowa State College (Division of Agriculture)—B. S. in Forestry (4 years).
2. Oregon State Agricultural College (School of Forestry)—B. S. (4 years), B. S. in Logging Engineering (4 years).
3. University of Michigan (College of Literature, Science, and the Arts)—B. S. in Forestry (4 years).
4. University of Minnesota (College of Forestry)—B. S. (4 years).
5. University of Missouri (College of Agriculture)—B. S. in Forestry (4 years).
6. University of Washington (College of Forestry)—B. S. (4 years).

GRADUATE COURSES.

Degrees: M. S. in Forestry, M. S. F., M. F.

1. Cornell University (Graduate School)—M. F. (1 year).
2. Harvard University (Graduate School of Applied Biology)—M. F. (2 years).
3. Iowa State College (Division of Agriculture)—M. F. (1 year).
4. University of Michigan (Graduate School)—M. S. in Forestry (1 year).
5. University of Missouri (College of Agriculture)—M. F. (1 year).
6. University of Washington (College of Forestry)—M. S. F. (1 year).
7. Yale University (School of Forestry)—M. F. (2 years).

Landscape Gardening Colleges (or Schools).

UNDERGRADUATE COURSES.

Degrees: B. A., B. S. in Landscape Gardening (or Architecture), B. S., B. Sc.

1. Iowa State College (Division of Agriculture)—B. S. in Landscape Architecture (4 years).
2. Ohio State University (College of Agriculture)—B. Sc. (4 years).
3. University of Illinois (College of Agriculture)—B. S. in Landscape Gardening (4 years).
4. University of Michigan (College of Literature, Science, and the Arts)—B. A. (4 years), B. S. (4 years).

GRADUATE COURSES.

Degrees: M. L. D. (or Master of Landscape Design), M. L. A.

1. Cornell University (Graduate School)—Master in Landscape Design (1 year).
2. Harvard University (Graduate School of Architecture and Landscape Architecture)—M. L. A. (2 years).

3. Massachusetts Agricultural College (Graduate School)—M. L. A. (1½ years).
4. University of Michigan (Graduate School)—M. L. D. (1 year).

INDUSTRY.

Colleges (or Schools or Departments) of Commerce.

Undergraduate courses.

Degrees: B. S., B. S. in Accounting, B. S. in Business Administration, B. Sc. in Bus., B. S. in Commerce, B. S. in Economics, Bachelor of Commerce, A. B., B. A. in Commerce, Ph. B., Ph. B. in Commerce, Ph. B. in Foreign Commerce, B. B. A., B. C. S., Certificate.

1. Columbia University (School of Business)—B. S. (4 years).
2. Howard University (School of Commerce and Finance)—B. S. in Commerce (4 years).
3. Lehigh University (Undergraduate Department)—B. S. in Business Administration (4 years).
4. New York University (School of Commerce, Accounts, and Finance)—B. C. S. (3 years); College of Arts and Pure Science—B. S. in Commerce (4 years).
5. Northwestern University (School of Commerce)—B. B. A. (3 years, plus 2 years of college work).
6. Ohio State University (College of Commerce and Journalism)—B. S. in Accounting (4 years), B. S. in Business Administration (4 years).
7. Oregon State Agricultural College (School of Commerce)—B. S. (4 years).
8. St. Louis University (School of Commerce and Finance)—B. C. S. (3 years), Certificate.
9. Simmons College (Undergraduate Department)—B. S. (4 years); certificate for secretarial studies; short course in secretarial studies.
10. State College of Washington (College of Science and Arts)—A. B. (4 years).
11. University of Arizona (Undergraduate Department)—B. S. in Commerce (4 years).
12. University of California (College of Commerce)—B. S. (4 years).
13. University of Chicago (College of Commerce and Administration)—(Undergraduate Department)—Ph. B. (4 years); (College of Religious and Social Sciences)—Ph. B. (4 years).
14. University of Cincinnati (College of Commerce)—B. S. (4 years—cooperative course, 5 years).
15. University of Illinois (College of Commerce and Business Administration)—B. S. (4 years).
16. University of Michigan (College of Literature, Science, and the Arts)—Certificate with A. B. (4 years).
17. University of Minnesota (College of Science, Literature, and the Arts)—B. S. (4 years).
18. University of Missouri (School of Business and Public Administration)—B. S. in Commerce (4 years).
19. University of Nebraska (College of Business Administration)—B. Sc. in Bus. (4 years).
20. University of North Carolina (School of Commerce)—B. S. (4 years).
21. University of Notre Dame (College of Arts and Letters)—Ph. B. in Commerce (4 years), Ph. B. in Foreign Commerce (4 years).
22. University of Oregon (School of Commerce)—A. B. (4 years), B. S. in Commerce (4 years).

23. University of Pennsylvania (Wharton School of Finance and Commerce)—B. S. in Economics (4 years), Certificate (2 years).
24. University of Pittsburgh (School of Economics)—B. S. in Economics (4 years).
25. University of Texas (College of Arts)—B. B. A. (4 years).
26. University of Washington (College of Business Administration)—B. B. A. (4 years).
27. University of Wisconsin (College of Letters and Science)—B. A. in Commerce (4 years).
28. Washington University (St. Louis) (School of Commerce and Finance)—B. S. in Commerce (4 years).

GRADUATE COURSES.

Degrees: A. M., E. A. (Engineering Administrator), M. S., M. B. A., M. C. S., Ph. D.

1. Columbia University (School of Business)—M. S. (1 year).
2. Dartmouth College (Amos Tuck School of Administration and Finance)—M. C. S. (2 years).
3. Harvard University (Graduate School of Business Administration)—M. B. A. (2 years).
4. New York University (School of Commerce, Accounts, and Finance)—M. C. S. (1 year), M. B. A. (2 years).
5. Simmons College (Graduate Department)—M. S. (1 year).
6. University of Chicago (College of Commerce and Administration)—A. M. (1 year), Ph. D. (3 years).
7. University of Michigan (Graduate School)—Special Certificate, with or without a degree (4 years).
8. University of Notre Dame (Graduate Department)—E. A. (Engineering Administrator) (1 year).
9. University of Texas (Graduate School)—M. B. A. (1 year).
10. University of Washington (College of Business Administration)—M. B. A. (1 year).
11. Washington University (St. Louis) (Graduate School)—M. S. in Commerce (1 year).

Industrial Arts Departments (or Divisions or Schools).

UNDERGRADUATE COURSES.

Degrees: B. S., B. S. in Industrial Arts, B. S. in Practical Arts.

1. Armour Institute of Technology (Undergraduate Department)—B. S. in Industrial Arts (4 years).
2. Clemson Agricultural College (Undergraduate Department)—B. S. in Industrial Arts (4 years).
3. Columbia University (Teachers College—School of Practical Arts)—B. S. in Practical Arts (4 years).
4. Oregon State Agricultural College (School of Engineering)—B. S. in Industrial Arts (4 years).
5. University of Arizona (Undergraduate Department)—B. S. in Industrial Arts (4 years).

GRADUATE COURSE.

Degree: M. S.

1. Columbia University (Teachers' College—School of Practical Arts)—M. S. (1 year).

INDUSTRIAL OR GENERAL SCIENCE DIVISIONS.

UNDERGRADUATE COURSES.

Degrees: B. S., B. S. and B. S. in Home Economics, B. S. and B. S. in specific agricultural subjects, B. S. in Science and Agriculture, B. S. and D. V. M., B. S. in Industrial Journalism, B. S. in Agricultural Chemistry, B. S. in Biochemistry, B. S. in Industrial Chemistry.

1. Iowa State College (Division of Industrial Science)—B. S. (4 years), B. S. and B. S. in Home Economics (5 years), B. S. in Science and Agriculture (5 years), B. S. and B. S. in specific agricultural subjects (5 years), B. S. and D. V. M. (6 years).
2. Kansas State Agricultural College (Division of General Science)—B. S. (4 years), B. S. in Industrial Journalism (4 years), B. S. in Agricultural Chemistry (4 years), B. S. in Biochemistry (4 years), B. S. in Industrial Chemistry (4 years).

HOME ECONOMICS, HOUSEHOLD ARTS OR SCIENCE (OR HOUSEHOLD ECONOMY) SCHOOLS (OR DIVISIONS OR DEPARTMENTS).

UNDERGRADUATE COURSES.

Degrees: A. B., B. S. (or B. Sc.) in Home Economics, B. S. (Home Economics), B. S. in H. E., B. S. in Household Science, B. S. in Household Economy, Certificate or Diploma.

1. Columbia University (School of Practical Arts)—Diploma (4 years).
2. Howard University (School of Applied Science)—B. S. in H. E. (4 years).
3. Indiana University (College of Liberal Arts)—B. S. (4 years).
4. Iowa State College (Division of Home Economics)—B. S. in Home Economics (4 years), B. S. (4 years, combined course in home economics and agriculture).
5. Kansas State Agricultural College (Division of Home Economics)—B. S. in Home Economics (4 years).
6. Municipal University of Akron (Curtis School of Home Economics)—B. S. in Home Economics (4 years).
7. Ohio State University (College of Agriculture)—B. Sc. in Home Economics (4 years).
8. Oregon State Agricultural College (School of Home Economics)—B. S. (4 years).
9. Pennsylvania State College (Department of Home Economics)—B. S. (4 years).
10. Simmons College (Undergraduate Department)—B. S. (4 years), Certificate (short course).
11. State College of Washington (College of Home Economics)—B. S. (4 years), A. B. (4 years).
12. Tulane University of Louisiana (H. Sophie Newcomb Memorial College)—Diploma in Household Economy (short course).
13. University of Arizona (Undergraduate Department)—B. S. in Home Economics (4 years).
14. University of California (College of Letters and Science)—A. B. (4 years).
15. University of Cincinnati (School of Home Economics)—B. S. (4 years), B. S. (cooperative course, 5 years).
16. University of Illinois (College of Agriculture)—B. S. in Home Economics (4 years).
17. University of Minnesota (College of Agriculture, Forestry, and Home Economics)—B. S. (4 years).

18. University of Nebraska (College of Agriculture)—B. Sc. in H[illegible] (4 years).
19. University of Texas (College of Arts)—B. S. in H. E. (4 years).
20. University of Washington (College of Science)—B. S. in Home Economics (4 years), (College of Liberal Arts)—A. B. (4 years).
21. University of Wisconsin (College of Agriculture)—B. S. (Home Economics) (4 years), Graduate in Home Economics (2 years).

GRADUATE COURSES.

Degrees: M. S., M. S. in Home Economics, M. A.

1. Iowa State College (Graduate Division)—M. S. (1 year).
2. Ohio State University (Graduate School)—M. S. (1 year).
3. Oregon State Agricultural College (School of Home Economics)—M. S. (1 year).
4. Pennsylvania State College (Department of Home Economics)—M. S. (1 year).
5. State College of Washington (College of Home Economics)—M. S. (1 year), M. A. (1 year).
6. University of California (Graduate School)—M. A. (1 year).
7. University of Illinois (Graduate School)—M. S. (1 year).
8. University of Minnesota (Graduate School)—M. S. (1 year).

LIBRARY SCIENCE SCHOOLS (OR DEPARTMENTS OR COLLEGES OR COURSES).

UNDERGRADUATE COURSES.

Degrees: A. B., B. A. and Certificate, B. S., Certificate.

1. Simmons College (School of Library Science)—B. S. (4 years), Certificate (short course).
2. University of Washington (College of Liberal Arts)—A. B. (4 years).
3. University of Wisconsin (Library School)—B. A. and Certificate of Library School (4 years and 1 summer session).
4. Western Reserve University (College for Women and Library School)—A. B. and Certificate of Library School (4 years).

GRADUATE COURSES.

Degrees: Bachelor of Library Science, M. S.

1. Simmons College (Graduate Department)—M. S. (1 year).
2. University of Illinois (Library School)—Bachelor of Library Science (2 years).

TEXTILE INDUSTRY DEPARTMENTS.

UNDERGRADUATE COURSES.

Degrees: B. S. in Textile Industry, B. S. in Textile Engineering.

1. Agricultural and Mechanical College of Texas (School of Engineering)—B. S. in Textile Engineering (4 years).
2. Clemson Agricultural College (Undergraduate Department)—B. S. in Textile Industry (4 years).

JOURNALISM, SCHOOLS OR COURSE.

UNDERGRADUATE COURSES.

Degrees: A. B., B. A. in Journalism, B. J., B. Lit., B. S. in Journalism, Ph. B. in Journalism.

1. Columbia University (School of Journalism)—B. Lit. (4 years).
2. Ohio State University (School of Commerce and Journalism)—B. S. in Journalism (4 years).
3. University of Missouri (School of Journalism)—B. J. (4 years).
4. University of Notre Dame (College of Arts and Letters)—Ph. B. in Journalism (4 years).
5. University of Oregon (School of Journalism)—A. B. (4 years).
6. University of Texas (College of Arts)—B. J. (4 years).
7. University of Washington (College of Liberal Arts)—A. B. (4 years).
8. University of Wisconsin (Course in Journalism)—B. A. in Journalism (4 years).

GRADUATE COURSES.

Degrees: M. J., M. S.

1. Columbia University (School of Journalism)—M. S. (1 year).
2. University of Texas (Graduate School)—M. J. (1 year).

ART.

COLLEGES (OR SCHOOLS OR DEPARTMENTS) OF FINE ARTS.

UNDERGRADUATE COURSES.

Degrees: B. F. A. (or B. Fine Arts), B. S., B. Des. (Bachelor of Design), B. Painting, B. S. in Interior Decoration, Diploma, Certificate.

1. Randolph-Macon Woman's College (Undergraduate Department)—Certificate.
2. Tulane University of Louisiana (H. Sophie Newcomb Memorial College)—B. Des. (4 years). Short course.
3. University of California (California School of Fine Arts, at San Francisco)—Certificate.
4. University of Kansas (School of Fine Arts)—B. Painting (4 years); Artist's Certificate (4 years); Teacher's Certificate (3 years); Public School Art Certificate (2 years).
5. University of Minnesota (College of Literature, Science, and the Arts)—B. S. in Interior Decoration (4 years).
6. University of Nebraska (School of Fine Arts)—B. F. A. (4 years).
7. University of Southern California (College of Fine Arts)—B. Fine Arts (4 years).
8. University of Washington (College of Fine Arts)—Certificate (2 years).
9. Washington University (St. Louis) (School of Fine Arts).
10. Western Reserve University (College for Women and Cleveland School of Art)—B. S. (6 years).
11. Yale University (School of the Fine Arts)—B. F. A. (4 and 5 years).

Schools (or Colleges or Departments) of Architecture.

Undergraduate courses.

Degrees: A. B., B. F. A., B. S., B. S. (or B. Sc.) in Arch., B. Arch., Certificate.

1. Agricultural and Mechanical College of Texas (Undergraduate Department)—B. S. in Arch. (4 years).
2. Armour Institute of Technology (Undergraduate Department)—B. S. in Arch. (4 years).
3. Catholic University of America (School of Sciences, Undergraduate Department)—B. S. in Arch. (4 years).
4. Clemson Agricultural College—B. S. in Arch. (4 years).
5. Columbia University (School of Architecture)—B. Arch. (4 years).
6. Cornell University (College of Architecture)—B. Arch. (4 to 6 years).
7. George Washington University (College of Engineering)—B. S. in Arch. (4 years).
8. Howard University (School of Applied Science)—B. S. in Arch. (4 years).
9. Kansas State Agricultural College (Division of Engineering)—B. S. in Arch. (4 years).
10. Massachusetts Institute of Technology (Undergraduate Department)—B. S. in Arch. (4 or 5 years).
11. Ohio State University (College of Engineering)—B. Arch. (4 years).
12. Tulane University of Louisiana (College of Technology)—B. Arch. (4 years).
13. University of California (College of Arts and Letters)—A. B. (4 years).
14. University of Illinois (College of Engineering)—B. S. in Arch. (4 years).
15. University of Michigan (College of Literature, Science, and the Arts)—B. S. in Arch. (4 years).
16. University of Minnesota (College of Engineering and Mechanic Arts)—B. S. in Arch. (4 years).
17. University of Notre Dame (College of Architecture)—B. S. in Arch. (4 years).
18. University of Oregon (School of Architecture and Allied Arts)—B. S. (4 years), A. B. (4 years).
19. University of Pennsylvania (Towne Scientific School)—B. S. in Arch. (4 years), Certificate (2 years).
20. University of Texas (College of Engineering)—B. S. in Arch. (4 years).
21. University of Washington (College of Fine Arts)—B. Arch. (4 years), Certificate (4 years).
22. Washington University (St. Louis) (School of Architecture)—B. Arch. (4 years).
23. Yale University (School of Fine Arts)—B. F. A. (4 years).

Graduate courses.

Degrees: Grad. in Arch., M. S. in Arch., M. Arch., Arch. (or Architect).

1. Cornell University (Graduate School)—M. Arch. (1 year).
2. Harvard University (Graduate School of Architecture)—M. Arch. (2 years).
3. Massachusetts Institute of Technology (Graduate Department)—M. S. (1 year).
4. Ohio State University (Graduate School)—Architect (2 to 4 years).

5. Tulane University of Louisiana (College of Technology)—M. Arch. (2 years).
6. University of California (School of Architecture)—Grad. in Arch. (2 years).
7. University of Illinois (Graduate School)—M. Arch. (3 years).
8. University of Michigan (Graduate School)—M. S. in Arch. (1 year), Arch. (1 year).
9. University of Minnesota (College of Engineering and Mechanic Arts)—Architect (1 year).
10. University of Notre Dame (College of Architecture)—M. S. in Arch. (1 year).
11. University of Pennsylvania (Towne Scientific School)—M. S. in Arch. (1 year).
12. University of Texas (College of Engineering)—M. S. in Arch. (4 years).
13. Washington University (St. Louis) (School of Architecture)—M. S. in Arch. (1 year).

COLLEGES (OR SCHOOLS OR CONSERVATORIES OR DEPARTMENTS) OF MUSIC.

UNDERGRADUATE COURSES.

Degrees: B. A. in Music, B. Mus. or Mus. B., Graduate in Music, Diploma, Certificate, Teachers' Certificate.

1. Columbia University (Department of Music)—Diploma (4 years); School of Practical Arts, Diploma (4 years).
2. Howard University (School of Music)—B. Mus. (4 years).
3. Northwestern University (School of Music)—B. Mus.
4. Oberlin College (Conservatory of Music)—Mus. B. (4 years); Certificate in Public School Music (3 years).
5. Oregon State Agricultural College (School of Music)—(Credit given toward degree).
6. Randolph-Macon Woman's College (Undergraduate Department)—Certificate.
7. State College of Washington (School of Music and Applied Design)—B. A. in Mus. (4 years); Certificate (2 years).
8. State University of Iowa (School of Music)—B. Mus. (4 years).
9. Tulane University of Louisiana (H. Sophie Newcomb Memorial College)—B. Mus. (4 years), Diploma (short courses).
10. University of Illinois (School of Music)—B. Mus. (4 years).
11. University of Kansas (School of Fine Arts)—B. Mus. (4 years); Teachers' Certificate (3 years); Public School Music Certificate (2 years).
12. University of Minnesota (College of Science, Literature, and the Arts)—B. Mus. (4 years).
13. University of Notre Dame (College of Music)—B. Mus. (4 years).
14. University of Oregon (School of Music)—B. Mus. (4 years).
15. University of Pennsylvania (Undergraduate Department of Arts and Sciences)—Certificate (4 years).
16. University of Southern California (College of Music).
17. University of Washington (College of Fine Arts)—B. Mus. (4 years), B. A. in Mus. (4 years), Certificate (2 years).
18. University of Wisconsin (School of Music)—B. Mus. (4 years), Certificate (2 years), Music Supervisor's Course (2 years).
19. Yale University (School of Music)—Certificate (3 years).

GRADUATE COURSES.

Degrees: Mus. B. (or Mus. Bac.), M. Mus.

1. Northwestern University (School of Music)—M. Mus.
2. University of Pennsylvania (Graduate Department)—Mus. Bac. (1 year).
3. Yale University (School of Music)—Mus. B. (2 years).

COLLEGES (OR SCHOOLS) OF PUBLIC SPEAKING.

UNDERGRADUATE COURSES.

1. Northwestern University (School of Oratory).
2. University of Southern California (College of Oratory).

SCIENCES.

COLLEGES (OR DEPARTMENTS OR SCHOOLS OR COURSES) OF CHEMISTRY.

Degrees: B. A., B. S., B. S. in Chem., Ch. B. Chem.

1. Alabama Polytechnic Institute (Undergraduate Department)—B. S. (Chemistry and Metallurgy) (4 years).
2. Clemson Agricultural College (Undergraduate Department)—B. S. in Chem. (4 years).
3. Cornell University (College of Arts and Sciences)—B. Chem. (4 years).
4. George Washington University (Columbian College)—B. S. in Chem. (4 years).
5. Johns Hopkins University (Department of Engineering)—B. S. in Chem. (4 years).
6. Lehigh University (Undergraduate Department)—B. S. in Chem. (4 years).
7. Massachusetts Institute of Technology (Undergraduate Department)—B. S. (4 or 5 years).
8. State College of Washington (College of Sciences and Arts)—B. S. (4 years).
9. State University of Iowa (College of Applied Science)—B. S. in Chem. (4 years).
10. Tufts College (School of Liberal Arts)—B. S. in Chem. (4 years).
11. University of Arizona (Undergraduate Department)—B. S. in Chem. (4 years).
12. University of California (College of Chemistry)—B. S. (4 years).
13. University of Illinois (College of Arts and Sciences)—B. S. (4 years).
14. University of Michigan (College of Literature, Sciences, and the Arts)—B. S. in Chem. (4 years).
15. University of Minnesota (School of Chemistry)—B. S. in Chem. (4 years), A. B. (4 years, combined arts and chemistry). B. S. in Chem. (5 years, combined arts and chemistry).
16. University of North Carolina (School of Applied Science)—B. S. in Chem. (4 years).
17. University of Notre Dame (College of Science)—B. S. in Chem. (4 years).
18. University of Pennsylvania (Towne Scientific School)—B. S. in Chem. (4 years).
19. University of Pittsburgh (School of Chemistry)—B. Chem. (4 years).
20. University of Wisconsin (Course in Chemistry)—B. S. in Chem. (4 years).
21. Worcester Polytechnic Institute (Undergraduate Department)—B. S. in Chem. (4 years).

GRADUATE COURSES.

Degree: M. S.

1. Massachusetts Institute of Technology (Graduate Department)—M. S. (1 year).
2. State College of Washington (College of Sciences and Arts)—M. S. (1 year).
3. University of California (College of Chemistry)—M. S. (1 year).

ELECTROCHEMISTRY DEPARTMENT.

UNDERGRADUATE COURSE.

Degree: B. S.

1. Massachusetts Institute of Technology (Undergraduate Department)—B. S. (4 or 5 years).

GRADUATE COURSE.

Degree: M. S.

1. Massachusetts Institute of Technology (Graduate Department)—M. S. (1 year).

BIOLOGICAL DEPARTMENTS OR STATIONS.

UNDERGRADUATE COURSES.

Degrees: B. S., B. S. in Biol. (or Biology).

1. Massachusetts Institute of Technology (Undergraduate Department)—B. S. (4 years). (Biology and public health.)
2. University of California (Scripps Institution for Biological Research).
3. University of Notre Dame (College of Science)—B. S. in Biol. (4 years).
4. University of Pennsylvania (Undergraduate Department of Arts and Sciences)—B. S. in Biology (3 to 5 years).
5. University of Washington (Puget Sound Biological Station).

GRADUATE COURSES.

Degrees: S. M., S. D.

1. Harvard University (Graduate School of Applied Biology)—S. M. (2 years), S. D. (2 years).
2. Massachusetts Institute of Technology (Graduate Department)—M. S. (1 year). (Biology and public health.)

GEOLOGY DEPARTMENTS.

UNDERGRADUATE COURSES.

Degrees: B. S., B. S. in Geology and Mining, B. S. in Economic Geology.

1. Massachusetts Institute of Technology (Undergraduate Department)—B. S. (4 and 5 years).
2. State College of Washington (Department of Geology)—B. S. (4 years).
3. University of California (College of Mining)—B. S. in Economic Geology (4 years).

4. University of North Carolina (School of Applied Science)—B. S. in Geology (4 years).
5. University of Washington (College of Mines)—B. S. in Geology and Mining (4 years).

GRADUATE COURSE.

Degree: M. S.

1. Massachusetts Institute of Technology (Graduate Department) M. S. (1 year).

PHYSICS DEPARTMENTS.

UNDERGRADUATE COURSES.

Degrees: B. S., B. S. in Physics, B. S. in General Engineering Physics.

1. Case School of Applied Science (Undergraduate Department)—B. S. in Physics (4 years).
2. Massachusetts Institute of Technology (Undergraduate Department)—B. S. (4 and 5 years).
3. University of Illinois (College of Engineering)—B. S. in General Engineering Physics (4 years).

GRADUATE COURSES.

Degrees: M. S., M. S. in Physics.

1. Case School of Applied Science (Graduate Department)—M. S. in Physics (1 year).
2. Massachusetts Institute of Technology (Graduate Department)—M. S. (1 year).

SCHOOLS (OR DEPARTMENTS OR COLLEGES) OF SOCIAL SCIENCE.

UNDERGRADUATE COURSES.

Degrees: B. S., Ph. B., Certificate.

1. Oregon State Agricultural College (School of Commerce)—B. S. (4 years).
2. Simmons College (Undergraduate Department)—B. S. (4 years); Certificate (short course in social work).
3. State College of Washington (College of Science and Arts)—A. B. (4 years).
4. State University of Iowa (School of Political and Social Science and Commerce).
5. University of Chicago (College of Religious and Social Sciences)—Ph. B. (4 years).
6. University of Minnesota (College of Science, Literature, and the Arts)—B. S. (4 years).

GRADUATE COURSES.

Degrees: M. A., M. A. (or M. S.) in Municipal Administration.

1. University of Michigan (Graduate School)—M. A. or M. S. in Municipal Administration (1 year).
2. University of Minnesota (College of Science, Literature, and the Arts)—M. A. (1 year).
2. Western Reserve University (School of Applied Social Sciences)—M. A. (2 years).

MEDICAL SCIENCE.

DEPARTMENTS (OR COLLEGES OR SCHOOLS OR FACULTIES) OF MEDICINE.

Degrees: M. B., M. D., B. S., A. B. and M. D., B. S. and M. D., Certificate, C. S. (Certified Sanitarian).

1. Columbia University (College of Physicians and Surgeons)—B. S. (2 years), M. D. (5 years).
2. Cornell University (Medical College)—M. D. (4 years).
3. Dartmouth College (Medical School)—(No degree—2 years' work only).
4. George Washington University (Medical School)—M. D. (4 years); (Columbian College and Medical School)—B. S. and M. D. (6 years).
5. Georgetown University (School of Medicine)—M. D. (4 years).
6. Harvard University (Medical School)—M. D. (4 years).
7. Howard University (Medical College)—M. D. (4 years).
8. Indiana University (School of Medicine)—M. D. (4 years).
9. Leland Stanford Junior University (Department of Medicine)—M. D. (5 years).
10. New York University (University and Bellevue Hospital Medical College)—M. D. (4 years), M. B. (4 years, combined arts and medicine).
11. Northwestern University (Medical School)—M. D. (5 years).
12. Ohio State University (College of Medicine)—M. D. (4 years).
13. St. Louis University (School of Medicine)—M. D. (4 years).
14. State University of Iowa (College of Medicine)—M. D. (4 years); (College of Homœopathic Medicine)—M. D. (4 years).
15. Tufts College (Medical School)—M. D. (4 years).
16. Tulane University of Louisiana (School of Medicine)—M. D. (4 years); B. S. and M. D. (6 years, combined arts and medicine).
17. University of California (Medical School)—M. D. (5 years).
18. University of Chicago (Rush Medical College)—M. D. (5 years).
19. University of Cincinnati (College of Medicine)—M. D. (4 years), B. S. and M. D. (6 years, combined arts and medicine).
20. University of Illinois (College of Medicine)—A. B. and M. D. (7 or 8 years), B. S. and M. D. (6 years).
21. University of Kansas (School of Medicine)—M. D. (4 years).
22. University of Michigan (Medical School)—M. D. (4 years); (Homœopathic Medical School)—M. D. (4 years).
23. University of Minnesota (Medical School)—B. S. (4 years, combined arts and medicine), M. D. (5 years).
24. University of Missouri (School of Medicine)—Certificate (2 years).
25. University of Nebraska (College of Medicine)—M. D. (4 years).
26. University of North Carolina (School of Medicine)—B. S. (5 years, combined course). No professional degree granted.
27. University of Oregon (School of Medicine)—M. D. (4 years).
28. University of Pennsylvania (School of Medicine)—M. D. (4 years); C. S. (Certified Sanitarian) (1 year).
29. University of Pittsburgh (School of Medicine)—M. D. (4 years), B. S. and M. D. (6 years, combined course).
30. University of Southern California (College of Physicians and Surgeons)—M. D. (4 years).
31. University of Texas (School of Medicine)—M. D. (4 years).
32. University of Virginia (Department of Medicine)—M. D. (4 years).
33. University of Wisconsin (Medical School)—B. S. (4 years, medical science course). No professional degree granted.

34. Vanderbilt University (Medical Department)—M. D. (4 years).
35. Washington University (St. Louis) (Medical School)—M. D. (4 years).
36. Western Reserve University (School of Medicine)—M. D. (4 years); A. B. and M. D. (7 years, combined course).
37. Yale University (School of Medicine)—M. D. (4 years).

GRADUATE COURSES.

Degrees: M. D., M. D. *cum laude*, A. B. and M. D., A. M. in Medicine, Dr. P. H. (or D. P. H.), Graduate in Public Health, M. P. H., C. P. H. (Certificate).

1. Harvard University (Medical School)—D. P. H. (1 year); (School of Public Health)—C. P. H. (Certificate) (1 year).
2. Indiana University (School of Medicine)—M. D. *cum laude* (1 year).
3. Johns Hopkins University (Faculty of Medicine)—M. D. (4 years); (Faculty of Hygiene)—D. P. H. (2 years following M. D.), D. Sc. in Hygiene (3 years).
4. Massachusetts Institute of Technology (School of Public Health)—C. P. H. (Certificate) (1 year).
5. New York University (University and Bellevue Hospital Medical College)—Dr. P. H. (1 year).
6. University of California (Graduate School)—Graduate in Public Health (2 years).
7. University of Cincinnati (College of Medicine)—M. D. *cum laude* (1 year).
8. University of Michigan (Graduate School)—M. S. in Public Health (1 year), D. P. H. (2 years).
9. University of Pennsylvania (School of Hygiene and Public Health)—D. P. H. (1 year).
10. University of Wisconsin (Graduate School)—M. P. H. (1 year), Dr. P. H. (2 years).
11. Western Reserve University (Graduate School)—A. M. in Medicine (5 years).
12. Yale University (Graduate School)—C. P. H. (1 year), Dr. P. H. (2 years).

COLLEGES (OR SCHOOLS OR DEPARTMENTS) OF DENTISTRY.

UNDERGRADUATE COURSES.

Degrees: D. D. S., D. M. D.

1. Columbia University (School of Dentistry)—B. S. (2 years), D. D. S. (4 years).
2. Georgetown University (Dental School)—D. D. S. (4 years).
3. Harvard University (Dental School)—D. M. D. (4 years).
4. Howard University (Dental School)—D. D. S. (4 years).
5. Northwestern University (Dental School)—D. D. S. (4 years).
6. Ohio State University (College of Dentistry)—D. D. S. (4 years).
7. St. Louis University (St. Louis Dental College)—D. D. S. (4 years).
8. State University of Iowa (College of Dentistry)—D. D. S. (4 years).
9. Tufts College (Dental School)—D. M. D. (4 years).
10. Tulane University of Louisiana (School of Dentistry)—D. D. S. (4 years).
11. University of California (College of Dentistry)—D. D. S. (4 years).
12. University of Illinois (College of Dentistry)—D. D. S. (4 years).
13. University of Michigan (College of Dental Surgery)—D. D. S. (4 years).
14. University of Minnesota (College of Dentistry)—D. D. S. (4 and 7 years).

15. University of Nebraska (College of Dentistry)—D. D. S. (4 years).
16. University of Pennsylvania (School of Dentistry)—D. D. S. (4 years).
17. University of Pittsburgh (School of Dentistry)—D. D. S. (4 years).
18. University of Southern California (College of Dentistry)—D. D. S. (4 years).
19. Vanderbilt University (Dentistry Department)—D. D. S. (4 years).
20. Washington University (St. Louis) (Dental School)—D. D. S. (4 years).
21. Western Reserve University (Dental School)—D. D. S. (4 years).

GRADUATE COURSES.

Degrees: M. A., M. S., Ph. D.

1. University of Michigan (College of Dental Surgery)—M. S. (1 year).
2. University of Minnesota (Graduate School)—M. A., M. S., Ph. D.

COLLEGES (OR SCHOOLS OR DEPARTMENTS OR COURSES) OF PHARMACY.

UNDERGRADUATE COURSES.

Degrees: Ph. C., P. D., Ph. G., Phar. B., Phar. D., Phar. Chem., or Pharmaceutical Chemist, B. S. in Pharmacy (or Pharm., or Pharm. C., B. S. (or B. Sc.).

1. Alabama Polytechnic Institute (Undergraduate Department)—Ph. G. (2 years); Ph. C. (3 years), B. S. (4 years).
2. Columbia University (College of Pharmacy)—College course, Ph. G. (2 years); University course, Ph. C. (3 years).
3. George Washington University (School of Pharmacy)—B. S. in Phar. (4 years).
4. Howard University (Pharmaceutic College)—Phar. D. (3 years).
5. Ohio State University (College of Pharmacy)—Ph. C. (2 years), B. S. in Phar. (4 years).
6. Oregon State Agricultural College (School of Pharmacy)—Ph. G. (2 years), Ph. C. (3 years), B. S. (4 years).
7. Purdue University (Undergraduate Department)—Pharmaceutical Chemist (2 years), B. S. in Pharmacy (4 years).
8. State College of Washington (School of Pharmacy)—Ph. G. (2 years), Ph. C. (3 years), B. S. (4 years).
9. State University of Iowa (College of Pharmacy)—Ph. G. (2 years), Ph. C. (3 years), B. S. in Pharm. (6 years, combined course).
10. Tulane University of Louisiana (School of Pharmacy)—Ph. G. (2 years), Ph. C. (3 years).
11. University of California (College of Pharmacy)—Ph. G. (2 years), Ph. C. (3 years), Phar. B. (4 years).
12. University of Illinois (School of Pharmacy)—Phar. Chem. (2 years), Ph. G. (4 years).
13. University of Kansas (School of Pharmacy)—Ph. G. (2 years), Ph. C. (3 years).
14. University of Michigan (College of Pharmacy)—Ph. C. (3 years), B. S. in Pharmacy (4 years).
15. University of Minnesota (College of Pharmacy)—Ph. C. (3 years), B. S. in Phm. (4 years).
16. University of Nebraska (College of Pharmacy)—Ph. G. (2 years), Ph. C. (3 years), B. Sc. (4 years).
17. University of North Carolina (School of Pharmacy)—Ph. G. (2 years), P. D. (3 years), Ph. C. (3 years).

18. University of Notre Dame (College of Science)—Ph. G. (2 years), Ph. C. (3 years), B. S. in Phar. (4 years).
19. University of Pittsburgh (School of Pharmacy)—Ph. G. (2 years), Ph. C. (3 years).
20. University of Southern California (College of Pharmacy)—Ph. C. (2 years), Phar. B. (3 years).
21. University of Texas (College of Pharmacy)—Ph. G. (2 years).
22. University of Washington (College of Pharmacy)—Ph. C. (2 years), B. S. (4 years).
23. University of Wisconsin (College of Letters and Science)—Ph. G. (2 years), B. S. in Pharmacy (4 years).
24. Vanderbilt University (Pharmacy Department)—Ph. G. (2 years), B. S. in Pharm. (4 years).
25. Western Reserve University (School of Pharmacy)—Ph. G. (2 years), Ph. C. (3 years).

GRADUATE COURSES.

Degrees: M. S. in Pharm. (or Phm. or Pharmacy), B. S. in Pharmacy, Phar. D., D. Sc. in Phm.

1. Alabama Polytechnic Institute (Graduate Department)—M. S. in Phar. (1 year).
2. Columbia University (College of Pharmacy)—B. S. in Phar. (1 year), Phar. D. (3 years).
3. Tulane University of Louisiana (School of Pharmacy)—Phar. D. (1 year).
4. University of Minnesota (College of Pharmacy)—M. S. in Phm. (1 year). D. Sc. in Phm. (2 years).
5. University of Washington (College of Pharmacy)—M. S. in Pharmacy (1 year).

DEPARTMENTS (OR COLLEGES OR DIVISIONS OR SCHOOLS) OF VETERINARY MEDICINE.

UNDERGRADUATE COURSES.

Degrees: B. S. and D. V. M., B. S. in A. H. and D. V. M., B. S. in Veterinary Science, D. V. M. (or V. M. D.), D. V. S.

1. Agricultural and Mechanical College of Texas (Undergraduate Department)—D. V. M. (4 years).
2. Alabama Polytechnic Institute (Undergraduate Department)—D. V. M. (3 years).
3. Cornell University (New York State Veterinary College)—D. V. M. (3 years).
4. Iowa State College (Division of Veterinary Medicine)—D. V. M. (4 years), B. S. in A. H. and D. V. M. (6 years, combined course), B. S. and D. V. M. (6 years, combined course).
5. Kansas State Agricultural College (Division of Veterinary Medicine)—D. V. M. (4 years); Animal Husbandry and Veterinary Medicine—B. S. in Agriculture (4 years); D. V. M. (6 years).
6. New York University (New York State Veterinary College)—D. V. S. (4 years).
7. Ohio State University (College of Veterinary Medicine)—D. V. M. (4 years).
8. State College of Washington (College of Veterinary Science)—B. S. in Veterinary Science and D. V. M. (4 years).
9. University of Pennsylvania (School of Veterinary Medicine)—V. M. D. (4 years).

COLLEGES (OR SCHOOLS OR INSTITUTES OR DEPARTMENTS) OF LAW.

UNDERGRADUATE COURSES.

Degrees: LL. B., B. C. L., J. B., J. D.,* A. B. and LL. B.

1. Catholic University of America (School of Law—Undergraduate Department)—LL. B. (3 years).
2. Columbia University (School of Law)—LL. B. (3 years).
3. Cornell University (College of Law)—LL. B. (3 years).
4. George Washington University (Law School)—LL. B. (3 years).
5. Georgetown University (Law School)—LL. B. (3 years).
6. Harvard University (Law School)—LL. B. (3 years).
7. Howard University (School of Law)—LL. B. (3 years).
8. Indiana University (School of Law)—LL. B. (3 years).
9. Leland Stanford Junior University (Law School)—LL. B. (3 years), J. D. (3 years).
10. Louisiana State University (Law School)—LL. B. (3 years).
11. New York University (School of Law)—LL. B. (3 years), J. D. (3 years).
12. Northwestern University (Law School)—LL. B. (3 or 4 years), J. D. (3 or 4 years).
13. Ohio State University (College of Law)—LL. B. (3 years), J. D. (3 years).
14. St. Louis University (Institute of Law)—LL. B. (3 or 4 years).
15. State University of Iowa (College of Law)—LL. B. (3 years).
16. Tulane University of Louisiana (College of Law)—LL. B. (3 years).
17. University of Arizona (School of Law)—LL. B. (3 years).
18. University of California (Hastings College of the Law)—LL. B. (3 years).
19. University of Chicago (Law School)—LL. B. (3 years).
20. University of Cincinnati (College of Law)—LL. B. (3 years), A. B. and LL. B. (6 years, combined courses).
21. University of Illinois (School of Law)—LL. B. (3 years), J. D. (3 years).
22. University of Kansas (School of Law)—LL. B. (3 years).
23. University of Michigan (Law School)—LL. B. (3 years).
24. University of Minnesota (Law School)—LL. B. (3 years).
25. University of Missouri (School of Law)—LL. B. (3 years).
26. University of Nebraska (College of Law)—LL. B. (3 years).
27. University of North Carolina (School of Law)—LL. B. (3 years), A. B. and LL. B. (6 years, combined arts and legal course).
28. University of Notre Dame (College of Law)—LL. B. (4 years).
29. University of Oregon (School of Law)—LL. B. (3 years), J. D. (3 years).
30. University of Pennsylvania (Law School)—LL. B. (3 years).
31. University of Pittsburgh (School of Law)—LL. B. (3 years; for graduates of the College or School of Economics, 2 years).
32. University of Southern California (College of Law)—LL. B. (3 years), J. D. (3 years).
33. University of Texas (School of Law)—LL. B. (3 years).
34. University of Virginia (Department of Law)—LL. B. (3 years).
35. University of Washington (School of Law)—LL. B. (3 years).
36. University of Wisconsin (Law School)—LL. B. (3½ years).
37. Vanderbilt University (Law Department)—LL. B. (3 years).
38. Washington University (St. Louis) (St. Louis Law School)—LL. B. (3 years).

* Longer preparation is as a rule required for candidacy for this degree than for the LL. B. In most cases a bachelor's degree from a recognized college is required.

39. Western Reserve University (Law School)—LL. B. (3 years).
40. Yale University (School of Law)—LL. B. (3 years), B. C. L. (3 years).

GRADUATE COURSES.

Degrees: LL. M., M. L., LL. D., M. C. L., D. C. L., Jur. D., J. D., S. J. D., Master of Patent Law.

1. Catholic University of America (School of Law—Graduate Department)—LL. M. (1 year), M. C. L. (1 year), J. D. (2 years), D. C. L. (2 years).
2. Columbia University (School of Law)—LL. M. (1 year).
3. George Washington University (Law School)—LL. M. (1 year), Master of Patent Law (1 year).
4. Georgetown University (Law School)—LL. M. (1 year), Master of Patent Law (1 year).
5. Harvard University (Law School)—S. J. D. (1 year).
6. Indiana University (School of Law)—J. D. (3 years).
7. New York University (School of Law)—LL. M. (1 year).
8. Northwestern University (Law School)—LL. M. (1 year), J. D. (1 year).
9. St. Louis University (Institute of Law)—LL. M. (1 year).
10. University of California (Graduate School)—J. D. (2 years).
11. University of Chicago (Law School)—J. D. (2 or 3 years).
12. University of Michigan (Law School)—LL. M. (1 year), J. D. (3 years).
13. University of Nebraska (College of Law)—J. D. (1 to 5 years).
14. University of Notre Dame (College of Law)—LL. M. (1 year), LL. D. (3 years), D. C. L. (3 years).
15. University of Pennsylvania (Law School)—LL. M. (1 year).
16. University of Southern California (College of Law)—LL. M. (1 year).
17. Yale University (School of Law)—M. L. (1 year), Jur. D. (1 year), D. C. L. (2 years).

COLLEGES (OR SCHOOLS OR SEMINARIES OR INSTITUTES) OF THEOLOGY.

UNDERGRADUATE COURSES.

Degrees: B. D., S. T. B., J. C. B., Diploma.

1. Catholic University of America (School of Sacred Sciences)—S. T. B., J. C. B.
2. Harvard University (Divinity School) (Nonsectarian)—S. T. B. (3 years).
3. Howard University (School of Theology) (Interdenominational)—B. D. (3 years), Diploma (3 years).
4. Northwestern University (Garrett Biblical Institute) (Methodist Episcopal)—Diploma.
5. St. Louis University (School of Divinity) (Catholic).
6. Tufts College (Crane Theological Seminary) (Universalist)—B. D. (3 or 5 years).
7. University of Chicago (English Theological Seminary) (Baptist) (4 years' summer work—no degree).
8. University of Southern California (College of Theology) (Methodist)—B. D. (3 years), Diploma (3 years).
9. Vanderbilt University (Biblical Department) (Nonsectarian)—B. D. (3 years), Diploma (3 years).
10. Yale University (School of Religion) (Nonsectarian)—B. D. (3 years).

GRADUATE COURSES.

Degrees: S. T. L., S. T. D., M. S. T. (or S. T. M., J. C. L., J. C. D.), D. S. (or D. D.), Th. D., A. M., Ph. D.

1. Catholic University of America (School of Sacred Sciences)—S. T. L. (2 years), J. C. L. (2 years), S. T. D. (4 years), J. C. D. (4 years).
2. Harvard University (Divinity School)—S. T. M. (1 year, Th. D. (2 years).
3. Northwestern University (Garrett Biblical Institute, Graduate School of Theology)—B. D. (3 years).
4. Oberlin College (Graduate School of Theology)—B. D. (3 years), S. T. M. (1 year after award of D. B.).
5. University of Chicago (Graduate Divinity School)—A. M. (1 year), D. B. (3 years), Ph. D. (4 years).
6. Yale University (Graduate School)—M. A. (1 year), Ph. D. (3 years).

COLLEGES (OR SCHOOLS OR COURSES) OF EDUCATION.

UNDERGRADUATE COURSES.

Degrees: A. B. (or B. A.), A. B. (or B. A.) in Education, A. B. and Bachelor's Diploma in Education, B. S., B. S. in Ed., B. S. in Pedagogy, S. B. (or B. S.) in Education, B. S. and Bachelor's Diploma in Education, B. S. in Agricultural Education, B. S. in Industrial Education, B. S. in Physical Education, Ph. B. in Education, Bachelor of Education, Diploma, Teacher's Certificate, Certificate, Kindergarten Primary Certificate, Manual Arts Certificate, Home Economics and Household Arts Certificate, Graphic and Plastic Arts Certificate, Supervisor's Certificate.

1. Agricultural and Mechanical College of Texas (Undergraduate Department)—B. S. in Industrial Education (4 years), B. S. in Agricultural Education (4 years).
2. Catholic University of America (Department of Education)—A. B. (4 years).
3. Clemson Agricultural College (Undergraduate Department)—B. S. in Industrial Education (4 years).
4. Columbia University (Teachers' College—School of Practical Arts)—A. B. in Education (4 years).
5. George Peabody College for Teachers (College of Education)—B. S. (4 years).
6. George Washington University (Teachers College)—A. B. and Bachelor's Diploma in Education (4 years).
7. Howard University (School of Education)—A. B. in Education (4 years), B. S. in Education (4 years).
8. Indiana University (School of Education)—A. B. (4 years).
9. Johns Hopkins University (College Course for Teachers)—B. S. (4 years), A. B. (4 years).
10. Leland Stanford Junior University (School of Education)—A. B. (4 years).
11. Louisiana State University (Teachers College)—B. A. (4 years), B. S. (4 years).
12. Ohio State University (College of Education)—B. S. in Education (4 years).
13. Oregon State Agricultural College (School of Vocational Education)—B. S. (4 years).
14. Simmons College (Undergraduate Department)—Short Course in Industrial Teaching—Certificate; Education for Store Service—Certificate (1 year).

15. State College of Washington (School of Education)—B. A. in Education (4 years).
16. State University of Iowa (College of Education)—Certificate (4 years).
17. Tulane University of Louisiana (College of Arts and Sciences)—B. A. in Education (4 years); (H. Sophie Newcomb Memorial College)—B. A. (4 years), B. A. in Education (4 years).
18. University of Chicago (School of Education—The College)—Ph. B. in Education (4 years), A. B. in Education (4 years), S. B. in Education (4 years), Kindergarten Primary Certificate (2 years), Manual Arts Certificate (2 years), Home Economics and Household Arts Certificate (2 years), Graphic and Plastic Arts Certificate (2 years), Supervisor's Certificate (1 year).
19. University of Cincinnati (College for Teachers)—B. S. (4 years).
20. University of Illinois (School of Education)—B. S. in Education (4 years), B. S. in Agricultural Education (4 years), B. S. in Industrial Education (4 years), B. S. in Physical Education (4 years).
21. University of Kansas (School of Education)—B. S. in Education (4 years).
22. University of Michigan (College of Literature, Science, and the Arts)—Teacher's Diploma.
23. University of Minnesota (College of Education)—B. S. in Education (4 years).
24. University of Missouri (School of Education)—B. S. in Ed. (4 years), Teacher's Certificate.
25. University of Nebraska (Teachers College)—A. B. or B. Sc. and Teachers' College Diploma (4 years).
26. University of North Carolina (School of Education)—A. B. (4 years).
27. University of Oregon (School of Education)—A. B. (4 years).
28. University of Pennsylvania (School of Education)—B. S. in Education (4 years).
29. University of Pittsburgh (School of Education)—A. B. or B. S. and Bachelor's Diploma (4 years).
30. University of Texas (School of Education)—Course counts toward B. A. in College of Arts.
31. University of Virginia (School of Education)—B. S. in Education (4 years). Teacher's Certificate (2 years).
32. University of Washington (College of Education)—Bachelor of Education (4 years), Diploma.
33. University of Wisconsin (Teachers' Training Course)—B. A. or B. S. (4 years), Certificate.

GRADUATE COURSES.

Degrees: A. M., M. A. in Education, A. M. and Master's Diploma in Education, M. S., M. S. in Education, Pd. M., Pd. D., Ph. D., Ph. D. in Education, Graduate in Education, Graduate Teacher's Diploma, University Teacher's Certificate.

1. Bryn Mawr (Graduate Department of Education)—M. S. in Education (1 year), Ph. D. in Education (3 years), Diploma.
2. Catholic University of America (Graduate Department)—A. M. (1 year), Ph. D. (3 years).
3. Clark University (Graduate) (Department of Pedagogy)—Ph. D.
4. Columbia University (Teachers College—School of Education)—A. M. (1 year); (Teachers College—School of Practical Arts)—M. S. (1 year).
5. George Peabody College for Teachers (Graduate School of Education)—A. M. (1 year), Ph. D. (2 years, minimum).

6. Indiana University (School of Education)—A. M. (1 year), Ph. D. (3 years).
7. Johns Hopkins University (Faculty of Philosophy)—Ph. D. (3 years).
8. Leland Stanford Junior University (Graduate Department)—A. M. (1 year), Ph. D. (3 years).
9. New York University (School of Pedagogy)—Pd. M. (3 years), Pd. D. (5 years).
10. State College of Washington (School of Education)—M. A. in Education (1 year).
11. University of California (School of Education)—Graduate in Education (2 years).
12. University of Chicago (Graduate School of Arts and Literature, and Ogden School of Science)—A. M. (1 year), M. S. (1 year), Ph. D. (3 years).
13. University of Kansas (School of Education)—University Teacher's Diploma.
14. University of Michigan (Graduate School)—M. A. (1 year), Ph. D. (3 years).
15. University of Nebraska (Graduate College)—Graduate Teacher's Diploma; (Teachers College)—University Teacher's Certificate (3 years).
16. University of Pennsylvania (Graduate School)—A. M. (1 year), Ph. D. (3 years).
17. University of Washington (College of Education)—M. A. in Education (1 year), M. S. in Education (1 year).

SECTION V.

TABLE OF DEGREES MENTIONED IN THIS BULLETIN, AND THE ABBREVIATIONS USED TO DESIGNATE THEM.

BACHELOR'S DEGREES.

A. B. or B. A	Bachelor of Arts.
B. Agr	Bachelor of Agriculture.
B. Arch	Bachelor of Architecture.
B. A. in Ed	Bachelor of Arts in Education.
B. B. A	Bachelor of Business Administration.
B. Chem	Bachelor of Chemistry.
B. C. E	Bachelor of Chemical Engineering.
B. C. S	Bachelor of Commercial Science.
B. Cr. E	Bachelor of Ceramics Engineering.
B. D. or D. B	Bachelor of Divinity.
B. Des	Bachelor of Design.
B. E	Bachelor of Engineering.
B. E. E	Bachelor of Electrical Engineering.
B. Ed	Bachelor of Education.
B. F. A	Bachelor of Fine Arts.
B. Eng	Bachelor of Engineering.
B. E. M	Bachelor of Mining Engineering.
B. M. E	Bachelor of Mechanical Engineering.
B. J	Bachelor of Journalism.
B. L., B. Litt., or Litt. B	Bachelor of Literature.
B. L. Sc	Bachelor of Library Science.
B. Mus. or Mus. B	Bachelor of Music.
B. Ped	Bachelor of Pedagogy.
B. S., B. Sc., or S. B	Bachelor of Science.
B. Sc. Agr	Bachelor of Scientific Agriculture.
B. S. in Agr	Bachelor of Science in Agriculture.
B. S. in Agricultural Chemistry.	
B. S. in Biochemistry.	
B. S. in Agr. Ed	Bachelor of Science in Agricultural Education.
B. S. in Agr. Eng	Bachelor of Science in Agricultural Engineering.
B. S. in Agron	Bachelor of Science in Agronomy.
B. S. in Animal Husbandry.	
B. S. in Arch	Bachelor of Science in Architecture.
B. S. in Arch. Eng	Bachelor of Science in Architectural Engineering.
B. S. in Biol	Bachelor of Science in Biology.
B. S. in Cer	Bachelor of Science in Ceramics.

B. S. in Chem.....Bachelor of Science in Chemistry.
B. S. in C. E.....Bachelor of Science in Civil Engineering.
B. S. in Coal Mining Engineering.
B. S. in Com.....Bachelor of Science in Commerce.
B. S. in Dairying.
B. S. in Econ.....Bachelor of Science in Economics.
B. S. in Ed.....Bachelor of Science in Education.
B. S. in El. Eng.....Bachelor of Science in Electrical Engineering.
B. S. in Farm Management.
B. S. in Fire Protection Engineering.
B. S. in Floriculture.
B. S. in For.....Bachelor of Science in Forestry.
B. S. in General Engineering Physics.
B. S. in Geology and Mining.
B. S. in H. Econ.....Bachelor of Science in Home Economics.
B. S. in Horticulture.
B. S. in Household Science.
B. S. in Ind. Arts.....Bachelor of Science in Industrial Arts.
B. S. in Industrial Journalism.
B. S. in Industrial Science.
B. S. in Landscape Gardening.
B. S. in Law.
B. S. in Logging Engineering.
B. S. in Mech. Eng.....Bachelor of Science in Mechanical Engineering.
B. S. in Med.....Bachelor of Science in Medicine.
B. S. in Met. Eng.....Bachelor of Science in Metallurgical Engineering.
B. S. in Min. E.....Bachelor of Science in Mining Engineering.
B. S. in Mun. and San. Eng.....Bachelor of Science in Municipal and Sanitary Engineering.
B. S. in Ped.....Bachelor of Science in Pedagogy.
B. S. in Phar.....Bachelor of Science in Pharmacy.
B. S. in Railway Civil Engineering.
B. S. in Railway Electrical Engineering.
B. S. in Railway Engineering.
B. S. in Railway Mechanical Engineering.
B. S. in Structual Engineering.
B. S. in S. T.....Bachelor of Science in Sugar Technology.
B. S. in Textile Industry.
B. S. in Trades and Industries.
D. V. M. or V. M. D.....Doctor of Veterinary Medicine.
Graduate in Music.
I. E.....Industrial Engineer.
J. C. B.....Bachelor in Canon Law.
L. H. B.....Bachelor of Literature.
LL. B.....Bachelor of Laws.
Pet. E.....Petroleum Engineer.
Ph. B.....Bachelor of Philosophy.

Ph. B. in Com.....Bachelor of Philosophy in Commerce.
Ph. B. in Foreign Commerce.
Ph. B. in Education.
Ph. B. in Jour.....Bachelor of Philosophy in Journalism.
Ph. C.....Pharmaceutical Chemist.
Ph. G.....Graduate in Pharmacy.
Phar. B.....Bachelor of Pharmacy.
S. T. B.....Bachelor of Sacred Theology.

HIGHER DEGREES.

A. E. or Agr. E.....Agricultural Engineer.
Ae. E.....Aeronautical Engineer.
A. M. or M. A.....Master of Arts.
Arch.....Architect.
Arch. Eng.....Architectural Engineer.
Cer. Eng. or Cr. E.....Ceramics Engineer.
Ch. E. or Chem. Eng.....Chemical Engineer.
C. E.....Civil Engineer.
C. P. H.....Certificate in Public Health.
C. S.....Certified Sanitarian.
D. C. L.....Doctor of Civil Law.
D. D. S.....Doctor of Dental Surgery.
D. D. Sc.....Doctor of Dental Science.
D. Eng. or Eng. D.....Doctor of Engineering.
D. M. D.....Doctor of Dental Medicine.
D. Sc. S. D. or Sc. D.....Doctor of Science.
D. Sc. in Hygiene.
D. Sc. in Phm.....Doctor of Science in Pharmacy.
D. P. H. or Dr. P. H.....Doctor of Public Health.
E. A.....Engineering Administrator.
E. E.....Electrical Engineer.
E. M.....Engineer of Mines.
El. Met.....Electrometallurgist.
Fire Protection Engineer.
Graduate in Architecture.
Graduate in Education.
Graduate in Public Health.
J. C. D.....Doctor in Canon Law.
J. C. L.....Licentiate in Canon Law.
J. D. or Jur. D.....Doctor of Law.
J. S. D. or S. J. D.....Doctor of Science in Law.
L. H. D.....Doctor of Literature.
LL. D.....Doctor of Laws.
LL. M.....Master of Laws.
M. A. in Education.
M. A. in Municipal Administration.
Mar. E.....Marine Engineer.
M. Arch.....Master of Architecture.
M. B. A.....Master in Business Administration.
M. C. E.....Master of Civil Engineering.
M. C. L.....Master of Civil Law.
M. C. S.....Master of Commercial Science.
M. D.....Doctor of Medicine.

M. E. or Mech. E.—Mechanical Engineer.
M. E. E.—Master of Electrical Engineering.
Met. E.—Metallurgical Engineer.
M. F.—Master of Forestry.
M. L.—Master of Literature.
M. L. A.—Master of Landscape Architecture.
M. L. D.—Master of Landscape Design.
M. M. E.—Master of Mechanical Engineering.
M. P. L.—Master of Patent Law.
M. Ped.—Master of Pædagogy.
M. P. H.—Master of Public Health.
M. S. A.—Master of Scientific Agriculture.
M. S., M. Sc., or S. M.—Master of Science.
M. S. or M. Sc. in Agr.—Master of Science in Agriculture.
M. S. or S. M. in Agricultural Engineering.
M. S. or S. M. in Civil Engineering.
M. S. or S. M. in Electrical Engineering.
M. S. or S. M. in Mechanical Engineering.
M. S. in Arch.—Master of Science in Architecture.
M. S. or M. Sc. in Eng.—Master of Science in Engineering.
M. S. in Engineering Administration.
M. S. in For.—Master of Science in Forestry.
M. S. in Industrial Chemistry.
M. S. F.—Master of Scientific Forestry.
M. S. in Min. E.—Master of Science in Mining Engineering.
M. S. in Municipal Administration.
M. S. in Ph. M.—Master of Science in Pharmacy.
M. S. or M. Sc. in Public Health.
M. S. T. or S. T. M.—Master of Sacred Theology.
Nav. Arch.—Naval Architect.
N. E.—Naval Engineer.
Ph. C.—Pharmaceutical Chemist.
Pd. D.—Doctor of Pedagogy.
Pd. M.—Master of Pedagogy.
Ph. D.—Doctor of Philosophy.
Phar. D.—Doctor of Pharmacy.
Ph. M.—Master of Philosophy.
Phm. D.—Doctor of Pharmacy.
Phm. M.—Master of Pharmacy.
S. J. D.—Doctor of Law.
S. M. in Sanitary Engineering.
S. T. D.—Doctor of Sacred Theology.
S. T. L.—Licentiate in Sacred Theology.
Th. D.—Doctor of Theology.

SECTION VI.

ORGANIZATION AND OFFERINGS OF UNIVERSITIES AND COLLEGES.

It would obviously be impossible in the limits set for such a presentation as that contained in this bulletin to describe, however briefly, all the sound and standard institutions at which the foreign student might profitably seek general or professional training. Selection has been made of those to which foreign students have already gone in considerable numbers and of a few others which by reason of particular and individual offerings may appropriately be brought to the attention of citizens of other countries.

There are many other institutions of equally high rank which have not been included because through the accident of location they have not yet drawn many foreign students or because they belong to a type of college or university already represented among the institutions described. Foreign students interested in other institutions than those mentioned in this section are urged to correspond with the Bureau of Education, which will furnish full and impartial information.

ALABAMA POLYTECHNIC INSTITUTE, Auburn, Ala., a town of 2,400 inhabitants. Founded, 1872; a "land-grant" institution; coeducational.

Undergraduate courses

Admission: 14 units; 7½ prescribed—3½ mathematics, 3 English, 1 history.

Degrees:

B. S.—General courses of four years, as follows:

In College of Engineering, Mines, and Architecture.—Civil engineering; electrical engineering; mechanical engineering; mining engineering; architectural engineering; chemical engineering; chemistry and metallurgy.

In College of Agricultural Sciences.—Agronomy; horticulture; animal husbandry; agricultural chemistry; botany; agricultural education.

D. V. M.—Four-year course in veterinary medicine.

B. S.—Four-year course in the department of pharmacy.

Ph. C.—Three-year course in the department of pharmacy.

Ph. G.—Two-year course in pharmacy; for admission to this course evidence of one year of high-school work is required.

Graduate courses:

Admission: Bachelor's degree from a recognized college.

Degrees:

M. S.—One year postgraduate study; thesis.

M. S. in Pharmacy.—One year of postgraduate study in the departments of chemistry and pharmacy.

C. E., E. E., M. E., Ch. E., E. M.—One year of postgraduate study; thesis. These degrees are also conferred upon graduates of the institute who have had at least four years' professional experience, including work in a responsible position, and who present a thesis.

Expenses:

Tuition (free to residents of Alabama)	$20
Board and room per month	21 25
Total annual expense	250

Faculty, 66.

Students, 792, of whom 3 are from foreign countries, as follows: Cuba, 1; Brazil, 1; Mexico, 1.

Of special interest to foreign students.—In the last year of the course in agriculture, instruction is provided in the cultivation and classing of cotton, in the growth of other southern crops, such as sugar cane, tobacco, and rice, and in the construction and operation of farm machinery.

In connection with the work in electrical engineering, a one-year course in wireless telegraphy is offered.

A well-equipped laboratory and good clinical facilities make possible the emphasis placed upon practical work in the college of veterinary medicine and surgery.

UNIVERSITY OF ARIZONA, Tucson, Ariz., a city of 20,292 inhabitants, on the main line of the Southern Pacific Railway and the El Paso & Southwestern System. Founded, 1885; a "land-grant" institution; coeducational.

Admission: 15 units, 9½ prescribed—2 English, 2½ mathematics, 1 history, 1 science, 2 foreign language.

Undergraduate courses—four years:

	Degrees.
General	A. B. and B. S.
Agriculture	B. S. in Agriculture.
Chemistry	B. S. in Chemistry.
Civil engineering	B. S. in Civil Engineering.
Commerce	B. S. in Commerce.
Electrical engineering	B. S. in Electrical Engineering.
Home economics	B. S. in Home Economics.
Industrial arts	B. S. in Industrial Arts.
Law	LL. B.
Mechanical engineering	B. S. in Mechanical Engineering.
Mining and metallurgy	B. S. in Mining Engineering, and Metallurgy.

Graduate courses:

Admission: Bachelor's degree from a recognized college.

Degrees: M. S. and A. M.—One year of postgraduate study; thesis. A student who has received the B. S. in Mining Engineering, and Metallurgy may attain the degree of Engineer of Mines by one year of postgraduate study.

J. D.—Completion of 78 semester units if student holds a bachelor's degree from any recognized college.

Expenses:
- Tuition (free for residents of Arizona) for nonresidents of Arizona... $30
- Incidental fee ... 10
- Board, per month ... 20
- Room (college dormitory, per year) ... 25
- Total annual expense ... 316

Faculty, 65.

Students, 695, of whom 5 are from foreign countries, as follows: India, 1; China, 2; Canada, 1; Mexico, 1.

Of special interest to foreign students.—On account of the great diversity of its rock formation and ore deposits, Southern Arizona offers a good field for work in geology.

Before entering the senior year in mining engineering all students must have spent at least six weeks in practical mining and metallurgical work.

The department of agriculture lays special emphasis upon phases of the subject of interest to people in a dry climate like that of Arizona. Mention may be made of courses in farm and horticultural crops, plant breeding, dry farming, soil physics and fertility, citrus and small fruits, and farm management.

Students from Latin American countries are exempt from tuition fees.

LELAND STANFORD JUNIOR UNIVERSITY, Stanford University, Calif., 30 miles southeast of San Francisco, a city of 506,676 inhabitants. Founded, 1885; coeducational.

Undergraduate department:

Admission: Secondary school record showing completion of at least 15 units.

Degree: A. B.—Completion of 180 (quarter) units and recommendation of department faculty, regardless of time spent; 45 units a normal year's work.

Graduate department:

Admission: Bachelor's degree from a recognized college.

Degrees:

A. M.—One year of postgraduate study; thesis.

Engineer (Civil, Mechanical, Electrical, Chemical, Mining)—One year of postgraduate work in department of applied science; thesis.

Ph. D.—Three years' postgraduate study; thesis.

Department of Medicine. (Five quarters of medical work done at Stanford University and seven quarters and interne year at San Francisco.)

Admission: Three years' collegiate work, including English, physics, chemistry, biology, and a knowledge of French or German.

Degree: M. D.—Four-year course of study and one year of practical (interne) work.

Law School:

Admission: Two years' collegiate work.

Degrees:

LL. B.—Three-year course.

J. D.—Three-year course for those who enter with a bachelor's degree. (Combined six-year curriculum, three years' collegiate work and one year law leading to A. B.; two additional years of law leading to J. D.)

Expenses:

Tuition (free except as indicated below). An incidental fee of $20 per quarter required of undergraduates; graduate students, $3 per quarter.

Law Department, per quarter	$35
Medical Department, per quarter	50
Board and room (at university), per month	32–37
Board and room (outside university), per month	30–40
Annual expense (exclusive of tuition in law and medicine)	500–600

Faculty, 270.

Students, 2,053, of whom 66 are from foreign countries.

Of special interest to foreign students.—The medical course requires a fifth year of practical work as a prerequisite for the degree, for which San Francisco provides excellent clinical and hospital facilities. Ten internes are appointed annually at the Lane Hospital.

The Law School offers courses of high grade.

Special mention should also be made of the work in geology, biology (including the summer courses at the marine biological laboratory), mechanical engineering, chemistry, history, economics, and education.

UNIVERSITY OF CALIFORNIA, Berkeley, Calif., a city of 56,036 inhabitants, 35 minutes by train from San Francisco. Founded, 1868; a "land-grant" institution; coeducational.

Undergraduate departments, four-year courses unless otherwise stated.

Admission:

I. Colleges of Letters and Science, and Commerce—45 units;* 30 prescribed—6 English, 6 mathematics, 3 history, 3 laboratory science, 6 foreign languages, 6 additional foreign languages, additional laboratory science, or advanced mathematics in any combination.

II. College of Agriculture—45 units; 27 prescribed—6 English, 6 mathematics, 6 foreign languages, 6 sciences (physics and chemistry), 3 history.

III. Four-year courses in Colleges of Mechanics, Mining, Civil Engineering, and Chemistry—45 units; all prescribed—6 English, 12 mathematics, 3 history, 6 science (physics and chemistry), 6 drawing, 6 foreign languages, 6 additional foreign languages or advanced English.

Degrees:

College of Letters and Science—A. B.

Colleges of applied science—

College of Commerce—B. S.

College of Agriculture—B. S.

College of Mechanics (mechanical engineering and electrical engineering)—B. S.

College of Mining (mining, metallurgy, economic geology, petroleum engineering)—B. S.

College of Civil Engineering (railroad engineering, sanitary engineering, irrigation engineering)—B. S.

College of Chemistry—B. S.

Undergraduate courses are offered in architecture, education, and jurisprudence. Students in these are also classified in the College of Letters and Science, subject to admission requirements, and receive the degree of A. B.

* Three units in the University of California are the equivalent of one standard college entrance unit.

Graduate School:
Admission: Bachelor's degree from a recognized college.
Degrees:
M. A., M. S.—One year of postgraduate study; thesis.
J. D.—Two years of postgraduate study; thesis.
Graduate in Architecture—Two years of postgraduate study; thesis.
Graduate in Public Health—Two years of postgraduate study.
Graduate in Education—Two years of postgraduate study.
Ph. D.—At least two years of postgraduate study; thesis.
M. E., E. M., E. E., Metallurgical E.—These degrees are conferred upon graduates of engineering colleges, who—at least three years after receiving the bachelor's degree, one of which must have been spent in professional work—successfully pass an examination in prescribed subjects and present a thesis.
C. E.—At least three years of postgraduate study and thesis.
The engineering degrees will also be conferred upon those holding bachelor's degrees from the University of California, who, at least 10 years after graduation, in addition to evidence of exceptionally successful professional work, present a satisfactory thesis.

Hastings College of Law (San Francisco):
Admission: Two years' collegiate work.
Degree: LL. B.—Three-year course.

Medical School:
Admission: Two years' collegiate work.
Degree: M. D.—Five-year course. The first year and a half are spent at Berkeley and the last three and a half years at San Francisco. Graduate instruction only is offered at the Los Angeles medical department.

College of Pharmacy (San Francisco):
Admission:
For degree Ph. G.—Graduation from an approved high school, or two years' work in a high school.
For degree Ph. C.—Graduation from an approved high-school course of four years.
For degree Phar. B.—Graduation from an approved high-school course of four years.
Degrees:
Ph. G.—Two-year course; thesis.
Ph. C.—Three-year course; thesis.
Phar. B.—Four-year course; thesis.

College of Dentistry (San Francisco):
Admission: Satisfactory completion of four-year high-school course, including physics or chemistry.
Degree: D. D. S.—Four-year course.

Miscellaneous:
Lick Astronomical Observatory, at Mount Hamilton.
Scripps Institution for Biological Research, at La Jolla.
California School of Fine Arts, at San Francisco.
George Williams Hooper Foundation for Medical Research, at San Francisco.
University Farm School, at Davis.
Graduate School of Tropical Agriculture, at Riverside.
University Extension Division.

Expenses:

Tuition for nonresidents of California, except in medical school and colleges of dentistry and pharmacy $30
Tuition for all students in medical school 150
Tuition for all students in college of dentistry 150
Tuition for all students in college of pharmacy 100
Board and lodging, per month 30-45
Total annual expense in academic departments need not exceed 700

Faculty, 600.

Students, 9,570, of whom about 274 are from foreign countries, as follows: British Isles, 5; Canada, 25; Australia, 4; South Africa, 2; India, 12; France, 3; Italy, 2; Russia, 14; Germany, 6; Poland, 2; Holland, 2; Sweden, 1; Greece, 7; Bulgaria, 1; Turkey, 1; Syria, 1; Palestine, 2; Argentina, 1; Chile, 6; Colombia, 1; Costa Rico, 1; Mexico, 4; Panama, 1; Peru, 1; San Salvador, 2; Japan, 68; Korea, 1; Philippines, 36; Siam, 1; Java, 3; China, 5.

Of special interest to foreign students.—Well-equipped laboratories provide excellent facilities for work in mining, electrical, and civil engineering. In the latter division courses are offered in irrigation, including irrigation institutions and economics, engineering design, water supply, agricultural hydraulics, and drainage, with graduate work in design, and the management and operation of engineering systems.

The location of the university makes it possible to offer strong courses in the college of agriculture in such special fields as viticulture, citriculture, and the growth of semitropical fruits. Laboratories are maintained in these branches, and the citrus experiment station provides for special study and work with the citrus fruits.

The work in education has in view the professional training of three classes—those preparing to teach in secondary schools and colleges, those preparing to engage in school administration work, and graduates of normal schools who are making further preparation for teaching in elementary schools.

The college of dentistry and the schools of jurisprudence and medicine are of high rank.

UNIVERSITY OF SOUTHERN CALIFORNIA, Los Angeles, Calif., a city of 576,673 inhabitants. Founded, 1880; coeducational.

College of Liberal Arts.

Undergraduate department.

Admission: 15 units. For A. B. course, 8 prescribed—2 English, 2 foreign language, 1 science, 2 mathematics, 1 history. For B. S. course, 13 prescribed—in addition to those above, 1 science, 2 mathematics, 2 drawing.

Degrees:

A. B.—Four-year course.

B. S.—Four-year course in civil, electrical, or mechanical engineering.

The university also offers the first two years of a four-year course in mining and chemical engineering.

Graduate department:

Admission: Bachelor's degree from a recognized college.

Degree: A. M.—One year of postgraduate study; thesis.

College of Physicians and Surgeons.

Admission: Two years collegiate work, including physics, biology, chemistry, and German or French.

Degree: M. D.—Four-year course.

College of Law.
Admission: Graduation from an approved high school.
Degrees:
LL. B.—Three-year course.
J. D.—Three-year course, for those holding A. B. degree.
LL. M.—One-year course after LL. B. or J. D.; thesis.
College of Dentistry.
Admission: Graduation from an approved high school.
Degree: D. D. S.—Four-year course.
College of Theology (Methodist).
Admission: Bachelor's degree from a recognized college.
Degree: B. D.—Three-year course. A three-year course leading to a diploma is also open to students with only two years of collegiate work.
College of Pharmacy.
Admission: Two years of high-school work.
Degrees:
Ph. C.—Two-year course.
Pharm. B.—One-year course after Ph. C.; thesis. (This degree is granted to graduates of high schools only.)
College of Fine Arts.
Admission: 15 units, as in college of liberal arts.
Degree: B. Fine Arts.—Four-year course; three-year courses are offered leading to a diploma.
Miscellaneous.
High School (model training school).
College of Music.
College of Oratory.
Expenses:
Tuition—

College of liberal arts and college of law	$100
College of fine arts	95
College of pharmacy	100
College of medicine and college of dentistry	200
Free in theological school.	
Board and room, per week	8–15

Faculty, 267.
Students, 2,800, of whom 47 are from foreign countries, as follows: Japan, 18; Armenia, 1; Italy, 4; Germany, 3; Korea, 1; Greece, 2; Mexico, 6; Hawaii, 2; China, 1; Canada, 3; France, 2; India, 1; England, 2.

Of special interest to foreign students.—The Oriental Department; the College of Dentistry. The comparative nearness of the University of Southern California to South America and the countries of Central America should interest students from those localities.

COLORADO SCHOOL OF MINES, Golden, Colo., a town of 3,000 inhabitants, 13 miles east of Denver. Founded, 1870.

Admission: 15 units; 10 prescribed—3 mathematics, 3 English, 2 history, 1 chemistry, 1 physics.
Degrees:
E. M.—Four-year undergraduate course; thesis.
M. S.—One-year postgraduate study after E. M.; thesis.
Expenses:

Tuition (free to residents of Colorado) for nonresidents	$150
Board, per week	5–7
Room, per month	8–12
Total annual expense need not exceed	500–600

Faculty, 18.

Students, 278, of whom 31 are from foreign countries, as follows: China, 16; Chile, 5; Korea, 1; Mexico, 4; Bolivia, 1; Brazil, 1; Philippines, 3.

Of special interest to foreign students.—The course includes mining, metallurgy, mechanical, electrical, and civil engineering, geology and mineralogy, and mining law. The school is well equipped with laboratories, and since it is situated in one of the country's greatest mining centers, within reach of an unusually large number and variety of mines and metallurgical enterprises, it offers exceptional opportunities for students in this particular field.

YALE UNIVERSITY, New Haven, Conn., a city of 162,537 inhabitants. Founded, 1701.

Yale College and Sheffield Scientific School (undergraduate).

Degrees:

B. A.—Four-year course (College).

Ph. B.—Four-year course (College).

B. S.—Four-year course (Sheffield Scientific School).

Admission:

Required of *all* candidates, English, elementary algebra, plane geometry, and either French, German, or Spanish.

Additional *prescribed* subjects:

For B. A. candidates—Latin (5 examinations).

For B. S. or Ph. B. candidates—1 history, 1 science, and 1 additional foreign language.

Candidates must also secure 3 credits from additional *elective* subjects.

Graduate School. Admission: Bachelor's degree from a recognized college.

Degrees:

M. A. (minimum requirement).—One year of graduate study; essay.

M. S.—Two years of graduate study; thesis.

Ph. D. (minimum requirement).—Three years of graduate study; thesis.

C. P. H. (minimum requirement).—One year graduate study; thesis.

Dr. P. H. (minimum requirement).—Two years' graduate study; thesis.

Women are eligible for all graduate degrees.

Higher engineering degrees:

C. E.—Five-year course; thesis.

M. E.—Five-year course; thesis.

E. M.—Five-year course; thesis.

Met. E.—Five-year course; thesis.

E. E.—Five-year course; thesis.

Chem. E.—Five-year course; thesis.

Courses of study in the Graduate School are offered in the following divisions:

(*a*) Language, Literature, and the Fine Arts: Classical philology and archaeology, Indo-Iranian philology, comparative philology, and linguistics; Semitic and Biblical languages, literature, and history; Romance languages and literatures; Germanic languages and literatures; English language and literature; fine arts—history and criticism.

(*b*) Social and Political Science, History, Philosophy, Psychology, and Education.

(*c*) Mathematics and the Physical and Natural Sciences: Mathematics, physics, chemistry, botany, zoology and comparative anatomy, physiology, physiological chemistry, pathology, pharmacology and experimental medicine, bacteriology and public health, the geological sciences.

(*d*) Engineering: Civil, electrical, mechanical, mining and metallurgy.

School of the Fine Arts.

Three-year course in drawing, painting, and sculpture. B. F. A. is conferred upon students of special ability who have spent at least two years in professional work (one year may be spent in advanced study in the Yale School of the Fine Arts) after completing a three-year course, and who present a thesis and an original work.

Four-year course in architecture. B. F. A. is conferred on satisfactory completion of the four-year course. The work presented by students in this department may consist of selections from the work done during the senior year in the school. In addition a thesis must be presented.

School of Music.

Three-year undergraduate course. A certificate of proficiency in the theory of music is given after this course.

Mus. B. is conferred upon students of special ability who have spent at least two years in graduate study after receiving the certificate. An original work in one of the larger forms must be submitted as a thesis.

School of Forestry.

Admission: Bachelor's degree from a recognized college, or, in certain cases, three years of college work. M. F.—Two-years' course. Students holding a degree in forestry from an institution of high standing may receive the master's degree at the end of one year.

Divinity School.

Admission: Bachelor's degree from a recognized college, or its full equivalent.

Degrees: B. D.—Three-year course. Students may also enroll in the graduate school as candidates for M. A. and Ph. D.

School of Medicine.

Admission: Minimum general requirement: Two years' collegiate work, which must have included certain specified preparatory subjects in science.

Degree: M. D.—Four-year course; thesis.

School of Law.

Admission: As candidate for a degree, bachelor's degree from a recognized college (except for Yale College seniors). As special student not candidate for a degree, two years' collegiate work.

Degrees:

LL. B.—Three-year course.

B. C. L.—Three-year course; an equivalent amount of work to that for LL. B. For B. C. L., courses in Roman law are prescribed, but not for LL. B.

M. L.—One year's study for graduates of recognized law schools; thesis.

Jur. D.—One year's study for those holding a bachelor's degree and who are graduates of recognized law schools; thesis.

D. C. L.—Two years' postgraduate study, and in addition to requirements for admission to Jur. D., preliminary examination in Roman law and history, Latin, and either French or German; thesis.

Expenses:

Yearly tuition—

Yale College	$240
Sheffield Scientific School	240
School of the Fine Arts—	
In departments of drawing, painting, and sculpture	90
In department of architecture	180

Expenses—Continued.

Yearly tuition—Continued.

School of music	$75–$200
School of medicine	200
School of law	200
School of forestry, junior year	150
School of forestry, senior year	150
Graduate school	125

Board $6 a week and upward.

Room $2 a week and upward.

Total annual expense, $400 to $1,000, which may be reduced by scholarship aid in the case of students of proven capacity and character. Special efforts are made to assist students of limited means to secure remunerative employment and reduced expenses.

Faculty, 427.

Students, 2,403, of whom 52 are from foreign countries, as follows: Africa, 4; Asia Minor, 3; Canada, 5; China, 16; Europe, 10; India, 1; Japan, 6; Philippines, 1; Siam, 1; South and Central America, 5.

Of special interest to foreign students.—Yale College should prove attractive to foreign students desiring strong undergraduate courses. It includes on its teaching staff many men of the highest reputation and is excellently equipped in the matter of libraries, laboratories, and museums.

Sheffield Scientific School offers thorough courses in the mathematical, physical, and natural sciences. Modern laboratories provide ample facilities for experimental, advanced work, and research, not only in natural science, but also in mechanical, electrical, mining, civil, metallurgical, and chemical engineering.

The School of Forestry, founded in 1900, is strictly a graduate school, and offers thorough training in all branches of forestry. Special endowments provide for the departments of silviculture, lumbering, and forest management. In addition to the usual classroom and laboratory subjects, a large part of each student's time is spent in practical field work, for which the school has at its disposal a tract of 1,000 acres at Milford, Pa.; the forests of the New Haven Water Co. at New Haven, aggregating 9,000 acres; the school forest at Keene, N. H.; and localities in the Adirondack Mountains of New York and in the Southern States. The courses in tropical forestry are of especial interest to foreign students, and several students from South American countries have been authorized by their governments to attend the School of Forestry for this reason.

The Graduate School is excellently equipped and offers courses leading to advanced degrees in all departments.

Among those departments which are especially noteworthy, either on account of the eminence of the professors connected with them or the scope of the courses, may be mentioned history (including Latin-American and the history of Japanese civilization), economics, law, forestry, geology, English, comparative philology, art, music, religion, medicine, the classics, chemistry, physiology, and physics.

CATHOLIC UNIVERSITY OF AMERICA, Washington, D. C., a city of 437,571 inhabitants, the capital of the country. Founded, 1887.

School of Philosophy.

Undergraduate department.

Admission: Graduation from an approved secondary school, with evidence of work completed in English, history, Latin, Greek, French, or German, mathematics, two sciences.

Degrees: A. B., Ph. B.—Four-year course.

School of Philosophy—Continued.

Graduate department.

Admission: Bachelor's degree from a recognized college.

Degrees:

Ph. M.—Two years' postgraduate study; thesis.

Ph. D.—Three years' postgraduate study; thesis.

School of Letters.

Undergraduate department.

Admission: Graduation from an approved high school, with evidence of completion of required work in English, one history, mathematics, Latin, and either A or B.

A—Greek, elementary French or German.

B—One only of the following:

(*a*) Advanced French and German.

(*b*) Advanced French or advanced German with physics or chemistry.

Degrees: A. B., L. H. B.—Four-year courses.

Graduate department.

Admission: Bachelor's degree from a recognized college.

Degrees:

M. M.—One year of postgraduate study; thesis.

L. H. M.—Two years of postgraduate study; thesis.

Ph. D.—Three years of postgraduate study; thesis.

L. H. D.—As for Ph. D.

School of Sciences.

Undergraduate department.

Admission: As in the School of Philosophy.

Courses, 4 years:

	Degree.
General	B. S. and A. B.
Civil engineering	B. S. in C. E.
Electrical engineering	B. S. in E. E.
Chemical engineering	B. S. in Chem. E.
Mechanical engineering	B. S. in M. E.
Architecture	B. S. in Arch.
Architectural engineering	B. S. in Arch. E.

Graduate department.

Admission: Bachelor's degree from a recognized college.

Degrees:

A. M.—One year of postgraduate study; thesis.

M. S., E. E., C. E., M. E.—Two years of postgraduate study; thesis.

Sc. D., Ph. D.—Three years of postgraduate study; thesis.

Department of Education. Degrees: Usual degrees in arts and philosophy.

School of Sacred Sciences.

Admission: Completion of a two-year course in philosophy and a three-year course in theology in a Catholic theological seminary.

Degrees:

S. T. B.—Conferred after an examination based on previous theological courses.

J. C. B.—Conferred after an examination based on previous seminary courses, including at least one year of canon law.

S. T. L. or J. C. L.—Two years of postgraduate study; thesis.

S. T. D. or J. C. D.—Four years of postgraduate study; thesis.

School of Law.

Undergraduate department.

Admission: Graduation from an approved secondary school.

Degree: LL. B.—Three-year course.

Graduate department.

Admission: Bachelor's degree from a recognized college and LL. B. from the University Law School or from some law school of recognized standing.

Degrees:

LL. M., M. C. L.—One year of postgraduate study; thesis.

J. D.—Two years of postgraduate study after LL. M.; thesis.

D. C. L.—Two years of postgraduate study after M. C. L.; thesis.

Expenses:

Tuition (except in school of sacred sciences)	$150
Tuition in school of sacred sciences	225
Board (at university), per month	30
Room (at university), $8.50 to $20 a month.	
Total annual expense	500

Faculty, 83.

Students, 336, of whom 16 are from foreign countries, as follows: Canada, 5; Mexico, 2; Nicaragua, 1; Peru, 1; New Brunswick, 1; Nova Scotia, 5; Porto Rico, 1.

Trinity College (affiliated with the Catholic University). Founded, 1897; a Catholic institution for the education of women.

Undergraduate department.

Admission: 15½ units; 13½ prescribed—3 English, 1 history, 2½ mathematics, 4 Latin, 3 Greek, French, or German.

Degrees: A. B., B. S., or B. L.—Four-year course.

Graduate department.

Admission: Bachelor's degree from a recognized college.

Degrees: A. M., M. S.—One year of postgraduate study; thesis. Graduate work is offered only in those departments in which professors from the Catholic University teach, and it must be under their personal direction.

Expenses:

Tuition	$150
Board and room	$425–550

Faculty: 32.

Students: 300.

Of special interest to foreign students.—The Catholic University of America offers thorough training in all departments amid a distinctly religious environment. Its location in Washington has the additional advantage of putting the student in contact with cultural and educational opportunities to be found nowhere else in the country.

The School of Sacred Sciences, which is strictly a graduate institution, offers exceptionally complete training for those graduates of a theological seminary who are looking forward to advanced study. Courses are given in the following departments: Sacred scripture, dogmatic theology, apologetics, moral theology, sacramental theology, canon law, church history, ascetic and pastoral theology.

The Department of Education emphasizes the philosophical and psychological aspects of the subject (and those principles upon which Catholic education is based). It includes courses in philosophy of education, psychology of education,

science and art of study, general methods, school management and administration, history of education, and public-school administration in the United States.

Professors in the Catholic University teach in some of the undergraduate departments of Trinity College, and all of the graduate work is under their direction.

GEORGETOWN UNIVERSITY, Washington, D. C., a city of 437,571 inhabitants, the capital of the country. Founded, 1789.

The College.

Undergraduate School.

Admission: Completion of required 16 units of secondary-school work.

Degrees:

A. B.—Four-year course.

B. S.—Four-year course.

Graduate School.

Admission: Bachelor's degree from a recognized college.

Degrees:

A. M.—One year.

Ph. D.—Three years; thesis.

School of Medicine.

Admission: Two years of collegiate work, including chemistry, physics, biology, and French or German.

Degree: M. D.—Four-year course.

Dental School.

Admission: Graduation from an approved secondary school.

Degree: D. D. S.—Four-year course.

Law School.

Admission: Graduation from an approved secondary school.

Degrees:

LL. B.—Three-year course.

LL. M.—One year of postgraduate work after LL. B.; thesis.

Master of Patent Law—One-year course in patent law, open to seniors, graduate students, and members of the bar.

Foreign Service School. Prepares for diplomatic, consular, or business career.—Two-year course.

Expenses:

Tuition—

College	$150
School of Medicine	175
School of Dentistry	150
School of Law	110
School of Law (for patent-law course only)	40
Foreign Service School	120
Room and board, at university, including medical attendance	340–375
Room at university, per year	100
Room and board, outside university, per month	25–40
Total annual expense	500

Faculty, 182.

Students, 1,247, of whom 41 are from foreign countries, as follows: Canada, 2; Central America, 1; China, 1; Cuba, 2; Egypt, 1; Germany, 1; Greece, 1; Hawaii, 1; Ireland, 1; Panama, 8; Philippines, 5; Porto Rico, 12; Russia, 1; South America, 2; Spain, 1; Switzerland, 1.

Of special interest to foreign students.—Georgetown is under the control of the Catholic Church but admits students of all religious denominations.

The Dental and Medical Schools, which are of high grade and are provided with excellent clinical facilities in the city of Washington, have drawn many students from foreign countries.

As in the case of the two last-named institutions the location, in Washington, should prove attractive to the foreign student on account of the exceptional educational equipment and facilities for research in the great scientific collections and libraries of the Government, and because he is given opportunity to become acquainted, through daily observation and contact, with the American system of Federal administration.

GEORGE WASHINGTON UNIVERSITY, Washington, D. C., a city of 437,571 inhabitants, and the capital of the country. Founded, 1821; coeducational.

Columbian College, undergradgate.

Admission; 15 units; 7½ prescribed—3 English, 2½ mathematics, 2 foreign language.

Degrees: A. B.—Completion of 120 semester hours[1] of undergraduate courses.

College of Engineering.

Admission: 15 units; 13, prescribed—3 English, 4 foreign language, 4 mathematics, 2 science. (For the course in architecture the science is not prescribed, and only 2 units of foreign language are required.)

Degrees: B. S. in C. E., B. S. in E. E., B. S. in M. E., B. S. in Chem., B. S. in Chem. Eng., B. S. in Arch.—Four-year courses.

Teachers College.

Admission: 15 units; 7½ prescribed—3 English, 2½ mathematics, 2 foreign language.

Degree: A. B. and Bachelor's Diploma in Education. Completion of 124 semester hours.[1]

School of Graduate Studies.

Admission: Bachelor's degree from a recognized college.

Degrees:

A. M., S. M.—One year of postgraduate study; thesis.
C. E., M. E., E. E.—One year of postgraduate study; thesis.
Ph. D.—Three years of postgraduate study; thesis.

The university conducts graduate work in the following subjects: Applied mathematics, archæology, architecture, anatomy, astronomy, astro-physics, bacteriology, botany, chemistry, commerce, economics, education, civil engineering, electrical engineering, hydraulic engineering, ethnology, mechanical engineering, English, ethics, geology and mineralogy, germanic languages and literature, Greek language and literature, gynecology, histology, embryology, history, history of art, international law and diplomacy, Latin language and literature, law, mathematics, meteorology, microscopy, nautical science, paleontology, pathology, philosophy, physics, physiology, pharmacology, political sciences, preventive medicine, psychiatry, psychology, Romance language and literature, Semitics, sociology, zoology.

Law School.

Admission: 15 units; 7½ prescribed—3 English, 2½ mathematics, 2 foreign language; one year of college work if applicant is under 21.

[1] A "semester hour" of credit is one recitation, lecture, or laboratory period a week for an academic year. No time is prescribed for completion of a course in the college, but the degree is awarded when the student has the required number of credit hours.

Law School—Continued.
Degrees:
LL. B. Three-year course.
LL. M. or Master of Patent Law. One year after LL. B. A bachelor's degree from a recognized college is a prerequisite.
Medical School.
Admission: One year of collegiate work in physics, chemistry, and biology.
Degrees:
M. D. Four-year course.
B. S. and M. D. Six-year course; 2 years in Columbian College and 4 years in Medical School.
School of Pharmacy.
Admission: Graduation from an approved secondary school.
Degree: Phar. D. Three-year course.
Expenses:
Tuition:
Colleges and law school, for each hour per week $12
Graduate 180
Medical School 175
Dental School 150
College of pharmacy 80 00
Board and room, per month 45 50
Total annual expense 500 800
Faculty, 278.
Students, 2,650, of whom are foreign students from the following countries: Argentina, Bohemia, Canada, Central America, China, Cuba, France, Greece, Hawaii, Holland, Japan, Mexico, Philippines, Persia, Porto Rico, Russia, Switzerland, Transvaal.

In special interest to foreign students.—Teachers College offers courses adapted to the needs of both prospective teachers desiring collegiate training and those already in the service who wish specialized instruction in particular phases of educational work.

In the department of political science the university offers courses for those intending to enter the consular or diplomatic service. The work includes a study of American and European government, political history of modern Europe and of South America, international law, elements of diplomacy and diplomatic usage, consular service, and colonial administration.

HOWARD UNIVERSITY, Washington, D. C., a city of 437,571 inhabitants. Founded, 1867, especially for the education of the Negro, although no race is excluded; coeducational.

The College (undergraduate) consists of the Junior College and four senior schools. The work of the first two years is done in the Junior College, whose courses prepare students for admission into the senior schools.

Junior College.
Admission: 15 units; 7 prescribed—3 English, 2 mathematics, 2 foreign language (or 2 sciences or 2 history).
Length of course—two years.

School of Liberal Arts.
Admission: Completion of Junior College work.
Degrees: A. B. and B. S.—Two-year courses.

School of Journalism (will not open until fall of 1920).
Admission: Completion of Junior College work.
Degree: B. S. in Journalism.

School of Education.
Admission: Completion of Junior College work.
Degrees:
A. B. in Education—Two-year course.
B. S. in Education—Two-year course.
School of Commerce and Finance.
Admission: Completion of Junior College work.
Degree: B. S. in Commerce.
School of Applied Science.
Admission: Same as in Junior College.
Degrees: B. S. in C. E., in M. E., in E. E., in Architecture, in Agriculture, in Home Economics—Four-year courses.
School of Music.
Admission: All persons are admitted, but for courses leading to degree graduation from an approved secondary school is required.
Degree: B. Mus.—Four-year course.
School of Religion (interdenominational).
Admission:
To diploma course, graduation from an approved secondary school.
To degree course, bachelor's degree from a recognized college.
Degree:
B. D.—Three-year course.
Diploma—Three-year course.
School of Medicine (comprises Medical College, Dental College, and Pharmaceutical College).
Medical College.
Admission: Completion of Junior College work, including special studies.
Degree: M. D.—Four-year course.
Dental College.
Admission: Graduation from an approved secondary school.
Degree: D. D. S.—Four-year course.
Pharmaceutical College.
Admission: Two years' work in approved secondary school.
Degree: Phar. D.—Three-year course.
School of Law.
Admission: Graduation from an approved college or secondary school. (Those who are not college graduates must pass a preliminary examination.)
Degree: LL. B.—Three-year course.
Graduate course—leads to A. M. degree.
Faculty, 131.
Students, 1,491.
Expenses (estimated for one quarter—three months—in any except professional schools):

Incidental fee	$15
Room rent, heat, light	12–14
Board, about $17 per month minimum	51–60
Laboratory fees and deposits in chemistry	10
Matriculation fee (first year only)	5
Laundry	10–20
Books	0–15

Expenses—Continued.

Professional Schools (tuition, one year):

Medical College	$125
Dental College	100
Pharmaceutical College	80
Laboratory fees in Medical College and Dental College, per year	25
Laboratory fee in Pharmaceutical College, per year	20

COLLEGE OF HAWAII, Honolulu, Hawaii, a city of 52,000 inhabitants. Founded, 1907; a "land-grant" institution; coeducational.

Undergraduate courses.

Admission: (1) Graduation from approved high school. (2) 15 units; 5½ prescribed: 3 English, 2½ mathematics. For students specializing in engineering an additional unit of mathematics is prescribed.

Courses, 4 years:

Agriculture; degree, B. S. in Agr.

Civil engineering; degree, B. S. in C. E.

Sugar technology; degree, B. S. in S. T.

Science: Group A.—Physical sciences; B.—Biological sciences; C.—Domestic arts and sciences; degree, B. S.

Graduate courses.

Admission: Bachelor's degree from a recognized college.

Degrees: M. S., M. S. A., C. E.—one-year postgraduate study; thesis.

Expenses:

Tuition (free to residents of Hawaii)	$50
Board	225
Room	90
Total annual expenses, including books and stationery	400

Faculty, 22.

Students, 145, embracing 35 Chinese, 15 Japanese, 6 Korean[illegible]

Of special interest to foreign students.—On account of its location the college is able to provide special facilities for instruction in the agriculture of tropical countries. Courses are offered in plant breeding and selection, tropical crops, and sugar-cane production.

A four-year course in sugar technology has recently been introduced to train men in the fundamentals of sugar chemistry, sugar-cane production, and the manufacture of raw sugar. Hawaii's scientifically managed plantations and favorable climate are unusual advantages. In this connection the department of engineering offers a course in the engineering of sugar plants.

Hawaii's climate, which permits outdoor work throughout the year, and the variety of plant and animal life, facilitate work in zoology, botany, and entomology, for which excellent equipment is provided. The college possesses the most complete herbarium of Hawaiian plants in existence.

A new charter has been granted whereby a University of Hawaii is created to become effective at the opening of the year in 1920–21. Courses leading to the B. A. degree will be offered. Special emphasis will be laid on studies of interest and value in the life and commerce of the Pacific.

ARMOUR INSTITUTE OF TECHNOLOGY, Chicago, Ill., a city of 2,701,705 inhabitants. Founded, 1892.

Undergraduate Department.

Admission (15 units; 12½ prescribed—3½ mathematics, 3 English, 2 science, 1 history, 2 foreign language, 1 mechanical drawing.

Undergraduate Department—Continued.

Courses, 4 years:

Mechanical engineering; degree, B. S. in M. E.
Electrical engineering; degree, B. S. in E. E.
Civil engineering; degree, B. S. in C. E.
Chemical engineering; degree, B. S. in Ch. E.
Fire-protection engineering; degree, B. S. in Fire Protection Engineering.
Architecture; degree, B. S. in Arch.
Industrial arts; degree, B. S. in Industrial Arts.

Graduate Department.

Admission: Bachelor's degree from a recognized college.

Degrees: M. S.—One year of postgraduate study; thesis. M. E., E. E., C. E., Ch. E., Fire Protection Engineer.—Conferred without residence study upon graduates of Armour Institute who have had at least three years' successful engineering practice or teaching, and who present a thesis.

Expenses:

Tuition	$180
Board and room, per week	8-10
Total annual expense	600

Faculty, 60.

Students, 1905, of whom 9 are from foreign countries, as follows: Argentina, 1; Australia, 1; Canada, 1; China, 3; Hawaii, 1; Lithuania, 1; Russia, 1.

Of special interest to foreign students. The department of fire-protection engineering offers instruction in these subjects: Fire-protection engineering, underwriters' requirements, special hazards, insurance practice and schedule rating, and electrical machinery. The Underwriters' Laboratories at Chicago, conducted and maintained by the fire-insurance companies of the country, have excellent facilities for experimental and research work.

Through cooperation with the Art Institute of Chicago, exceptional facilities for courses in architecture are provided.

In the department of civil engineering the institute has recently established courses in aeronautics, including instruction in aerodynamics, aeronautical designing, and gas engines.

NORTHWESTERN UNIVERSITY, Evanston and Chicago, Ill. The College of Liberal Arts, the Graduate School, the College of Engineering, the Theological Schools, the School of Music, and the School of Oratory are located in Evanston, a city of 37,234 inhabitants, 12 miles north of the center of Chicago, and continuous with it. The Schools of Law, Medicine, Dentistry, and Commerce are in Chicago, a city of 2,701,705 inhabitants. Founded, 1851.

College of Liberal Arts (undergraduate).

Admission: 15 units; 7 prescribed—4 English, 2 mathematics, 2 foreign language.

Degrees: B. A. and B. S.—Four-year courses.

Graduate School.

Admission: Bachelor's degree from recognized college.

Degrees:

M. A.—One year of postgraduate study; thesis.
Ph. D.—Three years of postgraduate study; thesis.
M. S. T.—Three years in a theological school; one year of postgraduate work in theology; thesis.

Medical School.

Admission: Two years of college work.

Degree: M. D.—Four-year course and additional hospital [illegible]

Law School.
Admission: Three years of college work.
Degrees:
LL. B. and J. D.—Four-year course, except that candidates entering with a bachelor's degree may complete the course in three years.
LL. M.—One year of study after receiving LL. B.; thesis.
College of Engineering.
Admission: As in College of Liberal Arts.
Degrees:
B. S.—Four-year course.
E. E. and C. E.—Five-year courses.
Dental School.
Admission: Graduation from recognized high school.
Degree: D. D. S.—Four-year course.
School of Commerce.
Admission: Two years of collegiate work.
Degree: B. B. A.—Three years' study and thesis.
Garrett Biblical Institute, primarily a Methodist theological seminary, but open to any properly recommended students.
Graduate School of Theology.
Admission: Bachelor's degree from recognized college.
Degree: B. D. Three-year course.
Miscellaneous:
School of Music.
School of Oratory.
Expenses:
Tuition:

College of Liberal Arts	$150
Graduate School (based on courses taken), not to exceed	50
Medical School	180
Law School	160
Engineering School	150
Dental School	200
School of Commerce (based on courses taken), average	45
Theological School, free.	
Board, $6 to $7 a week.	
Room, $10 to $15 a month.	
Total annual expense	425–750

Faculty, 162.

Students, 4,010, of whom 66 are from foreign countries, as follows: Armenia, 1; Austria, 1; British West Indies, 2; Canada, 6; China, 7; England, 1; France, 3; Germany, 4; Hawaii, 3; India, 1; Italy, 1; Japan, 1; Korea, 2; Lithuania, 1; Macedonia, 1; Norway, 2; Persia, 1; Philippines, 5; Poland, 4; Rumania, 2; Russia, 13; Siam, 1; Slovia, 1; Turkey, 2.

The College of Liberal Arts offers a great variety of courses for undergraduate students leading to a bachelor's degree. These are supplemented by advanced courses in the Graduate School leading to a master's or doctor's degree.

Of special interest to foreign students.—The medical school occupies well-equipped buildings in the center of Chicago. In addition numerous hospitals and dispensaries throughout the city provide abundant opportunities for clinical instruction. Wesley Hospital and Mercy Hospital each conducts a training school for nurses with a curriculum under the supervision of the university.

The Law School requires three years of college study for admission and four years of law study for a degree. College graduates may complete the law course in three years. The law library is especially well supplied with foreign books.

The Dental School is of the first rank. A special postgraduate or practitioner's course, lasting four weeks, is offered each year.

The location of the School of Commerce, in Chicago, offers unusual opportunities for practical observation and study of modern business and business problems in one of the country's greatest commercial centers.

The College of Engineering introduces an unusual number of nontechnical courses into its curriculum with the intention of giving its graduates a broader and more general training than is commonly done.

UNIVERSITY OF CHICAGO, Chicago, Ill., a city of 2,701,705 inhabitants, and one of the great railway centers of the country. Incorporated 1890; coeducational.

The Colleges, four-year undergraduate courses. The work is divided into two parts. That of the first two years is spent in the "Junior College." At its completion the student passes on to the "Senior College," for the work of the two last years before the bachelor's degree.

Admission: The subjects are arranged in these groups: (1) Greek, (2) Latin, (3) modern languages other than English, (4) history, civics, and economics, (5) mathematics, (6) science.

Required: Fifteen units, including 3 in English; 3 (or more) in a single group, 1-6; 2 (or more) in another single group, 1-6; 2 (or less) in any of the groups. Five units may be offered in any subjects accepted by an approved secondary school.

Degrees: A. B., B. S., Ph. B. The subjects in which a student specializes determine the degree to be awarded.

The Graduate Schools: Graduate School of Arts and Literature; Ogden Graduate School of Science.

Admission: Bachelor's degree from a recognized college.

Degrees:

A. M. and M. S.—One year of graduate study; thesis.

Ph. D.—Three years of graduate study; thesis. The doctor's degree is given "not on the basis of the completion of a certain amount of time spent on a specified program, but as the recognition and mark of high attainments and ability in the candidate's chosen province."

The Divinity School.

English Theological Seminary.

Admission: Fifteen units, as in the colleges. Four years prescribed curriculum of resident study during summer quarters and nonresident correspondence work during remainder of year.

Graduate Divinity School.

Admission: Bachelor's degree from a recognized college.

Degrees:

A. M.—One year of graduate work; thesis.

D. B.—Three years of graduate work; thesis.

Ph. D.—Four years of graduate work; thesis. (See note regarding this degree in the Graduate Schools.)

The Law School.

Admission for the degree LL. B.: Granted to mature students who have completed work equivalent to the college entrance requirements.

The Law School—Continued.

Degree: LL. B.—Three years of study, with average standing 10 per cent above the passing mark.

Admission for the degree J. D.: Three years of collegiate work. Before receiving the J. D. students must receive a bachelor's degree from the College of the University of Chicago or from an equivalent college. The first year in the law school may be counted toward this, and the bachelor's degree be awarded at its completion.

Degree: J. D.—Two or three years of graduate work, dependent upon whether the undergraduate work has included one year of law.

The Medical School (Rush Medical College).

Admission: Two years of collegiate work, including chemistry, physics, biology, two years of Latin, and a reading knowledge of French or German.

Degree: M. D.—Five years, one year to be spent as an interne in a hospital or in advanced work in one of the departments of the school.

School of Education.

The University Elementary School and the University High School.

The College.

Admission: 15 units, as in the other colleges.

Degrees:

A. B., S. B., or Ph. B. in Education—four years.

Kindergarten Primary Certificate—two years.

Manual Arts Certificate—two years.

Home Economics and Household Arts Certificate—two years.

Graphic and Plastic Arts Certificate—two years.

Supervisor's Certificate (for kindergarten and elementary schools), one year.

Graduation from a normal or kindergarten training school is required for admission to this course.

To obtain the Home Economics and Household Arts, Graphic and Plastic Arts, or Supervisor's Certificate, three years of teaching experience or a two-years' normal course above a four-year high school is required.

Graduate Department.

Admission: Bachelor's degree from a recognized college.

Degrees: A. M., M. S., Ph. D., conferred by the Graduate Schools of Arts, Literature, and Science.

College of Commerce and Administration.

The Trade and Industry Division—For those intending to enter various business pursuits.

The Charitable and Philanthropic Division—For those intending to enter social-service work.

The Public Service Division—For those expecting to work in various public-service bureaus.

Undergraduate Departments.

Admission: 15 units, as in the other colleges.

Degree: Ph. B.—Four-year course.

Graduate Departments.

Admission: Bachelor's degree from recognized college.

Degrees: A. M. and Ph. D.—Conferred under the same conditions as in the graduate school.

College of Commerce and Administration—Continued.

College of Religious and Social Sciences.—A group within the College of Commerce and Administration, planned to meet the needs of three classes of students: (1) Those preparing to be Y. M. C. A. secretaries or to fill like positions; (2) those preparing for the work of medical missionaries (for this a college course and a medical course are presupposed); (3) those preparing for the ministry, who can not afford time for a separate college and divinity school course.

Admission: 15 units, as in the other colleges.

Degree: Ph. B.—Four-year course.

Expenses:

Tuition—

Undergraduate colleges and School of Law	$175
All graduate schools	120
School of Medicine	180
Room (University dormitory)	60–225
Board (University commons)	135–225
Total annual expense	330–445

Faculty, 344.

Students, 10,448, of whom 344 are from foreign countries, as follows: Australia, 1; Austria, 2; Belgium, 1; Burma, 1; Canada, 94; Chile, 1; China, 40; Denmark, 1; England, 7; France, 1; Germany, 1; Greece, 1; Iceland, 1; India, 7; Korea, 1; Jamaica, 1; Japan, 31; New Zealand, 1; Norway, 1; Palestine, 1; Roumania, 1; Russia, 2; Scotland, 2; South Africa, 1; Sweden, 2; Syria, 2; Turkey, 2; Wales, 3.

Of special interest to foreign students.—(1) As parts of the School of Education the university maintains a high school and an elementary school of standard type. These give unusual opportunity for observation of methods and for the practice teaching required of all students.

(2) The Medical School is among the best in the country.

(3) The Divinity School requires that students shall select one of the following as a field for future work: The pastorate, religious education, social service, foreign missionary work. Various curricula are prescribed to fit each particular field. Special attention should be called to courses in the department of practical sociology.

(4) Courses offered in the Graduate Schools are of the highest rank. Opportunities for specialization are offered in the following departments: Philosophy, psychology, education, political economy, political science, history, history of art, sociology and anthropology, household administration, comparative religion, Semitic languages and literatures, biblical and patristic Greek, Sanskrit and Indo-European comparative philology, Greek, Latin, Romance, Germanic, English language and literature, general literature, mathematics, astronomy and astrophysics, physics, chemistry, geology, geography, zoology, anatomy, physiology, paleontology, botany, pathology, hygiene, and bacteriology.

(5) The university is in session throughout the year. The calendar year is divided into four quarters. Any three of these are the equivalent of an academic year. In the majority of cases students may, by attendance during the four quarters, considerably lessen the number of academic years required for a degree.

A large correspondence-study department and a university college for afternoon, evening, and Saturday classes are maintained.

UNIVERSITY OF NOTRE DAME. Notre Dame, Ind., a town of 1,000 inhabitants, 2 miles from South Bend, Ind., a city of 70,983 inhabitants, and 80 miles east of Chicago, Ill., a city of 2,701,705 inhabitants. Founded 1842; for men only.

College of Arts and Letters.

Admission: 16 units; 13 prescribed—4 English, 2 Latin, 2 French or German, 2 history, 2 mathematics, 1 science. For the department of classics all 16 units are prescribed, there being 7 foreign language units required. These must be, 4 Latin and 3 Greek.

Degrees: A. B., Lit. B., Ph. B., Ph. B. in Journalism, Ph. B. in Commerce, Ph. B. in For. Com., Ph. B. in Education.—Four-year courses.

College of Science.

Admission: 16 units; 13 prescribed—4 English, 2 science, 3 mathematics, 2 foreign language, 2 history.

Degrees: B. S., B. S. in Chem., B. S. in Biol., B. S. in Phar., B. S. in Ag.—Four-year courses. A thesis is required.

Short courses in pharmacy. Two years for those who have completed one year of high-school work, and leading to degree Ph. G. Three years for those who have completed high-school work, and leading to degree Ph. C.

College of Engineering.

Admission: 16 units, as in College of Science.

Degrees: C. E., M. E., E. E., E. M., Chem. E., I. E. (Industrial Engineer)—Four-year courses. A thesis is required.

College of Architecture.

Admission: 16 units, as in the College of Science.

Degrees:

B. S. in Architecture, B. S. in Architectural Engineering.—Four-year courses.

M. S. in Architecture, M. S. in Architectural Engineering.—One year postgraduate study; thesis. These masters' degrees may also be conferred for work done in absentia on students who have received the bachelor's degree at Notre Dame.

College of Law.

Admission: 16 units; 13 prescribed, as in the College of Letters.

Degrees:

LL. B.—Four-year course.

LL. M.—One year after LL. B.; thesis.

LL. D. or D. C. L.—Three years after LL. B.; thesis.

For either of these degrees, an A. B. or a B. S. is a prerequisite.

College of Music.

Admission: As in the College of Arts and Letters.

Degree: B. Mus.—Four-year course.

Graduate courses:

Admission: Bachelor's degree from a recognized college.

Degrees:

A. M.—One year of graduate study; thesis.

M. S.—One year of graduate study; thesis.

E. A. (Engineering Administrator), given for one year's work in business administration after the completion of a four-year course in engineering.

Master of Music.—One year of postgraduate study; thesis.

Ph. D.—Three years of postgraduate study; thesis.

Short courses: Two-year courses in commerce, agriculture, architecture, mechanical and electrical engineering; for mature students seeking practical knowledge, who have not completed high school and are limited as to time and means.

Expenses: Board, room, and tuition, $500.

Faculty, 90.

Students, 1,071, of whom 57 are from foreign countries.

Of special interest to foreign students.—The College of Engineering is equipped with ample laboratories and shops for instruction in civil, mechanical, electrical, mining, industrial, and chemical engineering. The proximity to the city of South Bend affords the student opportunity for observation in modern engineering plants.

Although students of all religious denominations are admitted, the university is strictly a Roman Catholic institution.

UNIVERSITY OF ILLINOIS, Urbana-Champaign, Ill., a city of 25,000 inhabitants, 126 miles south of Chicago, 118 miles west of Indianapolis, 164 miles northeast of St. Louis. Founded, 1867; a "land-grant" institution; coeducational.

College of Liberal Arts and Sciences.

Admission: 15 units; 6 prescribed—3 English, 2 mathematics, 1 laboratory science. Additional prescriptions for various courses, as follows: Liberal arts and sciences, journalism, and prelegal—2 foreign language; home economics—2 foreign language, 1 physics; premedical—2 foreign language, 1 history or civics; chemistry and chemical engineering—2 French or German, 1 advanced algebra, 1 chemistry.

Degrees: A. B. and B. S.—Four-year courses. B. S. is conferred on a graduate of the College of Liberal Arts and Sciences who completes a curriculum in chemistry, and may be conferred on graduates from other curricula in this college on recommendation of the faculty.

College of Commerce and Business Administration.

Admission: 15 units; 6 prescribed—3 English, 2 mathematics, 1 laboratory science. Additional prescriptions, 3 options—2 foreign language, or 1 mathematics, or 1 science.

Degree: B. S.—Four-year courses in general business, banking, insurance, accountancy, railway administration and transportation, industrial, administration, etc.

College of Engineering.

Admission: 15 units; 7 prescribed—3 English, 3 mathematics, 1 laboratory science.

Courses, four years:

	Degree.
Architecture	B. S. in Architecture.
Architectural engineering	B. S. in Architectural Engineering.
Civil engineering	B. S. in Civil Engineering.
Electrical engineering	B. S. in Electrical Engineering.
Mechanical engineering	B. S. in Mechanical Engineering.
Mining engineering	B. S. in Mining Engineering.
Municipal and sanitary engineering.	B. S. in Municipal and Sanitary Engineering.
Railway civil engineering	B. S. in Railway Civil Engineering.
Railway electrical engineering	B. S. in Railway Electrical Engineering.
Railway mechanical engineering	B. S. in Railway Mechanical Engineering.
General engineering physics	B. S. in General Engineering Physics.

College of Agriculture.

Admission: 15 units; 7 prescribed—3 English, 2 mathematics, 2 science (for the courses in home economics and interior decoration, 1 of these must be physics).

Courses, four years:

	Degree.
General agriculture	B. S. in Agriculture.
Farm organization and management.	B. S. in Agriculture.
Floriculture	B. S. in Floriculture.
Home economics	B. S. in Home Economics.
Interior decoration	B. S. in Home Economics.
Landscape gardening	B. S. in Landscape Gardening.

School of Music.

Admission: 15 units; 10 prescribed—3 English, 2 mathematics, 1 laboratory science, 2 foreign language, 2 music.

Degree: B. Mus.—Four-year course.

Graduate School.

Admission: Bachelor's degree from recognized college.

Degrees: M. A., M. S., and Ph. D. For the M. A. or M. S., one year of postgraduate study with thesis. For the Ph. D., three years of postgraduate study with thesis giving evidence of research ability.

Professional engineering degrees.—In addition to the usual master's degree, M. S., which is given for one year of postgraduate academic work in residence, professional degrees are given as indicated below:

For three years of successful professional work, either in residence at or away from the university (the latter privilege being open, however, only to graduates of the University of Illinois), and the presentation of an acceptable thesis. The degrees are: M. Arch., A. E., C. E., E. E., M. E., according to the course taken.

Students not candidates for degrees.—Students of mature age whose education has been irregular are admitted to graduate courses or to the pursuit of research on proving their ability to carry the work, provided they are not candidates for degrees.

Work for the doctor's degree may be taken in the different departments of the arts and sciences and in the sciences underlying engineering, agriculture, and medicine.

Library School.—For those wishing to enter library work as a profession.

Admission: Bachelor's degree from a recognized college.

Degree: Bachelor of Library Science—Two-year course.

School of Education.

Students planning to teach and registered in the colleges of the university are at the beginning of the third year enrolled in the School of Education and have the remaining two years of their undergraduate work directed by its faculty. The regular baccalaureate degree is granted.

School of Law.

Admission: Two years of collegiate work for the three-year course; one year of collegiate work for the four-year course.

Degrees:

LL. B.—Three-year course and four-year course.

J. D.—Three-year course, as for LL. B.; thesis. (A bachelor's degree from a recognized college and a high grade of scholarship in the law course are prerequisites for J. D.)

College of Medicine (located in Chicago).

Courses:

(1) Eight years—four years in College of Liberal Arts and Sciences (Urbana) for A. B., and four years in College of Medicine (Chicago) for M. D. Entrance requirement: 15 units; 9 prescribed—3 English, 2 mathematics, 1 laboratory science, 2 foreign language, 1 history or civics.

(2) Seven years—three years' course in College of Liberal Arts and Sciences (Urbana), and four years in College of Medicine (Chicago). A. B. degree after first year in College of Medicine and M. D. at end of course. Entrance requirement: Same as for (1) above.

(It is recommended that for the sake of the broader training, wherever possible, the student take the eight-year course.)

(3) Four years. In College of Medicine (Chicago). Entrance requirement: (1) 15 units of secondary work, including 8 prescribed—3 English, 2 mathematics, 2 German, French, Latin, or Greek, 1 history or civics; and (2) two years (60 semester hours) of college work, including 40 prescribed—12 chemistry, 8 physics, 8 biology, 6 German or French, 6 English. B. S. after first two years and M. D. after fourth year.

College of Dentistry (located in Chicago).

Admission: 15 units; 6 prescribed—3 English, 2 mathematics, 1 physics.

Degree: D. D. S.—Four-year course.

School of Pharmacy (located in Chicago).

Admission: 15 units; 6 prescribed—3 English, 2 mathematics, 1 science.

Degrees:

Graduate in Pharmacy—two-year course. Degree awarded after four years' practical drug experience. The time spent in residence at the school may be counted a part of this requirement.

Phar. Chem.—Three-year course, with special emphasis upon laboratory work.

Expenses:

Tuition—	
School of Music	$20-$54
College of Medicine	150-165
College of Dentistry	155
School of Pharmacy—	
First two years	105
Third year	145
Incidental fee—	
Colleges of Liberal Arts and Sciences, Commerce and Business Administration, Engineering, Agriculture, Library School, and Music School	30
Board, at Urbana	160-200
Room, at Urbana	72-80
Board and room, at Chicago, per week	5-6
Total annual expense	375-500

Faculty, 700.

Students, 7,145, of whom 189 are from foreign countries, as follows: China, 53; Japan, 23; Brazil, 15; Russia, 15; Canada, 12; India, 9; England, 8; Mexico, 7; Norway, 4; Chile, 3; Peru, 3; Germany 3; Poland, 3; Finland, 3; South Africa, 2; Bulgaria, 2; Armenia, 2; Austria-Hungary, 1; Bolivia, 1; Burma,

1; Egypt, 1; Ecuador, 1; France, 1; Greece, 1; Holland, 1; Italy, 1; Ireland, 1; Jamaica, 1; Nepal, 1; Panama, 1; Scotland, 1; Serbia, 1; Sweden, 1; Philippines, 4; Hawaii, 1; Porto Rico, 1.

Of special interest to foreign students.—Located in the heart of the great corn country, the university, in the College of Agriculture, offers particularly strong courses dealing with this grain and its culture. A close affiliation maintained with the State experiment station enables the university to support a much larger faculty and permit a higher degree of specialization than would otherwise be possible. Among the noteworthy courses in this college may be mentioned animal husbandry, with opportunity for advanced work in animal nutrition; agronomy, particularly soils and grains; entomology, and landscape gardening.

The College of Engineering is of first rank. The work in civil and electrical engineering is particularly strong, and the university maintains an engineering experiment station devoted entirely to research.

In the newly organized College of Commerce the university offers courses in business administration, including social and industrial economics, accountancy, banking, and railway administration. The work in railway administration is divided into two general courses; in one, emphasis is upon traffic and accounting; the other, with stress upon the transportation service, prepares men directly for transportation department of railways.

Preparation for journalistic work, either on the managerial and advertising, or on the reportorial, literary, or editorial side, is provided.

The Library School is among the best in the country. The course includes numerous visits to libraries, book binderies, book stores, and printing establishments in the vicinity, and each student is required to spend at least one month in practical work in an assigned public library.

The Graduate School, which has recently been reorganized, is of high rank.

The school has a certain number of scholarships (stipends $300 per year) and fellowships (stipends $300 to $500 per year) which are open for application by all candidates.

INDIANA UNIVERSITY, Bloomington, Ind., a city of 11,595 inhabitants. A State institution, founded January 20, 1820.

College of Liberal Arts.

Admission: 16 units; 11 prescribed—3 English, 1 algebra, 1 geometry, 2 foreign language, 1 history, 1 science, and 2 additional from any of the preceding subjects.

Degrees:

A. B.—Four-year course.

B. S.—Two-year premedical course and two years of medicine; four-year course in home economics.

School of Education.

Admission: Same as College of Liberal Arts.

Degrees: A. B., A. M., Ph. D.

Requirements for degrees same as in College of Liberal Arts and Graduate School.

Graduate School.

Admission: Bachelor's degree from a standard college.

Degrees:

A. M.—One year of graduate work.

Ph. D.—Three years' graduate study and thesis.

School of Law.

Admission: Same as College or Liberal Arts plus 2 years of college work in a standard college.

Degrees:

LL. B.—Three-year course.

J. D.—Three-year course with superior record after graduation with A. B. from a standard college.

School of Medicine.

Admission: Certificate of State Board of Medical Registration and Examination granted after completion of requirements for admission to the College of Liberal Arts and a two-year premedical course in college.

Degrees:

M. D.—Four-year course.

M. D. *cum laude*.—Five-year course and thesis.

Expenses:

Contingent and library fees (residents of Indiana)	$10.50–$18.00
Contingent and library fees (nonresidents of Indiana)	30.00
Laboratory fees	1.50– 7.50
Gymnasium fee	2.00
Tuition, School of Medicine:	
First and second years, per year	100.00
Third and fourth years, per year	150.00
Room, per week	1.25– 2.50
Board, per week	4.00– 5.50
Books and supplies, per semester	6.00– 18.00

Faculty, 220.

Students, 3,210, of whom 9 are from foreign countries.

Of special interest to foreign students are the courses in commerce.

PURDUE UNIVERSITY, Lafayette, Ind., a city of 22,486 inhabitants. Founded, 1869; a "land-grant" institution; coeducational.

Admission: 15 units; 9½ prescribed—3 English, 2 foreign language, 2½ mathematics, 1 science, 1 history. For the engineering schools an additional ½ unit of solid geometry.

Undergraduate courses, 4 years:

	Degrees.
Science	B. S.
Agriculture	B. S. in Agriculture.
Chemical engineering	B. S. in Chemical Engineering.
Civil engineering	B. S. in Civil Engineering.
Electrical engineering	B. S. in Electrical Engineering.
Mechanical engineering	B. S. in Mechanical Engineering.
Pharmacy	B. S. in Pharmacy.

A two-year course in pharmacy leads to the degree Pharmaceutical Chemist.

Graduate Department.

Admission: Bachelor's degree from a recognized college.

Degrees: M. S., M. S. in Agriculture, M. E., C. E., E. E., Ch. E.—One year of postgraduate study and thesis.

Expenses:

Tuition (for nonresidents of Indiana)	$61
Board, per week	6
Room, per month	8
Entrance and incidental fee	15
Average annual expense	400–500

Faculty, 200.

Students, 2,550, of whom 18 are from foreign countries, as follows: Bolivia, 1; Chile, 1; China, 11; Colombia, 1; Cuba, 2; Hungary, 1; Russia, 1.

Of special interest to foreign students.—The engineering courses, with exceptional laboratory equipment and large faculty, afford excellent opportunity for the study of civil, electrical, mechanical, and chemical engineering.

The School of Pharmacy is organized on the basis of college work; the School of Agriculture emphasizes work in animal husbandry, agronomy, horticulture, and dairy husbandry. In the School of Science extensive courses in chemistry, physics, and biology, including bacteriology and forestry, are offered.

IOWA STATE COLLEGE, Ames, Iowa, a town of 6,270 inhabitants. Founded, 1858; a "land-grant" institution.

Admission: 15 units; 11 prescribed—3 English, 2½ mathematics, 1 history; 4 additional units distributed among the foregoing subjects and the natural sciences. For admission to the divisions of engineering and industrial science an additional ½ unit of solid geometry is prescribed.

Collegiate courses.

Division of Agriculture:

Four-year courses—

Agricultural economics and rural sociology; degree, B. S. in Agricultural Economics and Rural Sociology.

Agricultural education; degree, B. S. in Agricultural Education.

Agriculture and manual training; degree, B. S. in Agriculture and Manual Training.

Agricultural engineering; degree, B. S. in Agricultural Engineering.

Animal husbandry; degree, B. S. in Animal Husbandry.

Dairying; degree, B. S. in Dairying.

Farm crops and soils; degree, B. S. in Farm Crops and Soils.

Forestry; degree, B. S. in Forestry.

Horticulture; degree, B. S. in Horticulture.

Landscape architecture; degree, B. S. in Landscape Architecture.

Five-year courses—

Farm management; degree, B. S. in Farm Management.

Forestry; degree, Master of Forestry.

Sciences and agriculture; degree, B. S. (in specific subjects).

Two-year course—Agriculture; certificate.

Division of Engineering:

Four-year courses—

Agricultural engineering; degree, B. S. in Agricultural Engineering.

Architectural engineering; degree, B. S. in Architectural Engineering.

Ceramics engineering; degree, B. S. in Ceramics Engineering.

Chemical engineering; degree, B. S. in Chemical Engineering.

Civil engineering; degree, B. S. in Civil Engineering.

Electrical engineering; degree, B. S. in Electrical Engineering.

Mechanical engineering; degree, B. S. in Mechanical Engineering.

Manual training, trades and industries; degree, B. S. in Trades and Industries.

Mining engineering; degree, B. S. in Mining Engineering.

Five-year course—Science and engineering; degree, B. S. and B. S. (in specific subjects).

Two-year course—Rural structure design; certificate.

Collegiate courses—Continued.

Division of Home Economics:

Four-year courses—

Home economics; degree, B. S. in Home Economics.

Home economics and agriculture; degree awarded.

Five-year course—Science and home economics; degree, B. S. and B. S. in Home Economics.

Division of Industrial Science:

Four-year courses—Industrial science; degree, B. S.

Five-year courses—

Science and agriculture; degree, B. S. and B. S. (in specific subjects).

Science and engineering; degree, B. S. and B. S. (in specific subjects).

Science and home economics; degree, B. S. and B. S. in Home Economics.

Six-year course—Science and veterinary medicine; degree, B. S. and D. V. M.

Division of Veterinary Medicine:

Four-year course—Veterinary medicine; degree, D. V. M.

Six-year courses—

Animal husbandry and veterinary medicine; degree, B. S. in A. H. and D. V. M.

Science and veterinary medicine; degree, B. S. and D. V. M.

Special course for practitioners; certificate.

Graduate Division.

Admission: Bachelor's degree from a recognized college.

Degrees:

M. S. (in specific subjects).—One year of postgraduate work.

Ph. D.—Three years of postgraduate study; thesis.

The Engineering Division grants the following professional degrees at the completion of one year of postgraduate study and one year's responsible practice, or of five years of responsible practice: A. E., C. E., Ch. E., E. E., M. E., E. M.

The Graduate Division conducts advanced research and gives instruction in the five major lines of work of the college—agriculture, engineering, home economics, industrial sciences, and veterinar, medicine.

Expenses:

Tuition per quarter (free to residents of Iowa; to nonresidents of Iowa)	$17.00
Board and room, per week	5.50
Incidental fee, per quarter	6.00
Laboratory fees.	
Total annual expense need not exceed	400.00

Faculty, 287.

Students, 2,893, of whom 7 are from foreign countries, as follows: Canada, 2; South Africa, 1; Australia, 1; South America, 1; India, 1; Denmark, 1.

Of special interest to foreign students.—The college has a complete course in forestry, with opportunity for specialization in the following groups: General forestry, forest management, silviculture, forest utilization and products, forest protection, and forest engineering.

The course in veterinary medicine includes surgery, anatomy, medicine, pathology and bacteriology, physiology, and pharmacology. During the senior year there is opportunity for special work in bacteriology and pathology or for individual research.

Thorough courses are offered in agriculture, especially in animal husbandry, agronomy, and dairying, for which the college possesses unsual facilities in the matter of live stock.

A course in agricultural engineering is offered jointly by the divisions of agriculture and engineering.

STATE UNIVERSITY OF IOWA, Iowa City, Iowa, a city of about 11,267 inhabitants. Founded, 1847; coeducational.

College of Liberal Arts, undergraduate.

Admission: 15 units; 6 prescribed—3 English, 1 history, 2 mathematics (2 units in a single foreign language are required for admission to the combined liberal arts and medical course).

Degrees:

B. A.—Four-year course.

B. S.—Six-year combined course in liberal arts and medicine, homeopathic medicine, or dentistry.

College of Education.

Admission: As in College of Liberal Arts.

At the completion of a four-year course which fulfills all requirements for the bachelor's degree and includes a specified amount of professional work, a certificate is granted.

College of Applied Science.

Admission: 15 units, as in College of Liberal Arts, except that an additional one-half unit each in advanced algebra and solid geometry is prescribed.

Degrees:

B. Eng.—Four-year course in a specific branch of engineering (one five-year course in chemical engineering).

B. S.—Four-year course in general engineering or chemistry.

Advanced professional degrees are granted to graduates in engineering who have had four years' professional experience, one of which must have been in a responsible position and another of which may have been spent in graduate work.

Graduate College.

Admission: Bachelor's degree from a recognized college.

Degrees:

M. S., M. A.—One year of postgraduate study; thesis.

Ph. D.—Three years' postgraduate study; thesis.

College of Law.

Admission: Two years' collegiate work.

Degree: LL. B.—Three-year course.

College of Medicine.

Admission: Two years' collegiate work, including English, a foreign language, physics, chemistry, biology, and a minimal amount of nonscience credit.

Degree: M. D.—Four-year course.

College of Dentistry.

Admission: Graduation from an accredited secondary school.

Degree: D. D. S.—Four-year course.

College of Pharmacy.

Admission: Graduation from an accredited secondary school.

Degrees:

Ph. G.—Two-year course.

Ph. C.—Three-year course.

B. S. in Pharm.—A combined academic and professional course as outlined. Admission requirements as in College of Liberal Arts.

Miscellaneous.

School of Political and Social Science and Commerce.

School of Music.—Four-year course leading to degree B. Mus.

Training School for Nurses.

Expenses:

Tuition—	
Colleges of Liberal Arts and Education	$30
College of Applied Science (Engineering):	
Residents of Iowa	20
Students from outside of Iowa	40
Colleges of Law and Pharmacy	50
Colleges of Medicine and Homeopathic Medicine:	
Residents of Iowa	85
Students from outside of Iowa	100
College of Dentistry:	
First-year students	90
Second-year, third-year, and fourth-year students	150
Graduate College	None.
Board ($4 a week and upward), average	5
Room ($8 a month and upward), average	7

Faculty, 260.

Students, 3,500, of whom 31 are from foreign countries.

Of special interest to foreign students.—The College of Education aims to give teachers a liberal education and to supply specialized training in that particular professional field which may be selected.

The College of Medicine is well equipped, and ranks among the best medical schools in the country.

KANSAS STATE AGRICULTURAL COLLEGE, Manhattan, Kansas, a town of 3,000 inhabitants. Founded in 1863; a "land-grant" institution.

Admission: 15 units; 6 prescribed—3 English, 1 algebra, 1 geometry, and and 1 elementary physics. For the curriculum in general science 1½ units of algebra, and for engineering curricula 1½ units each of algebra and geometry.

Collegiate courses.

Division of Agriculture:

Four-year curriculum—

Agriculture; degree, B. S. in Agriculture. In this curriculum opportunity is afforded in the junior and senior years for a major line of electives in any one of the following lines: Agronomy, animal husbandry, dairy husbandry, poultry husbandry, horticulture, milling industry, veterinary medicine, and agricultural economics.

Six-year curriculum—

Animal husbandry and veterinary medicine; degree, B. S. in agriculture at the end of four years, D. V. M. at the end of six years.

Collegiate courses—Continued.
Division of Engineering:
Four-year curricula—
Agricultural engineering; degree, B. S. in Agricultural Engineering.
Architecture; degree, B. S. in Architecture.
Civil engineering, degree B. S. in Civil Engineering.
Electrical engineering; degree, B. S. in Electrical Engineering.
Flour-mill engineering; degree, B. S. in Flour-mill Engineering.
Mechanical engineering; degree, B. S. in Mechanical Engineering.
Division of Home Economics:
Four-year curriculum—Home Economics; degree, B. S. in Home Economics.
Division of General Science:
Four-year curricula—
General science; degree, B. S.
Industrial journalism; degree, B. S. in Industrial Journalism.
Agricultural chemistry; degree, B. S. in Agricultural Chemistry.
Biochemistry; degree, B. S. in Biochemistry.
Industrial journalism; degree, B. S. in Industrial Journalism.
Division of Veterinary Medicine:
Four-year curriculum—Veterinary medicine; degree, D. V. M.
Six-year curriculum—Animal husbandry and veterinary medicine; degree B. S. in agriculture at end of four years; D. V. M. at end of six years.

Graduate work.
Admission: Bachelor's degree from a recognized college.
Degrees: M. S. or M. S. in specific lines. One year of graduate work.

Expenses:

Tuition, none.	
Matriculation fee, residents of Kansas	$5.00
Matriculation fee, nonresidents of Kansas	10.00
Incidental fee, per semester, residents of Kansas	5.00
Incidental fee, per semester, nonresidents of Kansas	10.00
Sick-benefit fee, per semester	1.00
Laboratory fees, per semester	1.00–7.50
Room, per month (outside of college)	10.00–16.00
Board, per week	5.00–7.00

Faculty, 180.
Students, 1,624, of which 8 are from foreign countries, as follows: Philippines, 1; Mexico, 1; Greece, 1; Russia, 1; China, 1; Cuba, 1; Brazil, 2.

Of special interest to foreign students.—The college is located toward the eastern part of the great Middle West, and is the largest producer of hard winter wheat of any State in the Union. It is also one of the largest producers of alfalfa and Indian corn. Large areas are devoted to the pasturage of beef and dairy cattle, and swine are produced with the highest degree of success. The college is well equipped and manned for giving instruction in these major lines of agricultural activities. Its herds of beef cattle and dairy cattle of all the standard breeds are among the best in the United States.

The science departments of the institution are well equipped and offer excellent opportunities for study and research in plant pathology, entomology, zoology, genetics, bacteriology, and chemistry.

Very good facilities are available for instruction in all of the usual branches of engineering. Especial attention is also given to highway engineering and to flour-mill engineering and milling.

UNIVERSITY OF KANSAS; Lawrence, Kans., a State institution. Date of first opening, 1866; coeducational.

College of Liberal Arts and Sciences. Undergraduate.

Admission: 15 units; 12 prescribed—3 English, 2½ mathematics, 3 foreign language, 1 physical science, 1 biological science, 1 history and political science.

Degrees:

A. B. and B. S.—Four-year courses.

B. S. in Medicine—Four-year course, two in college and two in School of Medicine.

Graduate School.

Admission: Bachelor's degree from an institution of recognized standing.

Degrees:

A. M. and M. S.—One year of resident graduate work; thesis.

Ph. D.—Three years of resident graduate work; thesis.

C. E., Mech. E., Chem. E., E. M., Elec. E., conferred on graduates in engineering, after three years of professional engineering service in positions of responsibility, and the presentation of a thesis.

School of Engineering.

Admission: 15 units; 9 prescribed—3 English, 3 mathematics, 2 foreign language, 1 physical science.

Degrees:

B. S. in Engineering—Four-year course.

B. S.—Five-year course.

School of Fine Arts.

Admission:

To baccalaureate and public school music or art courses, 15 units, as for College of Liberal Arts and Sciences.

To artists' and teachers' certificate courses, 12 units and, in the music department the requirements prescribed for baccalaureate courses.

Degrees:

B. Mus.—Four-year course.

B. Painting—Four-year course.

Artist's Certificate—Four-year course.

Teacher's Certificate—Three-year course.

Public School Music Certificate—Two-year course.

Public School Art Certificate—Two-year course.

School of Law.

Admission: Four-year high school course and 30 hours (one year) of college work. (After 1919-20, two years of college work will be required.)

Degree: LL. B.—Three-year course.

School of Pharmacy.

Admission: 15 units, as for College of Liberal Arts and Sciences.

Degrees:

Ph. G.—Two-year course.

Ph. C.—Three-year course.

B. S.—Four-year course.

School of Medicine.

Admission: Sixty hours (two years) in College of Liberal Arts and Sciences of the University of Kansas, or the equivalent.

Degree: M. D.—Four-year course.

School of Education.

Admission: To baccalaureate course or to course leading to the University Teacher's Diploma, completion of approved four-year high-school course and 60 hours (two years) of college work.

Degrees: B. S. in Education—Four-year course.

University Teacher's Diploma—Granted to graduates of the College of Liberal Arts and Sciences, and those receiving degree from Graduate School, on satisfaction of certain prescribed requirements. The diploma qualifies the holder for a Kansas State teacher's certificate.

Expenses:

Tuition, none.

Matriculation fee (all schools)—

Residents of Kansas	$5
Nonresidents of Kansas	10

Incidental fee—

Graduate School, College, School of Engineering, and School of Medicine—

Residents of Kansas	10
Nonresidents of Kansas	20

(No incidental fee charged in School of Fine Arts.)

Schools of Pharmacy, Medicine, and Law—

Residents of Kansas	25
Nonresidents of Kansas	35
Health fee	3
Board, per week	7
Room, per month	4–15

Faculty, 239.

Students, 3,762, of whom 24 are from foreign countries, as follows: Bulgaria, 1; Canada, 1; Czechoslovakia, 1; England, 2; Germany, 1; Philippine Islands, 9; Poland, 1; Russia 7; Switzerland, 1.

LOUISIANA STATE UNIVERSITY, Baton Rouge, La., a city of 21,782 inhabitants, 70 miles from New Orleans, a city of 387,219 inhabitants. Founded, 1860; a "land-grant" institution; coeducational.

Undergraduate departments.

Admission: 16 units; 8½ prescribed—3 English, 2½ mathematics, 2 foreign language, 1 history. Requirements are uniform in all undergraduate departments, except the College of Agriculture, where the foreign language is not prescribed.

Degrees:

Arts and sciences	B. A.—4 years.
Teachers College	B. A.—4 years, B. S.—4 years.
Agriculture	B. S.—4 years.
Engineering	B. S.—4 years.
Audubon Sugar School	B. S.—5 years.
Law School	LL. B.—3 years.
Graduate Department	M. A., E. E.—1 or 2 years; M. S., M. E., C. E., Ch. E.

Expenses:

Tuition (free to citizens of the United States)	$150
Board, at university, per month	14
Room, at university, per month	2
Board and room, outside university, per month	18–30

Faculty, 84.

Students, 886, of whom 26 are from foreign countries, as follows: Costa Rica, 1; China, 5; Philippines, 2; Brazil, 4; Peru, 4; Japan, 1; Cuba, 2; Mexico, 1; Porto Rico, 4; Salvador, 2.

Of special interest to foreign students.—The Audubon Sugar School, which is the only institution of its kind in America, is excellently equipped, and offers a course for training sugar experts. It includes chemistry, agriculture, mechanical engineering, sugar making, study and design of sugar-house machinery, sugar chemistry, analysis, and special agriculture of the sugar cane. Practical work in the fields and sugar house, at the university sugar experiment station, is required during two full sugar seasons, and properly qualified students may, in their fifth year, receive appointments for the season at standard salaries as assistant chemists and engineers. The library is ample and the material equipment, including a sugar house, fields of cane, and laboratories, is valued at about $100,000.

On account of the similarity of the law systems of the State of Louisiana and the Spanish-American countries—the main differences between the Louisiana and Spanish codes are differences of detail rather than of fundamental principles—the work of the Law School should prove of interest to students from those regions.

TULANE UNIVERSITY OF LOUISIANA. New Orleans, La., a city of 387,219 inhabitants. Founded, 1834.

College of Arts and Sciences.

Admission: 15 units. For B. A. degree, 11 prescribed—3 English, 3 mathematics, 3 Latin, and either 2 Greek or 1 history, and 1 science. For B. S. degree, 12 prescribed—3 English, 3 mathematics, 2 foreign language, 2 science, 2 history. (For 2 science, 1 mathematics, and 1 foreign language may be substituted.)

Degrees: B. A., B. S.—Four-year courses.

College of Technology.

Admission: 15 units; 10 prescribed—3 English, 3 mathematics, 2 foreign language, 2 science. (For 2 science, 1 mathematics, and 1 foreign language may be substituted.)

Degrees:

B. Arch.—Four-year course.

B. E.—Four-year course in the departments of mechanical and electrical engineering, civil engineering, or chemical engineering. (The diploma will indicate the particular course taken.)

H. Sophie Newcomb Memorial College (for women only).

Admission: 15 units. For B. A., 11½ prescribed—3 English, 2½ mathematics, 5 foreign language, 1 science. (For the equivalent in foreign language, 2 history may be substituted.) For B. A. in Education, 8½ prescribed—3 English, 2½ mathematics, 2 foreign language, 1 science. For B. Des. (Bachelor of Design), 8½ prescribed—3 English, 2½ mathematics, 2 foreign language, 1 drawing. For B. Mus., 7½ prescribed—3 English, 2½ mathematics, 2 foreign language.

Degrees:

B. A., B. A. in Education—Four-year courses.

B. Des.—Four years in School of Art.

B. Mus.—Four years in School of Music.

Diplomas are granted in art, music, and household economy, upon completion of shorter courses.

Faculty of Graduate Studies.

Admission: Bachelor's degree from a recognized college.

Degrees:

M. A., M. S.—One year of postgraduate study; thesis.

Ph. D.—Three years of postgraduate study; thesis.

M. E., C. E., Chem. E., E. E.—Either one-year resident postgraduate study and thesis, or two years professional work in absentia and thesis.

M. Arch.—Two years of resident postgraduate study; thesis.

School of Medicine.

Admission: Two years of collegiate work, including biology, chemistry, physics, and a modern language other than English.

Degree: M. D.—Four-year course.

School of Dentistry.

Admission: 15 units; 7½ prescribed—3 English, 2½ mathematics, 2 foreign language.

Degree: D. D. S.—Four-year course.

School of Pharmacy.

Admission: 12 units; 5½ prescribed—3 English, 2½ mathematics.

Degrees:

Ph. G.—Two-year course.

Ph. C.—Three-year course.

Pharm. D.—One year after Ph. C.

College of Law.

Admission: One year of collegiate work, including English, English history, mathematics, and Latin or French.

Degree: LL. B.—Three-year course.

Expenses:

Tuition—	
Colleges of Arts and Sciences, and Technology	$100
Newcomb College (for women)	150
College of Law	115
School of Dentistry	150
School of Medicine	150–180
School of Pharmacy	70
Graduate School	20
Board and room, at university	150–175
Board and room, at Newcomb	300
Board and room, outside university, per month	25–35
Total annual expense, approximated	350–600

Faculty, 320.

Students, 1,789 (excluding summer school), of whom 37 are from foreign countries.

Of special interest to foreign students.—The medical school is of high grade, and its location in a city of the size of New Orleans insures excellent clinical facilities. The postgraduate school provides special opportunities for advanced study and research, while the course in tropical medicine should attract students from southern countries. It consists of lectures and demonstrations, laboratory periods, and clinics, and considers in turn diseases due to physical and chemical agencies, to vegetable and animal parasites, and those of unknown causation. Three laboratories are devoted especially to this work; one

of which is set aside for graduate study and research, and the hospital facilities are probably unexcelled in the United States.

Owing to the similarity of the Louisiana Code to that of the Spanish-American countries, the course in law at Tulane University should be of interest to students from those localities.

The sugar engineering course of the College of Technology differs from any other given in the United States. It trains students to design and erect sugar factories and to take charge as general superintendents of their chemical and mechanical operations. The industrial chemical engineering course gives training in applied industrial chemistry as well as mechanical instruction in the design of chemical manufacturing plants. Special attention is given to reinforced concrete and structural design, irrigation and drainage. A combined course in mechanical and electrical engineering is also given.

The university is open to white students only.

GOUCHER COLLEGE, Baltimore, Md., a city of 733,826 inhabitants; near Washington, D. C., capital of the Nation, a city of 437,571 inhabitants. Founded, 1885, for women only.

Admission: 15 units; 3 prescribed in English. Examinations in English or history; a foreign language, ancient or modern; mathematics or science; and one of above subjects not otherwise chosen.

Degree: A. B.—Four-year course.

Expenses:

Tuition	$175
Board	240
Room	100

Faculty, 60.

Students, 712, of whom 3 are from foreign countries, as follows: China, 1; France, 2.

JOHNS HOPKINS UNIVERSITY, Baltimore, Md., a city of 733,826 inhabitants, 40 miles from Washington, the capital of the Nation. Founded, 1867.

Undergraduate courses.

Under the Faculty of Philosophy (College of Arts and Sciences).

Admission: Secondary school record showing work in English, foreign languages, mathematics, history, and science. Examination in these subjects. Certificates may be accepted in lieu of examination. Fifteen units; 10 prescribed, including 1½ algebra, 1 plane geometry, 3 English, 1 foreign language, 1 history.

Degree: A. B.—Four years.

Under the Department of Engineering.

Admission: As for College of Arts and Sciences. Elective units may include 1 in mechanical drawing.

Degrees: B. E. and B. S. in Chemistry—Four years.

Under the Faculty of Hygiene (coeducational).

Admission: Completion of at least two years of college work, including courses in biology, physics, inorganic and organic chemistry.

Degree: B. S. in Hygiene—Two years.

Graduate courses (coeducational).

Under the Faculty of Philosophy.

Admission: Bachelor's degree from recognized college.

Degrees:

A. M.—Two years' postgraduate study; essay.

Ph. D.—Three years' postgraduate study; dissertation.

Graduate courses (coeducational)—Continued.

Under the Faculty of Medicine (coeducational).

Admission: Bachelor's degree from recognized college, or knowledge equivalent to that implied by such a degree, including work in Latin, French, and German, biology, chemistry, and physics.

Degree: M. D.—Four years' postgraduate work.

Under the Department of Engineering.

Admission: Bachelor's degree from a recognized college.

Degrees:

Master of C. E., Master of E. E., Master of M. E.—Two years' postgraduate study.

Ph. D.—Three years' postgraduate study; dissertation.

Under the Faculty of Hygiene.

Admission: Bachelor's degree from recognized college; degree of M. D. also required of candidates for D. P. H.

Degrees:

D. P. H.—Two years' work following M. D.; essay.

D. Sc. in Hygiene—Three years' work subsequent to bachelor's degree; dissertation.

Expenses:

Tuition	$150
Tuition in the Medical School and the School of Hygiene	250

Board, $5 a week and upward.

Rooms, $2 a week and upward.

Faculty, 290.

Students, 1,130, of whom 29 are from foreign countries, as follows: Japan, 7; China, 6; Canada, 5; Brazil, 2; Bolivia, 1; Guatemala, 1; Mexico, 1; Panama, 1; Peru, 1; Trinidad, 1; Philippines, 2; Porto Rico, 1.

Of special interest to foreign students.—From its foundation Johns Hopkins has been primarily devoted to graduate study and is the pioneer in that field in this country. The university is one of the very few in the United States requiring two years instead of one for the master's degree.

The medical school stands in the front rank among the schools of the country. Close connection between the university and the Johns Hopkins Hospital and dispensary offers excellent clinical facilities and makes possible the emphasis placed upon laboratory and hospital training. Members of the graduating class receive appointments as resident house officers in the hospital.

The Department of Engineering, opened in 1913, is characterized by the same thoroughness and excellence of standards as are the other departments of the university. Graduate and undergraduate work is now offered in civil, electrical, and mechanical engineering and chemistry, and a liberal appropriation insures complete equipment and every facility for the new laboratories and buildings.

The School of Hygiene and Public Health was opened in the autumn of 1918. Courses have been established for the training of qualified persons for public health work, and to promote investigative work in hygiene and preventive medicine and provide opportunities for the training of investigators in these subjects, and to develop adequate means for the dissemination of sound hygienic knowledge. Special and mutual advantages arise from the close relationship between the school and the International Health Board of the Rockefeller Foundation, particularly in field work and in the opportunities for investigation and training in tropical medicine and the control of special diseases.

The university provides 5 scholarships, yielding free tuition, for students from Latin-American countries who wish to pursue graduate courses, and 5 for students (graduate or undergraduate) from France.

AMHERST COLLEGE, Amherst, Mass., a town of 5,550 inhabitants. Founded, 1821; for men only.

Admission: 15 units; 13 (or 12) prescribed—3 English, 1 history, 4 Latin (or 3 Greek), 3 mathematics, 2 modern language.

Degrees:

B. A.—Four-year course.

M. A.—One year of postgraduate study and a thesis, for those holding a bachelor's degree from a recognized college.

Expenses:

Tuition	$150.00
(Beginning with 1920, $200.)	
Board, per week	7.00–9.00
Room, per college year	42.50–112.50
Total annual expense	500.00–650.00

Faculty, 52.

Students, 503, of whom 4 are from foreign countries.

CLARK UNIVERSITY and CLARK COLLEGE, located at Worcester, Mass., a city of 179,754 inhabitants.

The university and the college, although separate institutions with separate faculties, are under the control of the same board of trustees and use the same buildings and equipment.*

The University: Founded, 1887; coeducational; offers instruction in eight graduate departments only.

Admission: Bachelor's degree from a recognized college, or the equivalent.

Degrees:

A. M.—At least one year of postgraduate study; thesis.

Ph. D.—At least one year, but in most cases three years of postgraduate study; thesis.

Faculty, 25.

Students, 90, of whom 8 are from foreign countries, as follows: Japan, 3; China, 3; Egypt, 1; Belgium, 1.

The College: Founded, 1902.

Admission: Graduation from a recognized secondary school with 15 units credit. In cases of exceptional ability, 14 units may be accepted.

Degree: A. B.—Three-year course.

Faculty, 24.

Students, 156, of whom 3 are from foreign countries.

Expenses:

Tuition—	
College	$50
University	100

Board, college dining hall, $6 a week.

Room, $1.50 to $3 a week.

Total annual expenses, $300 and upward.

Of special interest to foreign students.—The university is strictly a graduate school. It is devoted primarily to research, secondarily to the training of investigators and teachers. For both these ends it emphasizes the importance

* Reorganized as one institution (Clark University) in 1920.

of close personal relations between professors and students. Its small student body and large teaching staff have enabled it to foster these relations.

Especially noteworthy, both on account of the eminence of the instructors and the comprehensiveness of the courses, is the work in education, under which head is included instruction in psychology and pedagogy. The university is one of the few in the country to possess an excellently equipped pedagogical museum. A children's institute provides special facilities for various branches of child study.

Clark College is the only college mentioned in this bulletin which regularly grants the A. B. in three years. It seeks to do this without lowering the standard of the degree by requiring a greater amount of work of each student weekly, by the exclusion of extraneous activities (such as intercollegiate athletics) which make large demands on the students' time, by maintaining a relatively large faculty, and by the immediate dismissal of all students who can not maintain the required pace.

The library, used jointly by university and college, is exceptional in equipment and administration. It is maintained by an ample separate endowment which permits the purchase of any book needed for any investigation.

HARVARD UNIVERSITY, Cambridge, Mass., a city of 109,694 inhabitants, adjoining Boston, 748,060 inhabitants. Founded in 1636, it is the oldest American university.

Harvard College, undergraduate department of arts and sciences.

Admission: 16½ units, by examination. Two plans.

1. Examinations in all subjects; 11½ or 12½ units prescribed for A. B. course—3 English, 2 Greek or 3 Latin, 2 modern languages, 2½ mathematics, 1 history, 1 science. 10½ units prescribed for S. B. course—3 English, 3 modern languages, 2½ mathematics, 1 history, 1 science.
2. Secondary school record showing work in languages, science, mathematics, and history. Examinations in English, a foreign language, mathematics or science, and one other subject.

Degrees: A. B. and S. B.

Graduate School of Arts and Sciences.—Advanced instruction in the arts and pure science.

Admission: Bachelor's degree from recognized college.

Degrees:

A. M.—At least one year of approved postgraduate study, completed with distinction.

Ph. D.—At least two years of advanced study; a thesis; examinations. "The requirements of time for the degree of doctor of philosophy are wholly secondary."

Engineering School.—Including mechanical, electrical, civil, and sanitary engineering, mining, metallurgy, and industrial chemistry. Undergraduate and graduate courses.

Admission: By examination, same as for Harvard College.

Degrees:

S. B. (in Mechanical Engineering, in Electrical Engineering, in Civil Engineering, in Sanitary Engineering, in Mining, in Metallurgy, in Industrial Chemistry).

S. M. (in Mechanical Engineering, in Electrical Engineering, in Civil Engineering, in Sanitary Engineering, in Industrial Chemistry; also Mining Engineer, and Metallurgical Engineer)—one year of graduate technical study beyond the requirement for the degree of Bachelor of Science.

S. D.—Requirements same as for Ph. D.

Graduate School of Business Administration. Scientific instruction in principles of business organization and administration and in specialized branches of modern business.

Admission: Bachelor's degree from recognized college.

Degree: M. B. A.—Two years of postgraduate study; thesis.

Divinity School.

Admission: A. B. or equivalent.

Degrees:

S. T. B.—Three-year course.

S. T. M.—One year of advanced study after taking S. T. B.

Th. D.—Not less than two years of advanced study; thesis; examination.

Law School.

Admission: Bachelor's degree from recognized college.

Degrees:

LL. B.—Three-year course.

S. J. D.—One year of advanced study after taking LL. B.

Medical School.

Admission: Collegiate degree, or two years of collegiate work, showing rank in first third of class.

Degrees:

M. D.—Four-year course.

D. P. H.—One year's study after taking M. D.

Graduate School of Medicine.

Admission: M. D.

Graduate Schools of Architecture and Landscape Architecture.

Admission: Bachelor's degree from recognized college.

Degrees: M. Arch. and M. L. A.

Graduate School of Applied Biology (Bussey Institution of Applied Biology).

Admission: Bachelor's degree from recognized college.

Degrees:

S. M. and M. F.—Two-year courses.

S. D.—Requirements same as for Ph. D.

Dental School.

Admission: Graduation from secondary school, if course has included required subjects.

Degree: D.M. D.—Four-year course.

School for Health Officers.

Admission: Bachelor's degree from recognized college, or M. D., or qualifications satisfactory to the Administrative Board.

Certificate: C. P. H.

Miscellaneous:

Arnold Arboretum.

Astronomical Observatory.

Museums of Zoology, Ethnology, Archaeology, etc.

Botanical Garden.

Gray Herbarium.

Library.

Expenses:

Tuition in Harvard College and graduate schools	$150
In medical school	225
In dental school	200–150
Bond from students in Harvard College and graduate students	400
Bond from students in medical and dental schools	50
Rooms in dormitories	50–200

Board at Memorial Hall, $7 per week.
Board at Foxcroft Hall, a la carte.

Faculty, 803.[99]
Students, 5,407,[99] of whom 148 are from foreign countries.

Radcliffe College. Affiliated with Harvard University. Admits women only.

Undergraduate Department—
Admission: As in Harvard College.
Degree: A. B.—Four-year course.

Graduate Department—
Admission: Bachelor's degree from a recognized college.
Degrees:
A. M. Requirements same as in Harvard College.
Ph. D. Requirements same as in Harvard College.

Expenses:

Tuition	$200
Board	216
Room	72–324

Faculty, 122.[99]
Students, 598,[99] of whom 7 are from foreign countries.

Of special interest to foreign students.—Harvard College offers exceptional advantages for undergraduate study because of the strong graduate schools included in the university, and because of the fact that many of the most distinguished scholars connected with these schools also give instruction to undergraduate students.

The schools of engineering, architecture and landscape architecture, and forestry are strictly graduate schools, and therefore demand a more extended general and special training than is usually required to secure degrees in these departments.

The medical school occupies a new spacious and magnificently equipped group of buildings in Boston within easy reach of the hospitals affiliated with it. Clinical instruction is given at 17 hospitals, dispensaries, and infirmaries. This number includes the largest State and city institutions. "About 80 appointments as internes and assistants are made annually to hospitals in and about Boston for terms of service varying from six months to two years." Almost every graduate may receive one of these appointments.

The school for health officers, conducted by Harvard University and the Massachusetts Institute of Technology in cooperation, prepares young men for administrative positions as health officers, members of boards of health, secretaries, agents, or inspectors of health organizations. The subjects embraced in the course include medical, biological, hygienic, and engineering sciences, together with practical health administration.

The Graduate School of Arts and Sciences is one of the best equipped graduate schools in the country. The following departments are especially note-

[99] Figures for 1915–16.

worthy by reason of the outstanding eminence of the professors connected with them, or because of exceptional material equipment: Astronomy, biology, botany, chemistry, comparative literature, economics and sociology (called social ethics), education, English language and literature, Germanic languages and literature, history and government, philosophy and psychology, Romance languages and literatures.

MASSACHUSETTS AGRICULTURAL COLLEGE, Amherst, Mass., a town of 5,350 inhabitants. A "land-grant" institution, incorporated in 1863; coeducational.

Undergraduate course, 4 years.

Admission: 14 units; 8½ prescribed—2½ mathematics, 3 English, 2 modern languages, 1 history.

Degree conferred.—B. S.

Work for all during the first two years is practically the same. In the third term of sophomore year, the student selects one subject (agriculture, agronomy, animal husbandry, dairying, poultry husbandry, floriculture, forestry, landscape gardening, vegetable gardening, pomology, agricultural chemistry, economic entomology, rural sociology, agricultural economics, microbiology, plant physiology, and pathology, agricultural education, rural journalism) in which he wishes to specialize. In this and correlated subjects almost all the work of his final two years will lie.

Graduate School:

Admission: Bachelor's degree from a recognized college.

Degrees conferred:

M. S.; M. S. Agr.; M. L. A. (Master of Landscape Architecture)—1½ years' graduate study in 2 subjects; thesis; examination.

Ph. D. Agr.—Three years' graduate study in 3 subjects; thesis; examinations.

Expenses:

Tuition (free to residents of Massachusetts), nonresidents of Massachusetts	$60
Tuition to foreigners	120
Room	39-100
Board (college dining hall) per week	6
Total annual expense	325-400

Faculty, 67.

Students, 384, of whom 3 are from foreign countries; as follows: China, 1; India, 1; Japan, 1.

Of special interest to foreign students.—Equipment for work in entomology is especially complete. It includes a library, a new fireproof entomological and zoological building with laboratories, museums, and lecture rooms; an eight-room building for instruction in bee-keeping; and an apiary with 50 colonies of bees.

The course in pomology includes practical, systematic, and commercial pomology, with a course in spraying. For this work the college possesses 20 acres of orchard.

Strong courses are offered in plant physiology and pathology, horticulture, agricultural chemistry, plant breeding, floriculture, landscape gardening, market gardening, agricultural economics, rural sociology, farm administration, dairying, microbiology, poultry husbandry, and agricultural education.

Especially attractive courses are offered in the graduate school by practically all departments.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, Mass., a city of 109,694 inhabitants, adjacent to Boston. Incorporated, 1861; coeducational.

Undergraduate courses:

Admission: Examination. Prescribed subjects: Algebra, plane and solid geometry, trigonometry, physics, French or German, English, and history. Evidence of satisfactory work in two electives, selected from a number of subjects, or one continued throughout two years. Students from countries where a language other than English is spoken are in most cases allowed to substitute their own language for either French or German.

Four-year courses are offered in civil engineering, mechanical engineering, mining engineering and metallurgy, architecture (including architectural engineering), chemistry, electrical engineering, biology and public health, physics, general science, chemical engineering, sanitary engineering, geology (including geological engineering), naval architecture and marine engineering, electrochemical engineering, and engineering administration.

Five-year undergraduate courses are offered for those who wish to combine two related courses, to add to their strictly professional studies work of a more general nature, or to distribute the work of a regular four-year course over five.

Special summer work is required between the first and second years in chemistry and chemical engineering and between the second and third years in civil and sanitary engineering, mining, and metallurgy. In connection with various departments, students are given special facilities during the summer to engage in field work or to visit and report on mines or industrial establishments.

A thesis, original report, or design is required at the completion of any course.

Degree: B. S.

Graduate courses:

Admission: Bachelor's degree from a recognized college or scientific school.

Degrees:

M. S.—One year of postgraduate study if previous work is equivalent to Institute's undergraduate courses; thesis.

Ph. D.—Three years of postgraduate study and research, mainly in general science.

Doctor of Engineering.—Three years of postgraduate study and research, mainly in engineering subjects.

School for Health Officers, a joint establishment of Harvard University and the Institute, to train students for public-health work.

Admission: Bachelor's degree from a recognized college, or M. D.

Certificate: C. P. H.

Expenses:

Tuition	$300
Board and room, per week	9–12
Laboratory breakage deposit	15–50

Faculty, 146 professors, 185 other members educational staff.

Students, 2,000, of whom 150 are from foreign countries.

Of special interest to foreign students.—Nearby are the Boston libraries; and the manufacturing district in which the institute is situated offers unusual opportunities for observation and practical work.

The proportion of foreign students is about 7 per cent of the total registration, the highest proportion among the large colleges of the country.

After 50 years on its original site in Boston, the Institute in 1916 moved all its departments except that of architecture to a location in Cambridge, across the Charles River from Boston. It has expended more than eight and a half million dollars in the development of its new plant. Its laboratories of steam, electrical, hydraulic, and gas engineering, and of testing materials are unexcelled, having been built after a careful examination of the best laboratories in various parts of the world. It has also large laboratories of physics, chemistry, and biology.

In 1918–19 the registration was 2,000, there being over 200 in each of the departments of civil, mechanical, electrical, and chemical engineering, and engineering administration, and 1,600 students in all the engineering departments.

The work in naval architecture and marine engineering is facilitated by the proximity of the institute to the navy yard and the Fore River Shipyard. Courses in this department include a study of mechanism, thermodynamics, applied mechanics, hydraulics, heat engineering, steam turbines, and marine engineering. For the past 18 years the U. S. Navy Department has sent graduates of the Naval Academy to this school for special training in naval construction. Both the Army and the Navy have detailed officers to study aeronautical engineering at this institute. The aerodynamical laboratory provides unusual facilities for research and experiment in this subject.

For students in architecture there are two options: (1) General architecture with emphasis upon design and art, and (2) architectural engineering with emphasis upon structural design and engineering.

The graduate course in aeronautical engineering includes theoretical dynamics of rigid bodies and fluids and the general theory and design of aircraft.

There are well-equipped research laboratories in applied chemistry, physical chemistry, biology, and the various special branches of engineering (including aerodynamics).

MOUNT HOLYOKE COLLEGE, South Hadley, Mass., a town of 5,527 inhabitants. Founded, 1836; for women only.

Admission: 15 units, 11 prescribed; 3 English, 1 history, 4 Latin, 3 mathematics.

Degrees:

A. B.—Four-year course.

A. M.—One year of postgraduate study for those holding the bachelor's degree from a recognized college. A thesis in the major subject is usually required.

Expenses:

Tuition	$175
Board and room	325
Total annual expense, including laboratory fees and incidentals	575

Faculty, 99.

Students, 874, of whom 8 are from foreign countries, as follows: China, 6; France, 1; Japan, 1.

SIMMONS COLLEGE, Boston, Mass., a city of 748,060 inhabitants. Opened, 1902.

Admission: 15 units, 9 prescribed—3 English, 3 foreign language, 2 mathematics, 1 history. Two restricted to foregoing subjects and science. 4 free margin.

Degrees:

B. S.—Four-year courses in household economics, secretarial studies, library science, general science, social work, education for store service, public health nursing.

M. S.—One year of postgraduate study after B. S. Certificates are granted to students completing short courses in any of the departments mentioned above, or in that of industrial teaching.

Expenses:

Tuition	$150
Board and room	275–350
Total annual expense	415–500

Faculty, 130.

Students, 1,011, of whom 11 are from foreign countries.

Of special interest to foreign students.—Simmons offers, to women only, thorough courses, combining both professional and cultural studies, and aiming to fit the student to earn an independent livelihood.

In addition to the regular four-year programs there are one-year and two-year courses, designed for college graduates, which lead to the bachelor's degree, and also courses of one year for students who are not candidates for a degree. In all departments the curricula are largely prescribed and emphasis is placed upon the practical side of the work.

SMITH COLLEGE, Northampton, Mass., a city of 21,951 inhabitants. Founded, 1871, for women only.

Admission (undergraduate work): 14½ units; 10½ prescribed—3 English, 2½ mathematics, 1 history, 4 Latin or Greek.

Degree: A. B.—Four-year course.

Admission (graduate work): Bachelor's degree from a recognized college.

Degrees:

A. M.—One year of postgraduate work. Also conferred upon Smith graduates for work done in absentia after three years and the presentation of thesis.

Ph. D. (rarely conferred).—Three years' postgraduate study; thesis.

Expenses:

Tuition	$200
Board and room, at college	350
Board and room, away from college, per week	8–17

Faculty, 181.

Students, 2,107, of whom 13 are from foreign countries, as follows: Canada, 9; China, 3; France, 2; England, 1; Ecuador, 1.

Of special interest to foreign students.—A fund of $7,500 has recently been donated by the class of 1899 to establish the Latin-American scholarship of the class of 1899. This will yield from $337.50 to $375 a year. Preference in the award of the scholarship will be given to deserving candidates from Latin-American countries.

TUFTS COLLEGE, Medford, Mass., near Boston, a city of 748,060 inhabitants. Founded, 1352.

School of Liberal Arts. Undergraduate.

Admission: 15 units; 8½ prescribed—3 English, 2 foreign language, 1 history, 2½ mathematics.

Degrees:

A. B. and B. S.—Four-year courses.

B. S. in Chemistry.—Four-year course.

Engineering School.

Admission: 14 units; 9 prescribed—3 English, 2 foreign language, 1 history, 3 mathematics.

Degree: B. S.—Four-year courses in civil, structural, mechanical, electrical, and chemical engineering.

Graduate School.

Admission: Bachelor's degree from a recognized college.

Degrees: M. A. and M. S.—One year of postgraduate study; thesis.

Crane Theological School (Universalist).

Admission: As in School of Liberal Arts.

Degree: B. D.—Five-year course. This degree is also conferred upon students who have obtained a bachelor's degree from a recognized college and complete a three-year course in the theological school.

Jackson College.—An undergraduate college for women equivalent to the School of Liberal Arts.

Admission: 15 units, as in the School of Liberal Arts.

Degrees: A. B. and B. S.—Four-year courses.

Medical School (Boston).

Admission: Two years' collegiate work, including physics, chemistry, biology, and German or French.

Degree: M. D.—Four-year course.

Dental School (Boston).

Admission: 14 units; 8½ prescribed—3 English, 2 foreign language, 1 physics, 2½ mathematics.

Degree: D. M. D.—Four-year course.

Expenses;

Tuition—

School of Liberal Arts, Jackson College	$125
Graduate School	100
Crane Theological School (including room)	100
Medical and Dental Schools	150
Engineering School	175
Board at College, $5 a week.	
Room at college	25–80
Board and room at Boston, $5.50 to $7 a week.	
Total annual expense	350–450

Faculty, 262.

Students, 1,645, of whom 33 are from foreign countries, as follows: Canada, 16; China, 4; England, 3; British West Indies, 2; Turkey, 2; Mexico, 1; Sweden, 1; Portugal, 1; Bermuda, 1; Germany, 1; British Guiana, 1.

Of special interest to foreign students.—The Dental School is well equipped, and its location in a city of the size of Boston assures excellent clinical facilities.

A four-year course in chemistry leading to the degree of B. S. fits men for positions of responsibility in industrial chemistry.

The School of Engineering offers courses in civil, structural, electrical, mechanical, and chemical engineering. In all departments the work of the first two years is the same, and aims to give the student a strong scientific foundation for work in his chosen field, and as liberal an education as possible. Advanced and technical study in the different fields of engineering begins in the third year.

WORCESTER POLYTECHNIC INSTITUTE, Worcester, Mass., a city of 179,754 inhabitants. Founded, 1865.

Undergraduate Department:

Admission: Graduation from a recognized secondary school, including work in English, algebra, plane and solid geometry, history, two foreign languages (one of which must be French or German), chemistry, or physics.

Degree: B. S.—Four-year course; thesis.

Graduate Department:

Admission: Bachelor's degree from a recognized college.

Degrees:

M. S.—One year postgraduate study; thesis.

Sc. D.—Three years' postgraduate study; thesis.

M. E., E. E., C. E., Ch. E.—One year postgraduate study; thesis.

These degrees may also be conferred upon graduates of the institute who have had three years' professional experience, including responsible charge of work in that line for which the degree is to be given, and who present a thesis.

Expenses:

Tuition	$150
Laboratory and gymnasium fees	20
Board and room, $6 a week and upward.	
Total annual expense	500–600

Faculty, 44.

Students, 474, of whom six are from foreign countries, as follows: Chinese, 2; Korean, 1; South America, 3.

Of special interest to foreign students.—Strong courses are offered in mechanical, civil, and electrical engineering, chemistry, and general science. The institute lays especial emphasis upon practice work. It was the first institution in the country to establish workshops in connection with courses in engineering. These supplement the well-equipped laboratories. The shops are run under commercial conditions, with a permanent staff of employees, affording the student valuable training in scientific management. Instruction in electrical engineering design and electric railway engineering is offered in the department of electrical engineering.

MICHIGAN COLLEGE OF MINES, Houghton, Mich., a town of 4,466 inhabitants. Founded, 1885.

Admission: 15 units, 9 prescribed—3 English, 2 mathematics, 1 physics, 2 foreign language.

Degree: E. M.—Four-year course. If the student attends the summer session it is possible to fulfill the requirements in three calendar years. A candidate may, upon application, receive the B. S.

Expenses:

Tuition, residents of Michigan	$25
Tuition, nonresidents of Michigan	150
Minimum annual expense	550
Board and room, $30 a month and upward.	

Faculty, 23.

Students, 140, of whom 6 are from China.

Of special interest to foreign students.—The college gives courses in metallurgy; mechanical, electrical, civil, and mining engineering; ore dressing; geology and mineralogy; and technical writing. The location of the college makes possible practical work in copper and iron mining.

UNIVERSITY OF MICHIGAN, Ann Arbor, Mich., a city of 19,516 inhabitants. Founded, 1837; coeducational.

College of Literature, Science, and the Arts. Undergraduate.

Admission: 15 units, 8 prescribed—3 English, 2 foreign language, 2 mathematics, 1 science.

Degrees:

A. B.—Four-year course. A student who has completed half this work in mathematics and the physical and biological sciences may, if he desires, receive the degree B. S.

Special course in landscape design, 5 years. (B. S. or A. B. at end of fourth year. M. L. D. at end of fifth year.)

B. S. in Chemistry.—Four-year course specializing in chemistry.

B. S. in Forestry.—Four-year course in forestry.

Colleges of Engineering and Architecture.

Admission: 15 units; 11½ or 12 prescribed—3 English, 3 mathematics, 1 physics, 1 history, 2 foreign language, 1½ or 2 to be selected from the following: Chemistry 1, trigonometry ½, French or German 1 or 2, Greek or Latin 1 or 2, manual training 1.

Degrees:

B. S. in Engineering.—Four-year course.

B. S. in Architecture.—Four-year course.

Medical School.

Admission: Two years' collegiate work.

Degree: M. D.—Four-year course.

Law School.

Admission: Two years' collegiate work.

Degrees:

LL. B.—Three-year course.

LL. M.—One year after LL. B.

J. D.—Three-year course for those having a bachelor's degree from a recognized college.

College of Pharmacy.

Admission: 15 units; 8 prescribed—3 English, 2 foreign language, 2 mathematics, 1 physics.

Degrees:

Ph. C.—Three-year course.

B. S. in Pharmacy.—Four-year course.

Homeopathic Medical School, offers work in medicine and surgery, especially from a homeopathic standpoint.

Admission: Two years of collegiate work.

Degree: M. D.—Four-year course.

College of Dental Surgery.

Admission: 15 units; 9 prescribed—3 English, 2 mathematics, 2 science, 2 Latin. One year of collegiate work in fall of 1920.

Degrees:

D. D. S.—Four-year course.

M. S.—At least one year of postgraduate work. Two years of practice and publication of original articles of scientific value are prerequisite for this degree.

Graduate School.

Admission: Bachelor's degree from a recognized college.

Graduate School—Continued.

Degrees:

A. M. and M. S.—One year postgraduate work.

M. S. in Forestry.—One year of postgraduate work after B. S. in Forestry.

M. L. D.—One year postgraduate work after A. B.

M. S. in Engineering.—One year postgraduate work after B. S.

M. S. in Architecture.—One year of postgraduate work after B. S. in Architecture.

M. S. in Public Health.—One year of postgraduate work after M. D. To obtain this degree a student must also have an A. B. or B. S.

Advanced Engineering degrees: C. E., M. E., E. E., Ch. E., Nav. Arch., Mar. E., Arch. (At least five years must have elapsed after the bachelor's degree before registration for engineering degree. At least one year must have been spent in responsible charge of some professional work.) One year advanced study. Thesis.

Ph. D. or Sc. D.—Three years of postgraduate work. Thesis.

D. P. H.—Two years after M. D. Thesis. (A bachelor's degree is a prerequisite.)

Summer session: A regular term of eight weeks (one-half semester) offering undergraduate and graduate courses in all the schools and colleges.

Expenses:

Annual fee—

	Men.	Women.
College of Literature, Science, and the Arts and Graduate School:		
Residents of Michigan	$49	$45
Nonresidents of Michigan	69	65
Colleges of Engineering and Architecture:		
Residents of Michigan	64	60
Nonresidents of Michigan	94	90
Medical School and Homeopathic Medical School (including laboratory fees):		
Residents of Michigan	107	103
Nonresidents of Michigan	127	123
Law School:		
Residents of Michigan	74	70
Nonresidents of Michigan	84	80
College of Pharmacy:		
Residents of Michigan	64	60
Nonresidents of Michigan	84	80
College of Dental Surgery:		
Residents of Michigan	114	110
Nonresidents of Michigan	134	130
Matriculation Fee, on first entering—		
Residents of Michigan	10	10
Nonresidents of Michigan	25	25

Board, about $6 a week.

Room, $2 to $3 a week.

Total annual expense, estimated ..... $500–$700

Faculty, 500.

Students, 7,000, of whom 190 are from foreign countries, as follows: China, 30; South Africa, 27; Canada, 26; Japan, 23; Porto Rico, 11; Russia, 11; Hawaii, 6; Armenia, 6; Mexico, 5; Philippines, 5; Argentina, 5; Holland, 4; Chile, 4; Poland, 3; Turkey, 3; India, 3; Hungary, 2; Peru, 2; Germany, 2; Brazil, 1; Italy, 1; France, 1; Egypt, 1; Spain, 1; Nicaragua, 1; Singapore, 1; Greece, 1; Switzerland, 1; Korea, 1; Jamaica, 1; Cuba, 1.

Of special interest to foreign students.—The College of Literature, Science, and the Arts offers a very large variety of courses in English and the ancient and modern foreign languages, music and fine arts, history, political science, political economy, commerce, and sociology, philosophy, psychology and education, mathematics, and the physical and biological sciences. Special four-year programs are arranged in journalism, general business, accounting, banking, and insurance and statistics, and a five-year program in government and municipal administration. The four-year program in technical and applied chemistry leads to a special degree.

The university was one of the first to recognize the need for trained specialists in landscape design, and to establish a course for that purpose. The work in this field covers five years, and includes, in addition to a large amount of nonprofessional studies, such subjects as civic improvement, design of home grounds, country places, and cemeteries, park and city planning, forestry, architecture, fine arts, surveying, and municipal engineering.

The work in forestry is prescribed throughout the four undergraduate years. Courses will be recommended for such lines as forest engineer, forest entomologist, forest pathologist, forest grazing expert, city forester, and others.

Combined curricula are offered, leading to degrees in letters and in law, medicine, and dentistry.

In the College of Engineering the student selects that field in which he wishes to work from among the groups into which the general subject is divided. Civil engineering includes structural, hydraulic, transportation, highway, sanitary, municipal, and geodetic engineering. Steam power, internal-combustion, machine design, hydro-mechanical, heating, ventilating, and refrigerating, industrial, and automobile engineering are the mechanical engineering groups. Electrical engineering includes the telegraph, telephone, and radio, power, railway, and illumination groups. Chemical engineering comprises metallurgy, gas engineering, organic industries, general manufacture, and paper manufacturing.

The university is one of the few in this country offering thorough courses in marine engineering and naval architecture. A special laboratory is equipped for this work, and includes a naval tank for various experiments relating to resistance, propulsion, and steering, to be made upon models of ships and propellers. Thorough courses are also given in aeronautical engineering.

The work in architecture includes design, construction, and architectural engineering.

The Law School has been long established, and offers instruction by the latest methods in the fundamental theory and the practice of the law.

Both the Medical School and the Homeopathic Medical School maintain the highest standards, with modern laboratories, ample clinics, bedside instruction in large, well-equipped hospitals under faculty control. Both schools conduct training schools for nurses.

The Dental College is of highest rank, and its diplomas are recognized the world around. Its laboratories and operating rooms are large and well equipped, and the clinical material is abundant.

The College of Pharmacy, in addition to undergraduate courses, offers facilities for advanced work in food and drug analysis, drug assaying, pharmacology, bacteriology, and physiological chemistry.

The Graduate School affords opportunity for advanced study leading to the higher academic, technical, and professional degrees, including the most modern work in public health.

UNIVERSITY OF MINNESOTA, Minneapolis, Minn., a city of 380,582 inhabitants. Founded, 1851; a "land-grant" institution; coeducational.

College of Science, Literature, and the Arts (undergraduate).

Admission: 15 units; prescribed—4 English (If 4 units of foreign language are offered 3 English will be accepted), 2 mathematics.

Degrees:

A. B.—Four-year course in science, literature, and the arts.

B. S.—Four-year courses in—

Combined arts and medicine.

Business education.

Social and civic work (four and five years). At end of fifth year M. A. degree awarded.

Interior decoration.

B. Mus.—Four-year course in arts and music. For admission evidence of musical ability, in addition to the required 15 units, must be shown.

College of Engineering and Architecture.

Admission: 15 units; prescribed—4 English (If two years foreign language are offered 3 English will be accepted), 2 mathematics.

Degrees:

B. S. in Engineering.—Four-year course.

B. S. in Architecture.—Four-year course.

C. E., M. E., E. E., Architect.—Five-year courses; thesis.

College of Agriculture, Forestry, and Home Economics (at St. Paul).

Admission: 15 units, as in College of Science, Literature, and the Arts.

Degree: B. S.—Four-year courses in agriculture, forestry, and home economics.

Law School.

Admission: Two years of collegiate work.

Degree: LL. B.—Three-year course.

Medical School.

Admission: Two years of collegiate work, including rhetoric, physics, chemistry, zoology, French or German.

Degrees:

B. S.—Four-year course (2 arts, 2 medicine).

M. D.—Four years' study, and one year to be spent as an interne in an approved hospital or in approved laboratory study.

College of Dentistry.

Admission: 15 units; 6 prescribed—3 English, 2 mathematics, 1 chemistry.

Degree: D. D. S.—Four and five-year courses.

School of Mines.

Admission: 15 units; 5 prescribed—3 English, 2 mathematics.

Degrees:

E. M. (Engineer of Mines)—Four-year course; thesis.

E. M. (Geology) (Engineer of Mines in Geology)—Four-year course; thesis.

Met. E. (Metallurgical Engineer)—Four-year course; thesis.

College of Pharmacy.

Admission: 15 units; 7 or 8 prescribed—4 English, or 3 English accompanied by 2 in a foreign language, 2 mathematics, 1 Latin.

Degrees:

Ph. C.—Three-year course.
B. S. in Phm.—Four-year course.
M. S. in Phm.—Five-year course.
D. Sc. in Phm.—Six-year course.

School of Chemistry.

Admission: 15 units; 5½ prescribed—3 English, 2½ mathematics.

Degrees:

B. S. in Chem.—Four-year course in analytical chemistry.
B. A.—Four-year course in arts and chemistry.
B. S. in Chem.—Five-year course in arts and chemistry.
B. S.—Four-year course in applied chemistry.
Chem. E.—Five-year course in applied chemistry.

College of Education.

Admission: Two years' collegiate work.

Degree: B. S. in Education—Two-year course.

Graduate School.

Admission: Bachelor's degree from a recognized college.

Degrees:

M. A., M. S.—One year of postgraduate study; thesis.
Ph. D.—At least three years of postgraduate study; thesis.

Expenses:

Incidental fee (Colleges of Science, Literature, and the Arts, Education, Agriculture, Forestry, and Home Economics)—

Resident	$40
Nonresident	80
Graduate School	30
College of Engineering	60
Schools of Mines and Chemistry	55
Law School	65
College of Pharmacy	55
Medical School	150
College of Dentistry	100
Board, per week	4.50–6
Room, per month	6–20
Total annual expense	350–950

Faculty, 600.

Students, 5,567 collegiate, 4,312 subcollegiate, 2,234 extension; total, 12,113, of whom 45 are from foreign countries, as follows: Austria-Hungary, 2; Canada, 4; China, 7; Cuba, 1; England, 2; France, 1; Dominican Republic, 2; India, 5; Japan, 2; Mexico, 1; Norway, 6; Philippines, 1; Roumania, 1; Russia, 8; South Africa, 1; Spain, 1.

Of special interest to foreign students.—The work in the College of Agriculture is divided into two groups: (1) Those courses of study preparing the student for general agricultural pursuits, including agricultural education, agronomy, and farm management, dairy and animal husbandry, and horticulture, and (2) courses in special fields of agricultural science preparing the student usually for scientific research. In the latter group is included agricultural chemistry, entomology, plant pathology, and soils. Six months' practical farm experience is required before graduation.

The university also maintains schools of agriculture with three-year courses of study adapted to the needs of farm boys and girls who have not had sufficient preparation for the college work. They offer courses of special training for practical farm life and for practical home economics.

The curriculum of the College of Forestry includes courses in general forestry; dendrology; silviculture; forest mensuration—protection, management, and by-products; lumbering and lumber manufacturing, and wood preservation. The forest experiment stations at Cloquet, where the State maintains a tract of 2,700 acres, and at Itasca, provide excellent facilities for experiment and practical work.

The schools of medicine and dentistry offer thorough courses and rank high among similar schools throughout the country.

Especially strong courses are offered in the departments of geology and chemistry.

ST. LOUIS UNIVERSITY, St. Louis, Mo., a city of 772,897 inhabitants. Founded, 1818.

College of Arts and Sciences (undergraduate).

Admission: Graduation from an approved high school.

For A. B. degree, examination in philosophy and Latin; in Greek or one of the modern languages; and in physics, or chemistry, or biology, or astronomy, or geology; or in English, or mathematics, or history or economics, or social science.

For B. S. degree, examination in branches named above; major to be a science.

Degrees: A. B. and B. S.—Four-year courses.

School of Medicine.

Admission: Two years of college work in physics, chemistry, biology, and a modern language, beyond a regular four-year high school course.

Degree: M. D.—Four-year course.

School of Dentistry (St. Louis Dental College).

Admission: Graduation from an approved high school.

Degree: D. D. S.—Four-year course.

Institute of Law.

Admission: Graduation from a recognized high school.

Degrees:

LL. B.—Three-year (day) course; four-year (night) course.

LL. M.—One year of postgraduate study after LL. B.; thesis.

School of Commerce and Finance.

Admission: Graduation from a recognized high school.

Degree: B. C. S.—Three-year course; thesis. Certificates of proficiency are granted to students who complete a required amount of work and who are not candidates for a degree.

School of Divinity (Catholic).

School of Philosophy and Science.

Expenses:

Tuition—	
College of Arts and Sciences	$100
School of Medicine	175
School of Dentistry	160
Institute of Law	100
School of Commerce and Finance	80
Board and room	128–100
Total annual expense	300–525

Faculty, 217.

Students, 1,011, of whom 20 are from foreign countries, as follows: Albania, 1; Argentina, 2; Belgium, 2; Canada, 6; Colombia, 1; England, 1; Egypt, 1; France, 1; Germany, 1; Hawaii, 1; Ireland, 1; Italy, 3; Japan, 1; Mexico, 2; Philippines, 2; Poland, 1; San Salvador, 1; Spain, 1.

UNIVERSITY OF MISSOURI, Columbia, Mo., a town of 10,392 inhabitants. Founded, 1839; a "land-grant" institution; coeducational.

College of Arts and Science (undergraduate).

Admission: 15 units: 6 prescribed—3 English, 1 mathematics, 2 in one foreign language.

Degree: A. B.—Four-year course.

College of Agriculture.

Admission: 15 units; 4 prescribed—3 English, 1 algebra.

Degrees:

B. S. in Agriculture—Four-year course. Two different courses are offered, one for men and the other for women.

M. F.—Five-year course in forestry. At the completion of the fourth year B. S. in forestry is conferred.

School of Education.

Admission: Two years' work in the College of Arts and Science, or its equivalent.

Degrees: B. S. in Ed.—Two-year course. Teachers' certificates are also granted.

School of Law.

Admission: Same as College of Arts and Science.

Degree: LL. B.—Four-year course.

School of Medicine.

Admission: Two years' collegiate work. The work comprises only the first two years of a medical course. At its completion a certificate is granted.

School of Engineering.

Admission: Same as College of Arts and Science.

Degrees:

A. E.—Five-year course.

C. E.—Five-year course.

E. E.—Five-year course.

M. E.—Five-year course.

Ch. E.—Five-year course.

B. S. in Eng.—Four-year course.

School of Mines and Metallurgy (at Rolla).

Admission: 15 units, as in College of Arts and Sciences.

Undergraduate courses, four years:

	Degrees.
Mining Engineering	B. S. in Mining Engineering.
Metallurgy	B. S. in Metallurgy.
Civil Engineering	B. S. in Civil Engineering.
General Science	B. S. in General Science.

Graduate courses.—One year of postgraduate study and thesis.

The faculty of the Graduate School has charge of all graduate work in the university, and offers graduate instruction in the groups of classical languages, modern languages, philosophy and experimental psychology, education, history and political science, mathematical and physical sciences, biological sciences, art, home economics, agriculture, and engineering.

School of Mines and Metallurgy (at Rolla)—Continued.
Admission:
Bachelor's degree in the subject to be pursued.
Mining Engineering; degree, E. M.
Metallurgy; degree, Metallurgical Engineer. Bachelors of Science in Civil, Electrical, or Mechanical Engineering may attain the degree E. M. by two years of postgraduate study and thesis.

School of Journalism.
Admission: Two years' collegiate work.
Degree: B. J.—two-year course.

School of Business and Public Administration.
Admission: Two years' collegiate work.
Degree: B. S. in Business Administration—two-year course.

Graduate School.
Admission: Bachelor's degree from a recognized college.
Degrees:
A. M.—One year of postgraduate study; thesis.
Ph. D.—Three years of postgraduate study; thesis.

Expenses:

Tuition (free for residents of Missouri) for nonresidents of Missouri (except in Graduate School)	$20
Board (at university), per week	4–6
Room, university dormitories, per year	20–35
Board and room (outside university), per week	5–6
Total annual expense	360

For women the annual expense will average about $75 more.

Faculty, 206.

Students, 3,500, of whom 16 are from foreign countries, as follows: Africa, 1; Bolivia, 2; Brazil, 2; Canada, 1; China, 8; Denmark, 8; Lithuania, 1.

Of special interest to foreign students.—The College of Agriculture offers curricula for training in the fundamentals of general agriculture and for specialization in animal husbandry, agricultural chemistry, dairying, farm crops, forestry, horticulture and botany, soils, and veterinary medicine.

In connection with the five-year course in forestry, a 50,000-acre forest in the Ozark regions provides excellent facilities for practical work and experimentation.

The School of Journalism offers numerous courses, including history and principles of journalism, comparative journalism, reporting, news and editorial writing, copy reading, newspaper jurisprudence, illustrative art, agricultural journalism, newspaper management, and advertising.

The School of Mines at Rolla is within easy reach of lead, zinc, and iron regions, where opportunities may be had to observe the various processes of mining and smelting.

WASHINGTON UNIVERSITY, St. Louis, Mo., a city of 772,897 inhabitants. Founded, 1853; coeducational; nonsectarian.

The College (for undergraduate work).
Admission: Graduation from four-year accredited preparatory school; 3 units in English prescribed.
Degrees:
A. B.—Four-year course.
B. S.—Four-year course: two years in the College and two in the School of Medicine.

Schools of Engineering and Architecture.

Admission (for undergraduate work): Graduation from a four-year accredited preparatory school; 3 units in English and 3 in mathematics prescribed. For graduate work: Bachelor's degree from a recognized college.

Degrees:

B. S. in Civil, Mechanical, Electrical, or Chemical Engineering—Four-year courses.

B. of Arch.—Four-year course.

C. E., M. E., E. E., Chem. E.—Conferred upon graduates of the university after at least three years of professional work, one of which must have been in a responsible position, and the presentation of a thesis.

School of Commerce and Finance.

Admission: Two years' prescribed collegiate work.

Degree: B. S. in Commerce—Four-year undergraduate course: two in the College and two in School of Commerce and Finance.

Henry Shaw School of Botany.

Maintains close cooperation with the Missouri Botanical Garden, and offers special opportunities for study and research in botany.

Graduate School.

Admission: Bachelor's degree from a recognized college.

Degrees:

A. M., M. S. in Arch., M. S. in Chem., M. S. in Com.—One year of resident postgraduate study; thesis.

Ph. D.—Three years of resident postgraduate study; thesis.

School of Law.

Admission: One year of college work.

Degree: LL. B.—Three-year course.

School of Medicine.

Admission: Two years of college work, including English, German, or French, physics, chemistry, and biology.

Degree: M. D.—Four-year course.

School of Dentistry.

Admission: Graduation from an approved secondary school.

Degree: D. D. S.—Four-year course.

School of Fine Arts.

Offers excellent instruction in drawing, painting, sculpture, and applied art.

Division of University Extension.

Admission: Varies for each course of study.

Expenses:

Tuition—

College—

Schools of Engineering, Architecture, Commerce and Finance, Dentistry	$150
Graduate School	25
School of law	100
School of Medicine	200
School of Fine Arts	75
Division of University Extension: Varies per course per year	10–24
Room rent in dormitories (furnished)	50–100

Faculty, 210.

Students, 1914, of whom 8 are from foreign countries, as follows: Japan, 3; China, 2; Russia, 1; India, 1; Canada, 1.

Of special interest to foreign students.—The university has a group of modern buildings devoted entirely to the needs of the School of Medicine, which is excellently equipped with lecture rooms, libraries, museums, and laboratories. Numerous hospitals in the city provide clinical facilities, and each year positions as interns are open to several members of the graduating class. The course of study is divided into three general periods: first, a study of the fundamental sciences of anatomy, biological chemistry, physiology, pathology, and bacteriology; secondly, a period devoted primarily to clinical work; and finally, in the latter part of the course there is no prescribed curriculum, but the student is expected to devote himself to acquiring further knowledge in that field in which he is particularly interested or in research.

UNIVERSITY OF NEBRASKA, Lincoln, Nebr., a city of 54,948 inhabitants. Founded, 1869; a "land-grant" institution.

College of Liberal Arts (undergraduate).

Admission: 30[21] points, 18 prescribed—4 English; 2 European history; 2 laboratory science; 10 mathematics and foreign language with a minimum of 4 in either.

Degrees: A. B. and B. Sc.—Four-year courses.

Teachers College:

Admission: One year's collegiate work.

Degrees: The course in Teachers College is three years long. Upon its satisfactory completion a baccalaureate degree is conferred by that college of the university in which the student's four years of work are carried.

A "Teacher's College Diploma," showing subjects in which student is qualified to teach, is granted upon graduation.

University Teacher's Certificate.—Three years' work in Teachers College. A bachelor's degree from the university is a prerequisite, and the student must show exceptional scholastic ability and fitness for teaching.

College of Engineering.

Admission: 30 points, 4 English, 3 algebra, 3 geometry, 2 European history, 2 laboratory science, 4 foreign language for which additional English, history, or laboratory science may be substituted.

Degrees:

B. Sc. in Arch. E.—Four-year course in architectural engineering.
B. Sc. in Agr. E.—Four-year course in agricultural engineering.
B. Sc. in C. E.—Four-year course in civil engineering.
B. Sc. in E. E.—Four-year course in electrical engineering.
B. Sc. in M. E.—Four-year course in mechanical engineering.

Conferred by the Graduate College—

M. S. in Agricultural, Civil, Electrical, or Mechanical Engineering.—One year of postgraduate study; thesis.

Agr. E., C. E., E. E., M. E.—One year of postgraduate study and thesis for graduates of the university of at least five years' standing who hold a bachelor's degree and have been engaged in professional work.

Ph. D.—Three years of postgraduate study in engineering; thesis.

[21] Two points are equal to one standard unit.

College of Agriculture.
Admission: 30 points, as in College of Engineering.
Degrees:
B. Sc. in Agr.—Four-year course in agriculture.
B. Sc. in Home Economics.—Four-year course in home economics.
Graduate College.
Admission: Bachelor's degree from a recognized college.
Degrees:
A. M.—One year of postgraduate study; thesis.
Ph. D.—Three years of postgraduate study; thesis.
Graduate Teacher's Diploma is granted for advanced work in education.
College of Law.
Admission: One year of collegiate work.
Degrees:
LL. B.—Three-year course.
J. D.—Holders of baccalaureate degrees from colleges and universities of recognized standing and LL. B. from this university of from one to five years' standing, having spent at least one year in legal professional pursuits. Thesis.
College of Medicine (located at Omaha).
Admission: Two years of collegiate work, including chemistry, physics, biology, and English.
Degree: M. D.—Four-year course.
College of Pharmacy.
Admission: 30 points, as in College of Arts and Sciences.
Degrees:
Ph. G.—Two-year course.
Ph. C.—Three-year course.
B. Sc.—Four-year course.
School of Fine Arts.
Admission: 30 points, as in College of Arts and Sciences.
Degree: B. F. A.—Four-year course in drawing and painting, dramatic art or music.
College of Business Administration.
Admission: 30 points, as in College of Agriculture.
Degree: B. Sc. in Bus.—Four-year course.
College of Dentistry.
Admission: 30 points, as in College of Arts and Sciences.
Degree: D. D. S.—Four-year course.
Expenses:
Tuition—Teachers College, High School, Colleges of Law, Medicine, Pharmacy and Dentistry, $13.50 to $75 a semester.
Board, $5 to $7 per week.
Room, $5 to $10 per month.
Minimum annual expense, $300.
Faculty, 251.
Students, 4,510, of whom 12 are from foreign countries, as follows: Philippines, 6; Hawaii, 1; Japan, 1; Korea, 2; Guatemala, 1; Moravia, 1.
Of special interest to foreign students.—The Teachers College aims especially to train better teachers for secondary schools and departmental work. A high-grade accredited high school is maintained, and, in addition, the schools

throughout the city provide opportunities for study of problems connected with their administration and teaching, and for observation and practical work.

The Graduate College confers the degree of Master of Arts and of Doctor of Philosophy on the terms prescribed in common by members of the Association of American Universities.

DARTMOUTH COLLEGE, Hanover, N. H., a town of 1,300 inhabitants, exclusive of students, 4 miles north of railroad center at White River Junction, Vt. Founded, 1769.

Dartmouth College. Undergraduate Department of Arts and Sciences.

Admission: 14½ units.

For A. B. degree, 12½ prescribed—3 English, 1 history, 2½ mathematics, 4 Latin, 2 foreign language.

For B. S. degree, 10½–11 prescribed—3 English, 1 history, 2½ mathematics, 3–4 modern language, 1 science.

Course of study, 4 years. The student is required to devote special attention to a subject in one of the following groups: (1) Language and literature, (2) mathematics and physical and natural sciences, (3) history and the social sciences; and, in addition, to complete a prescribed amount of work in each of the other groups.

Degrees:

A. B. and B. S.

A. M. and M. S.—One year of postgraduate study; thesis.

Medical School:

Admission: Two years' prescribed collegiate work. The medical school now offers only the first half of a four-year course.

Thayer School of Civil Engineering:

Admission: Bachelor's degree from recognized college and examination.

Degree: C. E.—Two years' postgraduate study; thesis.

Amos Tuck School of Administration and Finance:

Admission: Three years' collegiate work.

Degree: M. C. S.—Two years' postgraduate study and thesis.

Expenses:

Tuition (from 1919-20 all new students)	$200
Board, per week	4–8
Room	70–200
Total annual expense	500–800

Administration and faculty, 125.

Students, 1,100, of whom 9 are from foreign countries, as follows: China, 4; Canada, 1; Porto Rico, 1; Siam, 1; Turkey, 1; Hawaii, 1.

Of special interest to foreign students.—The Tuck School aims to prepare the student either for the general field of business or for that particular branch which he may select. Work is offered in accounting, commercial French, German, and Spanish, statistics, law, business organization and management, financial organization and administration, commerce and industry, banking, and transportation. Students who can show evidence of three years' work in a recognized college may, at the end of their first year, receive the bachelor's degree from Dartmouth, or, by special arrangement, from their own college.

Students in Dartmouth College may elect for their final year first-year courses in the graduate schools, and thus shorten the period of postgraduate work.

PRINCETON UNIVERSITY, Princeton, N. J., a city of 5,917 inhabitants. Founded, 1746.

Undergraduate Department.

Admission: Two methods—

(1) Examination in all subjects—

Prescribed for A. B. course—Latin, English, mathematics, and Greek or modern language.

For B. S. course—English, mathematics, Latin or modern language, and science.

For C. E. course—English, two foreign languages (one may be Latin), mathematics, and science.

In addition to the prescribed subjects, candidates for all three courses must offer electives amounting to about one-fourth of the total preparatory work.

(2) For candidates of exceptional ability: secondary school record and examination in four subjects—

For A. B. candidates—mathematics, English, Latin, Greek, or modern language.

For B. S. candidates—English, mathematics, Latin or modern languages, science.

For C. E. candidates—English, mathematics, foreign language, and science or history.

Degrees:

A. B.—Four years. Conferred upon those offering Latin for admission and fulfilling certain requirements in humanistic departments.

B. S.—Four years. Conferred upon those fulfilling the requirements in mathematics and science.

C. E.—Four years of technical study. Those having a bachelor's degree who have selected suitable courses during their undergraduate years may prepare for this degree by two years' work in professional subjects.

School of Electrical Engineering.

Admission: First degree from accredited college, or equivalent work in mathematics, physics, and chemistry.

Degree: E. E., after two years of graduate study.

The Graduate School.

Admission: Bachelor's degree from a recognized college.

Degrees:

A. M.—At least one year of exclusively resident graduate study.

Ph. D.—A minimum of two years' graduate study. Requirements for the degree can rarely be completed in less than three years; thesis.

Graduate courses are offered in the following subjects: Philosophy, psychology, history and politics, economics and social institutions, art and archaeology, linguistics, Greek, Latin, English, modern languages, mathematics, astronomy, physics, chemistry, geology, biology; also courses in Semitics and Greek in Princeton Theological Seminary.

Expenses:

Tuition—	
Undergraduate and electrical engineering	$200
Graduate—	
Full-time students, per year	100
Part-time students, per year	40
Board, per week	7

Expenses—Continued.

Room (including light and heat)	$52–$250
Total annual expense (undergraduate)	358– 762
Total annual expense (graduate)	420– 600

Faculty, 295.

Students (1917), 1,355, of whom 26 are from foreign countries.

Of special interest to foreign students.—For admission to the undergraduate department an Asiatic student may offer an equivalent amount of Arabic, Chinese, Sanskrit, or Pali, as a substitute for the Latin requirement.

The Graduate College (of residence) is one of the best equipped groups of university buildings exclusively for graduate students to be found in the country. A liberal endowment and fellowship fund make it possible for Princeton to offer to able students exceptional opportunities for graduate work in arts and sciences.

STEVENS INSTITUTE OF TECHNOLOGY, Hoboken, N. J., a city of 68,166 inhabitants. Founded, 1871.

Admission: 14½ units; 11½ prescribed—3 English, 3½ mathematics, 2 science, 2 languages, 1 history.

Undergraduate course, 4 years.

Mechanical Engineering; degree, M. E.

Expenses:

Tuition, per year (additional fees average about $60)	$225.00
Board, per week	7.00–9.00
Room, per week	2.50–4.00
Total annual expense	670.00–800.00

Faculty, 38, and 7 department assistants, who instruct.

Students, 472, of whom 9 are from foreign countries, as follows: Colombia, 4; Brazil, 1; Porto Rico, 1; British West Indies, 1; China, 1; Cuba, 1.

Of special interest to foreign students.—Stevens offers a single course leading to the degree of Mechanical Engineer, and aims to make the instruction in this particular field as complete and thorough as possible. Throughout the course the importance of the practical side of the subject is recognized and the classes make numerous field trips in charge of the instructors.

COLUMBIA UNIVERSITY, New York, N. Y., a city of 5,621,151 inhabitants. Founded, 1754.

Columbia College (men).

Undergraduate departments of arts and sciences. Courses which articulate with the graduate and professional schools.

Admission: 15 units.

Degree: A. B.—Four-year course.

Barnard College (women).

Undergraduate departments of arts and sciences.

Admission: 14½ units.

Degree: A. B.—Four-year course.

Graduate Faculties:

The Faculties of Political Science, Philosophy and Pure Science offer courses of advanced nonprofessional instruction and opportunities for specialized study and original research in the following departments: Anatomy, anthropology, astronomy, bacteriology, biological chemistry, botany, chemical engineering, chemistry, civil engineering, economics, electrical engineering, educational research, English and comparative literature, geology, Germanic

Graduate Faculties—Continued.

languages, Greek and Latin, history, Indo-Iranian, mathematics, mechanical engineering, metallurgy, mineralogy, mining, music, pathology, philosophy, physiology, psychology, physics, public law, Romance languages, Semitic languages, Slavonic languages, social science, zoology.

The degrees of Master of Arts and Doctor of Philosophy are conferred upon students who have completed the requirements for these degrees under these faculties. The requirements are in general as follows:

Admission: Bachelor's degree from recognized college, or its equivalent.

Degrees:

A. M.—Minimum of one year of graduate study and essay.

Ph. D.—Minimum of two years of graduate study (one of which must be at Columbia University), and dissertation.

(For professional graduate study, see the statements of the professional schools and faculties.)

School of Law.

Admission: Three years' collegiate work.

Degrees:

LL. B.—Three-year course.

LL. M.—One year of study after LL. B.

College of Physicians and Surgeons.

Admission: Two years' collegiate work and medical-student certificate of the Regents of the University of the State of New York. This certificate is issued upon evidence of the satisfactory completion of not less than two full years of study, or the equivalent, in an approved college or scientific school, including one year's work in physics, biology, inorganic chemistry, and a modern language. Foreigners must take a special examination in English.

Degrees:

B. S.—Two-year course.

M. D.—Five-year course.

School of Dentistry.

Admission: Same as for College of Physicians and Surgeons.

Degrees:

B. S.—Two-year course.

D. D. S.—Four-year course.

Schools of Mines, Engineering, and Chemistry.

Admission: Three years' work in an approved college or scientific school.

Degrees: E. M., Met. E., C. E., E. E., Mech. E., Chem. E.—Three years' study.

School of Architecture.

Admission: Two years' collegiate work.

Degree: B. Arch.—Four years of study.

College of Pharmacy.

College course.

Admission: Qualifying certificate for a pharmacy student, granted by the State education department upon evidence of the completion of one year's work in approved secondary school.

Degree: Ph. G.—Two years of study.

University course.

Admission: Graduation from secondary school.

Degree: Ph. C.—Three years of study.

College of Pharmacy—Continued.
Graduate course:
Admission: Ph. C.
Degrees:
B. S. in Pharmacy—One year of postgraduate study.
Phar. D.—Three years of postgraduate study.

School of Journalism.
Admission: Two years of collegiate work.
Degrees:
B. Lit.—Two-year course.
M. S.—One year after B. Lit.

School of Business.
Admission: Two years of collegiate work.
Degrees:
B. S.—Two-year course.
M. S.—One year after B. S.

Teachers College.
School of Practical Arts.
Admission: 14½ units; 7 prescribed—3 English, 2 mathematics and science, 2 foreign language and history.
Degrees:
B. S. in Practical Arts—Four-year courses emphasizing the technology of fine arts, household arts, industrial arts, music, physical education, practical science.
B. S. in Education—Four-year course. Emphasis upon teaching of fine arts, household arts, industrial arts, music, physical education, nursing, and health.
M. S.—One year of postgraduate work.

School of Education.
Admission: Bachelor's degree from recognized college.
Degree: A. M.—One year of study.

Expenses:
Tuition—In Barnard College and the School of Law the tuition is a fixed charge. In the other schools and colleges of the university it is based on amount of work taken:

In Columbia College (average)	$196
In Barnard College	200
In School of Law	180
In College of Physicians and Surgeons (average)	240
In Schools of Mining, Engineering, and Chemistry (average)	200
In School of Architecture (average)	260
In School of Journalism (average)	240
In School of Business (average)	240
In School of Dentistry (average)	240
In College of Pharmacy (average)	145
In Teachers College (average)	200
Board, university commons	160–225
Room, university dormitory	90–190
Total annual expense	545–985

Faculty, 770.

Students, 7,088, during academic year, and 6,144 during summer session (including 890 double registrations), of whom 465 are from foreign countries, as follows:

Regular session: Argentina, 2; Armenia, 10; Australia, 4; Belgium, 2; Bulgaria, 2; Canada, 92; Chile, 4; China, 218; Colombia, 2; Costa Rica, 2; Cuba, 24; Denmark, 2; Ecuador, 2; France, 4; Germany, 6; Great Britain, 8; Greece, 2; Guatemala, 2; Iceland, 2; India, 6; Italy, 4; Japan, 122; Korea, 2; Liberia, 2; Mexico, 14; Newfoundland, 2; Norway, 6; Panama, 8; Persia, 6; Peru, 4; Poland, 2; Portugal, 2; Roumania, 4; Russia, 18; Santo Domingo, 4; Singapore, 2; South Africa, 6; Spain, 2; Sweden, 4; Switzerland, 2; Turkey in Asia, 10; Venezuela, 4; West Indies, 10.

Summer session: Bermuda, 2; Brazil, 1; Canada, 70; China, 27; Cuba, 8; Ecuador, 1; Greece, 1; India, 1; Italy, 4; Japan, 18; Mexico, 5; Newfoundland, 1; Panama, 2; Persia, 1; Peru, 1; South Africa, 1; Spain, 1; Switzerland, 2.

Of special interest to foreign students.—The school of education of Teachers College offers to advanced students extensive courses in the history and philosophy of education, educational psychology and sociology, theory and practice of educational administration, supervision, and class teaching. The Horace Mann school, and the Speyer school; including kindergarten, elementary, secondary classes, and neighborhood work, are maintained by the college, and provide unusual facilities for studying the practical work of teaching and for the investigation of educational problems. Arrangement is also made for work and observation in the New York public schools.

Numerous hospitals throughout the city with which the university maintains close relation give the students of the College of Physicians and Surgeons exceptional opportunities for study, observation, and clinical work.

The School of Law is one of the foremost law schools of the country.

The School of Journalism aims "to make better journalists, who will make better newspapers, which will better serve the public." Opened in 1912, it already occupies an important place among schools of journalism.

The College of Pharmacy of the City of New York became affiliated with Columbia in 1904. It is especially well equipped, and ranks among the best schools of pharmacy in the United States.

The Graduate Faculties of Political Science, Philosophy, and Pure Science, which offer advanced work, leading to the degrees of A. M. and Ph. D., in professional, scientific, and liberal subjects, have the largest student registration of any part of the university.

Extension teaching offers subjects ordinarily included in a classical education, for the benefit of those students who are able to give only a portion of their time to study.

The Summer School offers an unusually large number of courses and a foreign student may profitably attend the sessions.

The location of Columbia, in America's most populous city, the liberal endowment, the large number of valuable scholarships, and especially the high standing of the university in all departments have combined to draw to it in the past a great many foreign students.

The following departments are among those especially noteworthy, either because of the eminence of the men connected with them or because of the wide range of the courses offered: Mathematics, physics, biology, botany, geology, chemistry, Oriental and Semitic languages, Germanic languages and literature, English, history, economics and politics, anthropology, philosophy, and psychology.

CORNELL UNIVERSITY, Ithaca, N. Y., a city of 17,004 inhabitants. Founded, 1865; a "land-grant" institution; coeducational.

College of Arts and Sciences (undergraduate).

Admission: 15 units; 11 prescribed—for A. B. course, 3 English, 5 (in two) foreign languages, 1 history, 2 mathematics; for B. Chem. course, 3 English, 3 (in one) foreign language, 1 history, 4 mathematics.

Degrees:

A. B.—Four-year course.

B. Chem.—Four-year course, with special emphasis upon chemistry.

College of Law.

Admission: A certificate that the applicant has met the entrance requirements and satisfactorily completed two years of study in a university or college of approved standing.

Degree: LL. B.—Three-year course.

New York State College of Agriculture.

Admission: 15 units; 9 prescribed—3 English, 3 (in one) foreign language, 1 history, 2 mathematics.

Degree: B. S.—Four-year course.

New York State Veterinary College.

Admission: 15 units; 9 prescribed—3 English, 3 (in one) foreign language, 1 history, 2 mathematics.

Degree: D. V. M.—Three-year course.

College of Architecture.

Admission: 15 units; 12 prescribed—3 English, 3 (in one) foreign language, 1 history, 1 physics, 4 mathematics.

Degree: B. Arch.—Four-year course. (It is recommended that wherever possible a student plan to take five or even six years for this work in order to get a broader and more cultural training, by electing more non-professional courses.)

College of Civil Engineering.

Admission: 15 units; 11 prescribed—3 English, 3 (in one) foreign language, 1 history, 4 mathematics.

Degree: C. E.—Four-year course. (A five-year course has been arranged for those wishing to cover a broader field. For admission to this course 9 of the 15 units are prescribed units.)

Sibley College of Mechanical Engineering and Mechanic Arts.

Admission: 15 units; 11 prescribed—3 English, 3 (in one) foreign language, 4 mathematics, 1 history.

Degree: M. E.—Four-year course. (A five-year course is also arranged, giving a broader training, and for admission to this course 9 of the 15 units are prescribed units.)

Medical College (New York City).

Admission: Bachelor's degree from a recognized college.

Degree: M. D.—Four-year course. (The work of the first year of the course is also given at Ithaca.)

Graduate School.

Admission: Bachelor's degree from a recognized college.

Degrees:

A. M., M. Arch., M. C. E., M. M. E., M. F., M. S., M. S. in Agr., Master in Landscape Design.—One year's postgraduate study; thesis.

Ph. D.—Three years' postgraduate study; thesis.

Expenses:

Tuition—

In any department, $150. For residents of New York State, tuition is free in the Veterinary College and the College of Agriculture.

Board and room, $9 to $12 a week.

Faculty, 750.

Students, 3,600, of whom 108 are from foreign countries, as follows: China, 43; Cuba, 12; Canada, 10; Colombia, 6; Brazil, 4; Argentina, 3; Chile, 3; Australia, 2; Ecuador, 2; Guatemala, 2; Mexico, 2; Norway, 2; Russia, 2; Bahamas, 1; Dominican Republic, 1; Finland, 1; France, 1; Greece, 1; Honduras, 1; India, 1; Japan, 1; Palestine, 1; Panama, 1; Peru, 1; Siam, 1; South Africa, 1; Switzerland, 1; Turkey, 1.

Of special interest to foreign students.—The Graduate School has exclusive control of graduate work in all divisions of the university. It offers opportunities for advanced study and research in most of the important fields of knowledge, under the direct guidance of members of the faculty *and unhampered by formal restrictions.*

The College of Agriculture is exceedingly well equipped. In the Department of Dairy Industry there is practice in the laboratories and manufacturing rooms in milk testing, dairy bacteriology, butter, cheese, and ice-cream making, market-milk handling, and dairy mechanics. A five-year course in forestry provides thorough training for general agricultural students, prospective teachers, and others desiring an understanding of the plan of forestry in the life of the nation, for technical students in other lines wishing courses in special branches of the subject, and for professional forestry students. Among the other excellent courses in the College of Agriculture may be mentioned general agriculture, animal and poultry husbandry, pomology, horticulture, entomology, and landscape gardening. In all these fields, as well as in the departments of pure science, graduate study and research is carried on.

The Veterinary College is well equipped and provided with clinical facilities. Graduate courses are offered, with opportunity for special advanced work and research.

The location of the medical school, in New York City, with its numerous hospitals, provides almost unexcelled clinical material. In the fourth year students are required to spend a large part of their time in practical work as clinical clerks to the various wards of the New York and Bellevue Hospitals.

Graduates of the medical school are admitted to the final examinations for diploma of Licentiate of the Royal College of Physicians of London and membership of the Royal College of Surgeons of England.

The College of Civil Engineering, the Sibley College of Mechanical Engineering and Mechanic Arts, and the College of Architecture are of high repute and have attracted many foreign students, especially for graduate work. In Sibley College the student may specialize in mechanical, electrical, or mining engineering, or, as a graduate student, may carry on investigation in any of these departments.

NEW YORK UNIVERSITY, New York, N. Y., a city of 5,621,151 inhabitants. Founded, 1831.

College of Arts and Pure Science (open to men only). Entering students are divided into three groups: A—prepared in Latin and one other foreign language; B—prepared in modern languages and advanced mathematics; C—those entering the two-year premedical course.

Admission: 15 units.

Section A—11½ or 12½ prescribed—3 English, 4 Latin, 2 or 3 additional foreign languages, 2½ mathematics.

College of Arts and Pure Science—Continued.

B—10½ or 11½ prescribed—3 English, 3 or 4 foreign languages, 3½ mathematics, physics, or chemistry.

C—11½ or 12½ prescribed—3 English, 3 or 4 foreign languages, 2½ mathematics, 1 physics, 1 chemistry, 1 biology.

Degrees: A. B.; B. S. in Pure Science; and B. S. in Commerce; four-year courses.

School of Applied Science (open to men only).

Admission; 15 units; 10½ or 11½ prescribed—3 English, 3 or 4 foreign languages, 3½ mathematics, 1 physics.

Degrees:

B. S. in Civil Engineering, four-year course.

B. S. in Mechanical Engineering, four-year course.

B. S. in Chemical Engineering, four-year course.

C. E., M. E., Chem. E.—One year of postgraduate study; thesis.

Washington Square College, coeducational, offers four-year combined course in cultural and vocational training. Aims to meet the needs of teachers, lawyers, doctors, ministers, and other professional workers who desire further cultural training and a bachelor's degree, and students who desire collegiate training, but are unable to attend classes except in the afternoon and Saturday. The courses offered are of full collegiate value.

Admission: 15 units; of the 15 units 3 must be in English. 3 must be selected from one of the following subject groups: (1) classical languages, (2) modern foreign languages, (3) mathematics, (4) sciences, (5) history, economics, etc.; 2 must be selected from some second subject group; 2 must be selected from one or more of the remaining subject groups. The remaining 5 units are from election.

Degrees: A. B. and B. S.—128 points of credit, which should require not more than eight years, and may be completed in not less than four years.

Graduate School (coeducational).

Admission: Bachelor's degree from recognized college.

Degrees:

M. A. and M. S.—Not less than one year of postgraduate study; thesis.

Ph. D. and Sc. D.—Not less than three years' postgraduate study; thesis.

School of Law (coeducational).

Admission: Graduation from an approved high school or regents' qualifying certificate.

Degrees:

LL. B.—Three-year course.

J. D. for those holding bachelor's degree from recognized college.—Three-year course.

LL. M.—One year of postgraduate study after LL. B.

J. S. D.—For those holding bachelor's degree from recognized college.—One year of postgraduate study after LL. B.

University and Bellevue Hospital Medical College (coeducational).

Admission: Two years of collegiate work, including chemistry, physics, and biology.

Degrees:

M. D.—Four-year course.

D. P. H.—One year's work in public health and sanitation after M. D.

M. B.—Two years' work in medical college after two years of collegiate work.

School of Commerce, Accounts, and Finance, coeducational.

Admission: Graduation from an approved secondary school or regents' qualifying certificate.

Degrees:

B. C. S.—Three-year course of study plus two years' experience in business.

M. C. S.—One year of postgraduate work after B. C. S.; thesis.

M. B. A.—For those holding bachelor's degree from recognized college—Two years work in Graduate Division of Business Administration.

New York State Veterinary College.

Admission: Graduation from an approved secondary school.

Degree: D. V. S.—Four-year course.

School of Pedagogy, coeducational.

Admission: Bachelor's degree from a recognized college.

Degrees:

Pd. M.—Not less than one year of postgraduate study plus two years' teaching experience.

Pd. D.—Not less than two years' postgraduate study plus three years' teaching experience; thesis.

Expenses:

College of Arts and Pure Science and School of Applied Science	$150
Law School, for LL. B. or J. D. course	175
Law School, for LL. M. and J. S. D. courses	150
Medical School	225
School of Commerce, Accounts, and Finance (based on the amount of work taken)	17–202
Veterinary College	180
Washington College (based on the amount of work taken)	17–202
School of Pedagogy (based on amount of work taken)—	
For each 1-hour course	12
For each 2-hour course	24
Graduate School (based on amount of work taken)—	
For each 1-hour course	12
For each 2-hour course	24
Board	270–350
Room	100–300
Total annual expense	600–900

Faculty, 600.

Students, 9,150, of whom 72 are from foreign countries, as follows: Canada, 12; Chile, 2; China, 13; Cuba, 3; Denmark, 1; Egypt, 1; England, 4; France, 1; Germany 2; Holland, 1; Hungary, 2; Incin, 1; Ireland, 1; Japan, 8; Netherlands, 1; Newfoundland, 1; Norway, 2; Porto Rico, 8; Russia, 2; Scotland, 1; Sweden, 1; Switzerland, 4.

Of special interest to foreign students.—The medical school possesses four adjoining buildings, and numerous hospitals throughout the city offer abundant clinical facilities. The course in public health and sanitation includes a study and investigation of measures for controlling the spread of communicable diseases, institutions for the care of the sick, hygiene of infancy and childhood, inspection of food supplies, sanitation and sanitary engineering, applied bacteriology and chemistry, vital statistics, economics, administration, and diseases of animals. New York City provides unusual opportunities for work of this nature.

The School of Commerce, Accounts, and Finance was established in 1900, and offers complete courses in accounting, commerce, finance, government and public affairs, law, English, Spanish, French, and German. The location in a great business and commercial center such as New York should prove attractive to students contemplating work in such a school.

RENSSELAER POLYTECHNIC INSTITUTE, Troy, N. Y., a city of 72,013 inhabitants. Founded in 1824, it is the oldest existing school of engineering to be established in any English-speaking country.

Admission; 14 units; 10 prescribed—3 mathematics, 3 English, 2 foreign language, 1 science, 1 history.

Undergraduate courses (4 years):

	Degree.
Civil engineering	C. E.
Mechanical engineering	M. E.
Electrical engineering	E. E.
Chemical engineering	Ch. E.
General science	B. S.

Graduate courses:

Degrees—

M. C. E., M. M. E., M. E. E., M. Ch. E., and M. S. One year for holders of bachelor's degrees.

Ph. D., Sc. D., and Eng. D.—Three years of graduate study, two of which must be spent in residence at the institute.

The Graduate work offered covers many branches of engineering and science under the following definite subheadings: Railroad engineering, highway engineering, hydraulic engineering, sanitary engineering, structural engineering, steam and gas engineering, machine design, electrical engineering, chemical engineering, chemistry, and pure and applied mathematics.

Expenses:

Tuition—

Undergraduate in civil, mechanical, and electrical engineering	$205
Undergraduate in chemical engineering and general science	230
Graduate	150
Board and lodging, per week	$6–9
Total annual expenses	*450–650

Faculty, 61.

Students, 606, of whom 63 are from foreign countries, as follows—Argentine, 2; Australia, 1; Brazil, 17; Canada, 1; China, 8; Colombia, 6; Cuba, 13; Ecuador, 1; Haiti, 3; Honduras, 3; Mexico, 5; Panama, 1; Salvador, 2; Santo Domingo, 2; Venezuela, 1.

Of special interest to foreign students.—Instruction in the engineering courses includes the design and construction of roads, railroads, bridges, buildings, masonry structures, foundations, canals, sewers, water supplies, docks, harbors, steam and gas engines, boilers, turbines, water wheels, ships, heating systems, refrigerators, manufacturing plants, electric generators and motors, electric power house equipment, transmission lines, lighting systems, electrochemical apparatus, telephone and telegraph systems, and industrial chemical plants. In addition to the above, instruction is given in all branches of chemistry including industrial chemistry, food, and water analysis, and sewage disposal, and in mineralogy, geology, and metallurgy. Unusually well-equipped laboratories are provided for all this work.

UNIVERSITY OF NORTH CAROLINA, Chapel Hill, N. C., a town of 2,000 inhabitants, on the Greensboro-Goldsboro branch of the Southern Railroad. Founded, 1789.

College of Liberal Arts. Undergraduate.

Admission: 15 units; prescribed—3 English, 2½ mathematics, 1 history, 4 modern languages or 5½ if ancient and modern languages, remainder elective.

Degree: A. B.—Four-year course.

School of Applied Science. Undergraduate.

Admission: 15 units; prescribed—3 English, 3 mathematics, 1 history, 1 modern language, 1 science, remainder elective.

Degree: B. S.—Four-year course. Curricula prescribed for B. S. in chemistry, in electrical engineering, in civil and highway engineering, in medicine, or in geology.

School of Commerce. Undergraduate.

Admission: 15 units; prescribed—the same as for the College of Liberal Arts, except that only 2 units in a modern language are required.

Degree: B. S.—Four-year course.

School of Education. Undergraduate.

Admission: 15 units; prescribed—the same as for the College of Liberal Arts.

Degree: A. B.—Four-year course.

Graduate School.

Admission: Bachelor's degree from a recognized college.

Degrees:

A. M. and S. M.—One year of postgraduate study; thesis.

Ph. D.—Three years of postgraduate study; thesis.

Graduate work is offered in the following subjects: Ancient languages, modern languages, English, history, economics, philosophy, education, mathematics, chemistry, electricity, physics, biology, and geology.

School of Law.

Admission: For students not candidates for a degree the same as for the College of Liberal Arts; for candidates for the degree of LL. B., 2 years of collegiate work; for candidates for the combined degree, A. B.—LL. B., 3 years of collegiate work.

Degrees:

LL. B.—Three-year course.

A. B. and LL. B.—Six-year course, three undergraduate and three in law.

School of Medicine.

Admission: Two years in the School of Applied Science, or, for candidates for the B. S. degree, 3 years in the School of Applied Science.

Degree: B. S.—Two years, plus 3 in School of Applied Science. (Only courses in theoretical medicine are offered; the last two years—clinical medicine—required for the M. A. degree are to be sought at other institutions.)

School of Pharmacy.

Admission: 15 units, elective.

Degrees:

Ph. G.—Two-year course.

P. D.—Three-year course.

Ph. C.—Three-year course, but without the requirement of practical experience.

Expenses:

Tuition—	
Undergraduate schools	$60.00
Graduate School, free.	
School of Medicine (including all fees except matriculation)	—
School of Law	120.00
School of Pharmacy	75.00
Matriculation (for all students)	60.00
Board—	30.00
University commons, per month	18.00
Outside University, per month	$20.00–25.00
Room—	
University dormitory, per year	12.50–60.00
Outside University, per month	5.00–20.00
Total annual expense	300.00–500.00

Faculty, 78.

Students 1,313, of whom 4 are from foreign countries, as follows: Japan, 1; Cuba, 1; Syria, 2.

CASE SCHOOL OF APPLIED SCIENCE, Cleveland, Ohio, a city of 796,836 inhabitants. Founded, 1880.

Admission: 15 units; 10 prescribed—3 English, 3 mathematics, 2 foreign languages, 2 science.

Undergraduate courses—Four years; all lead to a single degree, B. S. Thesis.

Civil Engineering. Mechanical Engineering. Electrical Engineering.

Mining Engineering (includes both mining and metallurgy. First three years alike for all students, but in fourth years they specialize in mining or metallurgy).

Chemical Engineering.

Physics.

Graduate courses:

Admission: Bachelor's degree from a recognized college.

Degrees: M. S.—One-year postgraduate study; thesis. Engineering degrees, C. E., M. E., E. E., E. M., Chem. E., are conferred upon graduates of the school who have been engaged in professional work for three years in responsible positions and who present an acceptable thesis. In exceptional cases they may be conferred upon graduates of other institutions, provided they have taken the master's degree at Case.

Expenses:

Tuition	$125
Board and room, per week	6–10
Miscellaneous	130–210
Total annual expense	500–700

Faculty, 53.

Students, 560, of whom 3 are from China.

Of special interest to foreign students.—In the first year the work is the same in all departments, after which the student is required to select that branch of engineering in which he wishes to specialize. The subjects become more technical as he advances, and in his final year all the time is devoted to studies in his own department. One-half of each day is given to practical work in the field or laboratory or drafting room. During the month of June a practice term of four weeks is held. There are no recitations, but students

are engaged in practical work during the entire day. The freshmen study surveying in a summer camp, the sophomore civil engineers take railroad surveying, the sophomore mining engineers do surveying work in a mine in some part of the country, the junior mining engineers work in mines in the West, and students in other departments work in the laboratories.

MUNICIPAL UNIVERSITY OF AKRON, Akron, Ohio, a city of 208,435 inhabitants. Founded, as a denominational college, 1870. Became a municipal university in 1913; coeducational.

Buchtel College of Liberal Arts.

Admission: 15 units; 10½ prescribed for A. B. course—3 English, 2½ mathematics, 4 foreign language, 1 general history; 12 prescribed for B. S. course—3 English, 3 mathematics, 4 foreign language, 2 science (one unit must be physics or chemistry).

Degrees: A. B. and B. S.—Four-year courses.

Curtis School of Home Economics.

Admission: 15 units; 10½ prescribed—3 English, 2½ mathematics, 4 foreign language, 1 physics.

Degree: B. S. in Home Economics.—Four-year course, combining a broad cultural education with training in those branches of science essential to intelligent home management.

College of Engineering.

Admission: 15 units; 9½ prescribed—3 English, 2½ mathematics, 2 foreign language, 1 history, 1 chemistry or physics.

Five-year cooperative course:

	Degree.
Civil engineering	C. E.
Mechanical engineering	M. E.
Electrical engineering	E. E.

Four-year cooperative course: Manufacturing production ..... B. S.

The cooperative plan aims to give the student a thorough training in both the theory and practice of engineering by combining the practice to be learned under actual commercial conditions in local industrial organizations and the underlying science to be studied in the university under trained educators. To accomplish this the students are grouped in two sections, one of which is at work and the other in attendance at the university. For example, A, who is in section one, attends classes at the university for two weeks while B, who is paired with A and who is in section two, is at work. Then they change places and B attends the university for two weeks while A is at work. Of course, this necessitates the giving of all university work twice, once for each section.

The manufacturing production course in the university includes the fundamental courses in engineering, a thorough course in business training, and, in the factory, four years of half-time work in the production departments of a rubber factory.

Expenses:

Tuition—

Free for residents of Akron.

Students outside of Akron—

College of Liberal Arts	$100
School of Home Economics	100
College of Engineering	75

Faculty, 32.

Students, 520, of whom 12 are from foreign countries, as follows: Russia, 6; Hungary, 2; Austria, 1; Scotland, 1; France, 1; Rumania, 1.

OBERLIN COLLEGE, Oberlin, Ohio, a village of 4,236 inhabitants. Founded in 1833; coeducational.

The College of Arts and Sciences, undergraduate department.

Admission, 15 units: For A. B. degree, 3 English, 2½ mathematics, 4 foreign languages (of which 2 must be Latin or Greek), 1 history, 1 science; 1½ additional from above-named subjects; 2 additional from any work counted for graduation from high school.

Degree: A. B.—Four-year course.

Graduate Department.

Admission: Bachelor's degree from recognized college.

Degree: A. M.—One year of graduate study.

Graduate School of Theology.

Admission: Bachelor's degree from recognized college.

Degrees:

D. B.—Three-year course in theological study.

S. T. M.—One year of graduate work in theology following the D. B. degree.

Conservatory of Music.

Admission, 15 units: 3 English, 2½ mathematics, 4 foreign languages, 1 history, 1 science; 1½ additional from above-named subjects; 2 additional from any work counted for graduation from high school.

Degree: Mus. B.—Four-year course.

Certificate: Course in Public School Music, three years.

Expenses:

Tuition—

College of Arts and Sciences	$150
School of Theology, incidental fee only	6
Conservatory of Music, according to subjects chosen, average	300
Board and room, estimate, per year	180–342
Total annual expense, estimated	380–700

Faculty, 175.

Students, 1,614, of whom 76 are from foreign countries, as follows: Brazil, 3; Bulgaria, 1; Canada, 4; Ceylon, 1; Chile, 1; China, 39; France, 2; Germany, 1; Greece, 1; Japan, 12; Korea, 1; New Zealand, 2; South Africa, 3; Switzerland, 1; Asiatic Turkey, 4.

Of special interest to foreign students.—Special courses in English are offered to foreign students when needed. A strong Cosmopolitan Club aids by introducing foreign students to American college life. A faculty committee makes special efforts to help foreign students to secure valuable results from courses undertaken.

OHIO STATE UNIVERSITY, Columbus, Ohio, a city of 237,031 inhabitants. A "land-grant" institution. Founded, 1870; coeducational.

College of Agriculture.

Admission: 15 units; 8 suggested—2 English, 1 history, 2 mathematics, 1 physics, 2 foreign language. For home economics course 1 English and 2 foreign language additional are prescribed.

Degree:

B. Sc.—Four-year courses, with major in agriculture, horticulture, landscape architecture, or applied entomology.

B. Sc. in Home Economics.

College of Arts, Philosophy, and Science.

Admission: 15 units; 12 suggested—3 English, 1 history, 2 mathematics, 1 in a nonbiological science, 1 biological science, 4 foreign language.

Degree: A. B.—Four-year course.

College of Commerce and Journalism.
Admission: Two years' collegiate work in a recognized college.
Degrees:
B. S. in Business Administration—Two-year course.
B. S. in Accounting—Two-year course.
B. S. in Journalism—Two-year course.
College of Education.
Admission: 15 units; 11 suggested—3 English, 1 history, 2 mathematics, 1 science, 4 foreign language.
Degree: B. S. in Education—Four-year course.
College of Engineering.
Admission: 15 units; 9 prescribed—3 English, 3 mathematics, 1 physics, 2 foreign language.
Degrees: B. Arch. E., B. Cr. E., B. Ch. E., B. C. E., B. E. E., B. M. E., B. E. M., B. E.—Four-year courses.
College of Law.
Admission: Two years' collegiate work in a recognized college.
Degrees:
LL. B.—Three-year course.
J. D.—Three-year course, for those having bachelor's degree from a recognized college and 50 hours' merit in the College of Law.
College of Pharmacy.
Admission: 15 units; 8 prescribed—2 English, 1 history, 2 mathematics, 1 science, 2 foreign language.
Degree: B. S. in Phar.—Four-year course; certificate—Ph. C.—two-year course.
College of Veterinary Medicine.
Admission: 15 units from an approved secondary school.
Degree: D. V. M.—Four-year course.
College of Medicine and College of Homeopathic Medicine.
Admission: Medical students' certificate granted upon completion of high-school course and two years' collegiate work.
Degree: M. D.—Four-year course.
College of Dentistry.
Admission: Graduation from an approved secondary school.
Degree: D. D. S.—Four-year course.
Graduate School.
Admission: Bachelor's degree from recognized college.
Degrees:
A. M., M. S.—One year of postgraduate study.
Arch. E., C. E., M. E., E. E., Cr. E., Ch. E., M. Arch.—
(1) Four years of professional experience and thesis, or
(2) M. S. in Engineering, followed by two years' experience and thesis, or
(3) One year of experience, one year at university in engineering and thesis.
Ph. D.—Three years' post graduate study and thesis (dissertation).

Expenses:
Tuition (including incidental fee)—

College of Law	$60
College of Medicine	150
College of Dentistry	150
College of Homeopathic Medicine	150
Incidental fee in all other colleges of the University	30

Expenses—Continued.
Board, $4.50 a week.
Room, $8 a month.
Total annual expense (except in Medical College)..... $400–$450

Faculty, 481.

Students, 5,150, of whom 74 are from foreign countries, as follows: Argentina, 2; Brazil, 2; British West Indies, 1; Bulgaria 1; Canada 1; Canal Zone, 1; China, 30; Colombia, 1; Cuba, 3; Greece, 1; Hawaii, 1; India, 3; Japan, 1; Korea, 5; Persia 3; Philippines, 3; Porto Rico, 4; Russia, 3; Scotland, 1; South Africa, 1; Switzerland, 1; Turkey, 5.

Of special interest to foreign students.—The four-year course in veterinary medicine aims to fit students for regular practice. The veterinary hospital, to which animals are brought from the city and nearby agricultural district, is well equipped. There are free clinics daily, at which the students assist.

The agricultural chemistry department offers courses in general and advanced agricultural chemistry, chemistry of fungicides and insecticides, dairy chemistry, chemistry of soils, chemistry of animal nutrition, food inspection and analysis, and the chemistry of food and nutrition.

The departments of animal husbandry, dairying, farm crops and horticulture offer opportunity for specialization along these various lines. The departments are well equipped for graduate work.

UNIVERSITY OF CINCINNATI, Cincinnati, Ohio, a city of 401,247 inhabitants. Founded, 1870. A municipal university; coeducational.

McMicken College of Liberal Arts. Undergraduate.

Admission: 15 units; 9 prescribed—3 English, 2 mathematics, 1 history, 3 foreign language (2 of which must be in same language).

Degree: A. B.—Four-year course.

College for Teachers.

Admission: Same as in College of Liberal Arts.

Degree: B. S.—Four-year course.

Graduate School.

Admission: Bachelor's degree from a recognized college.

Degrees:

A. M.—On full year's residence in the Graduate School.

Ph. D.—Three years of postgraduate study; thesis.

College of Engineering and Commerce.

Admission: 15 units; 6½ prescribed—3 English, 2½ mathematics, 1 history.

Degrees:

Engineering—

Four-year theoretical courses—	Degree.
Chemical engineering	B. S. in Chem. Eng.
Civil engineering	B. S. in Civ. Eng.
Electrical engineering	B. S. in Elec. Eng.
Mechanical engineering	B. S. in Mech. Eng.
Five-year cooperative courses—	
Chemical engineering	Ch. E.
Civil engineering	C. E.
Electrical engineering	E. E.
Mechanical engineering	M. E.
Metallurgical engineering	Met. E.

Commerce. B. S.—For regular four-year course, also for five-year cooperative course.

College of Medicine.
Admission: Four-year high-school course, plus two years of college work.
Degrees:
M. D.—Four-year course.
B. S. and M. D.—Six-year combined course in College of Liberal Arts and College of Medicine.
School of Nursing and Health.
Admission: Four-year high-school course.
Degrees:
Diploma of Graduate Nurse—Three-year course.
Diploma and degree of B. S.—Five-year combined collegiate and nursing course.
College of Law.
Admission: Four-year high-school course, plus one year of college work.
Degrees:
LL. B.—Three-year course.
A. B. and LL. B.—Six-year combined collegiate and law course.
Expenses:
Tuition—
Courses in Liberal Arts, College for Teachers, College of Engineering, and College of Law $100
College of Medicine 200
School of Nursing and Health, free.
Graduate School, $5 per credit hour per semester.
Board and room, per week 8-10
Total annual expense, average 500-750

Faculty, 304.

Students, 3,124, of whom 18 are from foreign countries, as follows: France, 7; China, 5; Russia, 2; Philippine Islands, 3; Chile, 1.

Of special interest to foreign students.—The College of Engineering offers two courses—a four-year theoretical course similar to that given in other engineering institutions and a five-year cooperative course in which the students, divided into sections, spend alternate biweekly periods in practical engineering work and at the university. The aim of the cooperative course is to give training in the practice of engineering, as well as instruction in the theory. The practice is taught in a shop or on a railroad, under actual commercial conditions, while the underlying science is taught in the university. Cooperative students are paid for their work in the shops at the same rate as other employees.

The College of Commerce and the College of Engineering have been merged, and a five-year cooperative course in commerce and administration is offered in addition to the regular four-year course. The cooperative course is designed to develop commercial engineers, men trained on both the productive and the commercial side of a business. The details of the operation of the cooperative course in commerce are the same as those of the cooperative course in engineering.

The College for Teachers includes the department of home economics and a department of vocational education, as well as the usual courses in education. The students receive their practical training in the public schools of Cincinnati under the supervision of the members of the faculty.

Under the new city charter the faculty of the College of Medicine becomes the attending staff of the Cincinnati General Hospital. Thus all the clinical facilities of the hospital and its branches are at the disposal of the college.

The hospital is built on the pavilion plan and embraces 24 large buildings. The new Medical College building and the hospital together constitute one of the greatest medical teaching plants in the country.

The Graduate School offers advanced work in the various departments and has available a number of scholarships for promising students. It has superior facilities for research in medicine and in the sciences.

WESTERN RESERVE UNIVERSITY, Cleveland, Ohio, a city of 796,841 inhabitants. Founded, 1826.

Adelbert College (undergraduate department for men).

Admission: 15 units; 9½ prescribed, with a grade of at least 80 per cent in each unit—3 English, 2½ mathematics, 4 in one foreign language (or 1 in one language completed in the last preparatory year, together with 2 made up from college algebra, trigonometry, solid geometry, chemistry, physics, or history, taken in the last two preparatory years).

Degrees:

A. B.—Four-year course.

A. B. and B. S.—Five-year combined course between Adelbert College and Case School of Applied Science.

College for Women (undergraduate).

Admission: (1) For degree of Bachelor of Arts: 15 units; 9 prescribed—3 English, 2 mathematics, and ordinarily 4 in Latin. Candidates having required number of units for entrance, with high grades, but who lack 4 units of Latin, may be admitted provided they have 4 units in some other foreign language, or 2 or more units in each of two foreign languages.

(2) For the degree of Bachelor of Science (Household Administration): Same as for the A. B. degree; or, instead of 4 foreign language units, students may enter with 2 language units and 2 in history, physics or chemistry. Students may present home economics for entrance credit.

Degrees:

A. B. and B. S.—Four-year courses.

B. S.—Six-year combined course between College for Women and the Cleveland School of Art.

A. B. and certificate of the Library School of Western Reserve University—four-year combined course.

Graduate School.

Admission: Bachelor's degree from a recognized college.

Degrees:

A. M.—One full year's residence.

A. M. in Medicine.—To graduates in medicine in classes later than 1911 of this university or others of similar grade. Such candidates must also hold an academic degree, must complete at least a year of interne service or research work in an approved hospital, clinic, or laboratory, and must meet the requirements of registration and work as defined by the School of Medicine.

School of Medicine (coeducational).

Admission: A. B. degree from some recognized college, or three years' work in Adelbert College or the College for Women.

Degrees:

M. D.—Four-year course.

A. B. and M. D.—Seven-year combined course.

Law School (coeducational).
Admission: A. B. degree from some recognized college, or three years' work in Adelbert College or the College for Women.
Degrees:
LL. B.—Three-year course.
A. B. and LL. B.—Six-year combined course
Dental School (coeducational):
Admission: 15 units of secondary school work.
Degree: D. D. S.—Four-year course.
Library School (coeducational).
Admission: Minimum requirement, four-year secondary school course. Students admitted on examination.
Certificate—One year's course.
School of Pharmacy (coeducational).
Admission: Completion of four-year high-school course
Degrees:
Ph. G.—Two-year course.
Ph. C.—Three-year course.
School of Applied Social Sciences (coeducational).
Admission: A. B. degree.
Degree: M. A.—Two-year course.
Faculty, 264.
Students, 1,812.
Expenses:
Tuition—

Adelbert College, College for Women, the Graduate School, School of Medicine, School of Law, and School of Applied Social Sciences	$150
Library School	100
School of Pharmacy	125
Dental School	200
Room and board, per week	7-9
Total annual expense	500-700

Of special interest to foreign students.—Special attention may be directed to the combined-course opportunities. The five-year course offered with Case School of Applied Science (situated adjacent to the university campus) is designed for the man who recognizes the demand for engineers possessed of a broader training than the purely technical school can give. The extra year is more than compensated for by the firmer foundation.

The situation of the university in the city of Cleveland brings unusual advantages to students of law and medicine. Exceptional clinical opportunities are offered by the School of Medicine, which controls four hospitals and is affiliated with as many more. A graduate course in medicine, which has recently been added, enables the student to specialize for an additional year.

OREGON STATE AGRICULTURAL COLLEGE, Corvallis, Oreg., a city of 5,752 inhabitants. A "land-grant" institution; coeducational.

Undergraduate Departments.
Admission: 15 units; 5 prescribed—3 English, 1 elementary algebra, 1 plane geometry. For admission to School of Forestry an additional ½ unit of algebra is required. For admission to School of Engineering an additional ½ unit of algebra and an additional ½ unit of geometry are required.

Undergraduate Departments—Continued.
Degree: B. S.—Four-year courses, as follows:
In the School of Agriculture.
School of Commerce.
School of Engineering (civil, electrical, mechanical engineering; industrial arts).
School of Forestry.
School of Home Economics.
School of Mines (mining and ceramic engineering).
School of Pharmacy (also a two-year course leading to Ph. G. and a three-year course leading to Ph. C.).
School of Vocational Education.
Department of Chemical Engineering.
In addition to above—
The School of Music (no degree).
Vocational short courses varying in length from 6 months to 3 years.

Graduate Courses:
Admission: Bachelor's degree from a standard college.
Degrees: M. S., C. E., M. E., E. E., Che. E.—One year of graduate study; thesis.

Expenses:

Tuition, free.	
Board and room, per month	$26 and upward.
Laboratory and class fees, etc. (depending upon the courses taken), average per year	$45
Textbooks and class supplies, average	50
Average annual expense	425

Faculty, 368 (including Experiment Station and Extension workers).
Students, 2,874, of whom 20 are from foreign countries, as follows: Canada, 12; China, 1; India, 2; Netherlands, 1; Scotland, 2; Spain, 1; Alaska, 3; Philippines, 14.

UNIVERSITY OF OREGON, Eugene, Oreg., a city of 10,593 inhabitants. Founded, 1872; coeducational.

College of Literature, Sciences, and the Arts (undergraduate).
Admission: 15 units; 7 prescribed—3 English, 2 mathematics, 1 history, 1 science.
Degrees: A. B. and B. S.—Four-year courses.

School of Architecture and Allied Arts.
Admission: 15 units; 8 prescribed—3 English, 3 mathematics, 1 history, 1 science.
Degrees: A. B., B. S. in Architecture—Four-year courses.

School of Commerce.
Admission: 15 units as in College of Literature, Sciences, and the Arts.
Degree: A. B., B. S. in Commerce—Four-year courses.

School of Education.
Admission: 15 units as in College of Literature, Sciences, and the Arts.
Degree: A. B.—Four-year course.

School of Journalism.
Admission: 15 units as in College of Literature, Sciences, and the Arts.
Degree: A. B.—Four-year course.

School of Law.
Admission: Two years of college work.
Degrees: LL. B., J. D.—Three-year courses.

School of Medicine (at Portland, Oreg.).

Admission: Two years of college work, including physics, chemistry, biology, and French or German.

Degree: M. D.—Four-year course.

School of Music.

Admission: 15 units, as in College of Literature, Sciences, and the Arts.

Degree: B. Mus.—Four-year course.

Graduate School.

Admission: Bachelor's degree from a recognized college.

Degrees: M. A., M. S.—One year of postgraduate study, of which one semester at least must be spent in residence; thesis.

Graduate study leading to the M. A. degree is offered in the following departments: Botany, Chemistry, economics and sociology, English literature, education, history, Latin, geology, mathematics, German, physics, psychology, rhetoric and American literature, and zoology.

One or more fellowships are offered in each of these departments. These fellowships offer from $200 to $500 a year.

Expenses:

Tuition—

School of Music (based on amount of work taken), up to	$180
Law School, per year	30
School of Medicine	150
Free in other departments of the University.	
Board at University, $5 a week.	
Room at University, $1 a week.	
Board and room away from University, per month	25-30
Total annual expense	265-700

Faculty, 118.

Students, 1,350, of whom 8 are from foreign countries as follows: China, 3; Canada, 1; Japan, 1; West Indies, 1; Philippines, 2.

BRYN MAWR COLLEGE, Bryn Mawr, Pa., a town of 5,000 inhabitants, in the suburbs of Philadelphia, a city of 1,823,158 inhabitants. Opened, 1885, for women only.

Admission (Undergraduate Department): Examination in all subjects, mathematics, English, Latin, history, physics, one of the three languages—Greek or French or German; and either one of the five languages—Greek or French or Italian or Spanish or German; or a second history and a second science.

Degree: A. B.—Four-year course.

Admission (Graduate Department): Bachelor's degree from a recognized college.

Degrees:

A. M.—One year of postgraduate study for graduate of Bryn Mawr only.

Ph. D. and A. M.—Three years of postgraduate study; thesis.

Expenses:

Tuition (undergraduate)	$200
Tuition (graduate)	125
Board (undergraduate)	300
Board (graduate)	300
Room (undergraduate)	100-325
Room (graduate)	100
Emergency fee charged to all students (except holders of fellowships and scholarships)	*100
Total annual expense (undergraduate), minimum	710
Total annual expense (graduate)	630

Faculty, 63.

Students, 468, of whom 10 are from foreign countries, as follows: France, 4; England, 2; Canada, 2; Japan, 1; China, 1.

Of special interest to foreign students.—Bryn Mawr offers strong collegiate courses to women only. The students are not divided into the conventional four classes, and there is no time limit set for the completion of the requirements for graduation.

The School of Education offers graduate courses only to those who wish to study education for one, two, or three years, and it is assumed that about one-half of the time will be given to purely educational courses and the remainder to that subject which the student intends to teach. In connection with the department a model school is maintained which receives pupils at the age of 10 and prepares them for college in seven years. This work is under the direction of expert teachers, and excellent opportunity is thus afforded for observation and discussion.

The Carola Woerishoffer Graduate Department of Social Economy and Social Research offers one, two, or three years' training in many varieties of social work and social research, such as social relief and child welfare, community organization, vocational advisement, industrial supervision and employment management. Certificates are given for one or two years' work. A number of scholarships are given in this department for students preparing for employment management and community organization, and two special scholarships covering all other expenses are offered to French women who wish to study employment management and kindred subjects in the United States.

The college offers graduate work in all departments. Graduate courses are separate, for graduates only. In addition to 16 resident fellowships and 20 scholarships, 4 traveling fellowships are available. Twelve scholarships covering the cost ($530) of board, residence, and tuition in the Graduate School are offered—1 to British, 4 to French, 2 to Italian women, 1 to Swiss women, 1 to women from Scandinavia and The Netherlands.

LEHIGH UNIVERSITY, Bethlehem, Pa., a city of 50,358 inhabitants; 57 miles from Philadelphia, Pa., a city of 1,823,158 inhabitants; 86 miles from New York, N. Y., a city of 5,621,151 inhabitants. Founded, 1866.

Undergraduate courses.

Admission:

To B. A. course, 15 units; 8½ prescribed—3 English, 2 foreign languages, 1 history, 2½ mathematics.

To business administration course, 14 units; 8½ prescribed—3 English, 2 foreign languages, 1 history, 2½ mathematics.

To engineering courses, 14 units; 9½ prescribed—3 English, 2 foreign language, 1 history, 3½ mathematics.

Degrees:

B. A.—Four-year course arts and science.

B. S.—Four-year course in business administration.

C. E., M. E., Met. E., E. M., E. E., B. S. in Chem., Ch. E., N. E. (ship construction and marine transportation)—Four-year courses in the various subjects indicated by the degrees.

Graduate courses:

Admission: Bachelor's or technical degree from a recognized college.

Degrees: M. A., M. S.—One year postgraduate study.

Expenses:

Tuition—	
For engineering and chemistry	$200
For B. A. courses	150
For graduate courses	100
Room, university dormitories	65–81
Board, university dining hall, per month	25
Total annual expense, approximately	750

Faculty, 84.

Students, 900, of whom 32 are from foreign countries, as follows: Porto Rico, 2; Mexico, 5; Honduras, 1; Colombia, 2; Brazil, 1; Ecuador, 1; Venezuela, 1; Russia, 1; Siam, 1; Japan, 2; China, 13; Dutch East Indies, 2.

Of special interest to foreign students.—The university offers excellent courses in civil, mechanical, electrical, metallurgical, chemical, and mining engineering, chemistry, and ship construction and marine transportation. The course in business administration includes, besides the general, nontechnical subjects, work in commerce, economics, industrial history, accounting, business and public law, labor legislation, railway administration, finance, banking and currency, and insurance.

PENNSYLVANIA STATE COLLEGE, State College, Pa., a town of 1,800 inhabitants. Founded, 1863; a "land-grant" institution; coeducational.

Admission: 15 units.

For Schools of Engineering, Mining, or Natural Science, 11 prescribed—3 English, 3 mathematics, 2 foreign language, 2 science, 1 history.

For Schools of Liberal Arts and Agriculture (except classical course) and Courses in Home Economics the unit of mathematics which includes algebra (from quadratics) and solid geometry, is not prescribed.

For classical course, 10 prescribed—3 English, 2 mathematics, 1 history, 4 Latin.

Degrees:

A. B.—Four-year course in School of Liberal Arts.

B. S.—Four-year course in—

School of Agriculture.
School of Engineering.
School of Mines.
School of Natural Sciences.
Department of Home Economics.

A. M., M. S., C. E., M. E., E. E., E. M.—These degrees are conferred upon holders of a bachelor's degree who complete a special program of advanced work arranged by faculty committee.

Three-year prelegal and premedical courses are offered. A student who has completed these receives his bachelor's degree after one year in the professional school.

Expenses:

Tuition, free.	
Gymnasium fee	$10
Library fee	3
Incidental fee	35
Board, per week	4–5
Room, college dormitory, per year	35–75
Room, outside college, per year	54–72

Faculty, 267.

Students, 2,396, of whom 16 are from foreign countries.

Of special interest to foreig. students.—The course in industrial engineering aims to fit the student for positions in industrial organizations, leading to superintendence, purchasing, selling, scientific management, and industrial business administration. Besides the regular engineering subjects, emphasis is placed upon such matters as industrial economics, logic, psychology, and specialized work in accounting, forestry management, shop time study, machine tools and methods, and factory planning, with more shop practice than is found in the regular engineering curricula. For training teachers and supervisors of industrial work in schools a course is also offered in industrial education.

Pennsylvania is one of the greatest mining States and the student in the School of Mines is given abundant opportunity for observation and study of mining and metallurgical operations.

The Institute of Animal Nutrition, affiliated with the college and the Experiment Station, is devoted entirely to research and provides excellent facilities for graduate work in this subject.

UNIVERSITY OF PENNSYLVANIA, Philadelphia, Pa., a city of 1,823,158 inhabitants. Founded, 1740.

The College. Undergraduate Department of Arts and Sciences; special work in biology and music.

Admission for the course in Arts and Science: 14½ units; 9½ prescribed—3 English, 1 history, 2½ mathematics, 3 or 4 foreign language.

If but one language is offered, the minimum requirement shall be: In Latin, 4 units; in Greek, 3 units; in German, 3 units; in French, 3 units; in Italian, 3 units; in Spanish, 3 units. If two languages are offered, the minimum requirements shall be 2 units in each language.

Courses:

Arts and Sciences, 4 years. Degree: A. B.

Biology (coeducational), 3, 4, or 5 years, as the student wishes.

Admission: 14½ units; 8½ prescribed—3 English, 1 history, 2½ mathematics, 2 foreign language.

Degree: B. S. in Biology.

Music, open to special students only.

Admission; A knowledge of the rudiments of music, ability to play a musical instrument, 1½ units English.

The four-year course leads to a certificate of proficiency.

The degree Mus. Bac. is awarded after one year has elapsed, to those possessing the certificate, upon examination, and the presentation of an original composition.

Towne Scientific School:

Admission: 14½ units; 10 prescribed—3 English, 1 history, 3½ mathematics, 1 physics, 2 French or German. For the course in architecture only 3 units mathematics prescribed.

Courses, 4 years unless otherwise stated.

Architecture, degree, B. S. in Architecture.

Graduate courses leading to M. S. in Architecture one year after B. S.

Two-year special course leading to certificate of proficiency.

Architectural Engineering; degree, B. S. in Architecture.

Chemical Engineering; degree, B. S. in Chemical Engineering.

Chemistry; degree, B. S. in Chemistry.

Civil Engineering; degree, B. S. in Civil Engineering.

Electrical Engineering; degree, B. S. in Electrical Engineering.

Mechanical Engineering; degree, B. S. in Mechanical Engineering.

Wharton School of Finance and Commerce:

Admission: 14½ units; 8½ prescribed—3 English, 1 history, 2½ mathematics, 2 foreign language.

Courses:

Finance and Commerce; 4 years, degree B. S. in Economics.

Special course in business practice and banking, 2 years, leading to certificate of proficiency.

School of Education (College for Teachers. Founded 1914. Coeducational):

Admission: 14½ units; 8½ prescribed—3 English, 2½ mathematics, 1 history, 2 Latin, French, or German.

Course, 4 years. Graduation upon the completion of 64 units of work, 4 of which are in Physical Education. The other 60 units consist of 26 in content subjects, 11 in fundamental professional subjects, 15 in the special subject to be taught, and 8 free electives.

Degree: Bachelor of Science (B. S.) in Education. Graduate courses in Education, leading to A. M. and Ph. D. in the Graduate School.

Graduate School (Coeducational):

Admission: Bachelor's degree from a recognized college in the United States, or the equivalent for foreign institutions.

Degrees:

A. M., M. S.—One year of postgraduate study.

Ph. D.—Three years of postgraduate study; thesis.

The Graduate School offers advanced instruction in the various branches of literature and science. Among the departments which are especially noteworthy may be mentioned: Semitic languages, Latin, English, history, history of religions, philosophy, education, psychology, zoology, and medical sciences.

Law School:

Admission: Bachelor's degree (or equivalent degree) from a recognized college.

Degrees:

LL. B.—Three-year course.

LL. M.—One year after LL. B.; thesis.

School of Medicine (Coeducational):

Admission: 14½ units of secondary school work; 10½ prescribed—3 English, 1 history, 2½ mathematics, 4 foreign language. Two languages, not less than 2 units in each. If Latin is offered, there must be 4 units in that alone, thus raising the number of units prescribed to 12½. Followed by two years of collegiate work.

The following subjects must be taken in college: Chemistry, including both general chemistry and qualitative analysis, 6 units; physics, 4 units; zoology or general biology, 4 units; French or German, 3 units; and at least 13 units made up of subjects which are open to freshmen and sophomores in colleges or universities of recognized standing. The work in the three sciences must include laboratory work performed by the student; and the laboratory notebooks, properly certified, must be submitted.

Degrees:

M. D.—Four-year course.

Dr. P. H.—One year's work in public hygiene, following graduation from a recognized medical school.

Certificate—C. S.—One year's work in public hygiene, as above, for those not holding M. D.

School of Dentistry (Coeducational):
Admission: Graduation from an approved high school or equivalent preparatory course of four academic years.
Degree: D. D. S., four-year course.
School of Veterinary Medicine:
Admission: Graduation from an approved high school or equivalent preparatory school, including at least 8 units of work—3 prescribed; 2 English, 2 mathematics, 1 history.
Degree: V. M. D.—Four-year course.
Expenses:
Tuition—

Courses in Arts and Sciences, Education, Finance and Commerce, Biology, and Dentistry	$200
Law	200
Medicine, Chemistry, Engineering, and Architecture	200
Graduate School, based on the amount of work taken, not to exceed	150
Veterinary Medicine	100
Music	30
Board and room	200–350
Total annual expense	450–605

Faculty, 637.
Students, 6,930, of whom 265 are from foreign countries.

Of special interest to foreign students.—The Medical School, founded in 1765, is the oldest in the country and one of the best. It is well equipped with museums and laboratories. The University Hospital maintains almost 500 beds, and, in conjunction with the other hospitals throughout the city, offers excellent clinical facilities. In the first two years of the course the fundamental medical sciences are studied; the latter half is devoted to clinical subjects and specialties. Graduate work is offered in public hygiene. The Phipps Institute for the study, prevention, and treatment of tuberculosis furnishes opportunity for research in this particular field.

The course in tropical medicine should interest students from southern countries.

The Wharton School is among the most prominent institutions offering courses in financial and commercial branches. The course of study for the first two years is largely prescribed. In the last two electives are offered in business law, commerce and transportation, economics, finance and accounting, geography and industry, insurance, political science, and sociology.

The School of Architecture holds the highest rank among architectural schools in America.

The School of Dentistry is of high rank, and has drawn many students from abroad. During the first year the student's time is equally divided between dental, histological, and chemical laboratory work. Ample opportunity is provided in the last two for practice in mechanical and operative dentistry.

The School of Veterinary Medicine is well equipped. It maintains a veterinary hospital, and has access to local stockyards, abattoirs, breeding and dairy farms.

Among special departments of study not included in the Wharton School or the other schools just referred to, those of chemistry and biology enjoy wide reputation.

The Christian Association of the University of Pennsylvania conducts an International Students' House at 3905 Spruce Street, Philadelphia, in which the American students and those from other countries by friendly interchange

of thought and experience come to know one another's problems and to sympathize with one another's points of view and ideals. The latchstring is out at all times. A certain amount of dormitory capacity is available. The dining room accommodates about 40. The clubrooms of the house are open to engagement by the different student organizations, particularly those of an international character.

UNIVERSITY OF PITTSBURGH, Pittsburgh, Pa., a city of approximately 588,343 inhabitants. Founded, 1787; a semi-State institution; coeducational.

The College. Undergraduate.

Admission: 15 units; prescribed—3 English, a principal group of 3 or more units, a secondary group of 2 or more units; remainder elective. Graduation from an approved secondary school required.

Degrees: A. B. and B. S.—Four-year courses.

School of Economics.

Admission: 15 units; 4 prescribed—3 English, 1 history. Graduation from an approved secondary school required.

Degree: B. S. in Economics.

School of Education.

Admission: 15 units; 4 prescribed—3 English, 1 history. Graduation from an approved secondary school required.

Degrees:

A. B. and Bachelor's Diploma in Education—Four-year course.

B. S. and Bachelor's Diploma in Education—Four-year course.

School of Engineering.

Admission: Graduation from an approved secondary school and presentation of the following units: 3 English, 3½ mathematics (1½ algebra, 1½ geometry, ½ trigonometry), 1 history, 2 modern languages, 1 physics.

Degrees: B. S. in C. E., M. E., E. E., R. M. E., San. E., and Chem. E.—Four-year courses in which the cooperative plan is a feature. Under this plan every graduate of the Engineering School must have completed at least two years of supervised practical work.

Higher engineering degrees, conferred after three years of successful work and the presentation of an approved thesis—C. E., M. E., E. E., R. M. E., Chem. E., San. E.

School of Mines.

Admission: Same as for Engineering School (with exception of trigonometry).

Degrees: E. M., Met. E., Pet. E.—Four-year cooperative courses.

School of Chemistry.

Admission: Same as for School of Mines.

Degree: B. Chem.—Four-year course.

Graduate School.

Admission: Bachelor's degree from a recognized college.

Degrees:

M. A., M. S.—One year of graduate study; thesis.

Ph. D.—Three years of graduate study; thesis.

School of Medicine.

Admission: Four-year high-school course plus two years of college work.

Degrees:

M. D.—Four-year course.

B. S. and M. D.—Six-year course, combined collegiate and medical.

School of Law.
Admission: Four-year high-school course and graduation from college.
Degree: LL. B.—Three-year course.
School of Dentistry.
Admission: Completion of four-year high-school course.
Degree: D. D. S.—Four-year course.
School of Pharmacy.
Admission: Completion of at least two years of approved secondary school work.
Degrees:
Ph. G.—Two-year course.
Ph. C.—Three-year course.
Expenses:
Tuition—
The College, School of Education, School of Economics, School of Engineering, School of Mines, Graduate School, School of Chemistry, School of Law $150
School of Medicine 250
School of Dentistry 200
School of Pharmacy (if paid in full before Oct. 10, $140) 150
Books, instruments, etc., $10, up.
Board, per week, $5.50 to $7.00.
Room, per week, $2.00 to $3.00.
Faculty, 300.
Students, 3,542, of whom 186 are from foreign countries, as follows: Argentina, 7; Austria-Hungary, 19; Bohemia, 2; Brazil, 2; Canada, 12; China, 2; Egypt, 1; England, 13; Germany, 4; Greece, 2; India, 1; Ireland, 2; Italy, 20; Japan, 2; Poland, 5; Rumania, 9; Russia, 78; Scotland, 1; Sweden, 1; Syria, 1; West Indies, 2.

Of special interest to foreign students.—The courses in the scientific and engineering schools are of particular interest to foreign students because of their nature and content. In the School of Engineering an arrangement of the work during the sophomore and junior years enables the student to enter shops, mills, mines, and factories and secure in all two years of practical training with pay. In many instances relationships are formed which enable the student to reenter these establishments after they have completed their university career. In the School of Mines this same feature of cooperative education prevails, and for students engaged in the study of mining a special summer camp has been established in the heart of the mining district of Pennsylvania. Surveying, inspection, and mining are engaged in by means of the cooperative feature of this school.

CLEMSON AGRICULTURAL COLLEGE, Clemson College, S. C., a town of 759 inhabitants. Founded, 1889; a "land-grant" institution.

Admission (on certificate).
Agricultural course: 12 units; 8 prescribed—3 English, 3 mathematics, 1 history, 1 agriculture.
Engineering and other courses: 12 units; 7 prescribed—3 English, 3 mathematics, 1 history.
Degree: B. S.—Four-year courses in the following:
Agriculture, with major subjects in agronomy, botany, chemistry, animal industry, entomology, veterinary science, horticulture, soils, dairying, or agricultural education.

Degree: B. S.—Four-year courses—Continued.
Chemistry.
Mechanical engineering.
Electrical engineering.
Civil engineering.
Chemical engineering.
Textile industry.
Architecture.
Industrial education.
General science, with major subjects in agriculture and industrial arts, natural science, or physics and chemistry.
In addition to these courses, special short courses are offered in the agricultural and textile departments, but these do not lead to any degree.

Expenses:

Tuition (free to students from South Carolina who are unable to pay)	$40
Room, board, and laundry (9 months)	180
Total annual expense (approximate)	300

Faculty, 64.
Students, 823, of whom 1 is a foreign student, from British West Indies.

Of special interest to foreign students.—In the department of agriculture facilities are offered for studying the phases of the subject especially affecting southern countries. Attention is paid to cultivation and grading of cotton. The textile building, built in the style of a modern mill, affords the student an opportunity to become familiar with many points regarding mill construction, manipulation of cotton fibers, and the study of cotton-mill operation. Close relation is maintained between the college and State agricultural experiment station.

GEORGE PEABODY COLLEGE FOR TEACHERS, Nashville, Tenn., a city of 118,342 inhabitants, and capital of the State. Founded, 1875, as a normal school; in 1877 became Peabody College; in 1909 was reorganized and chartered as a teachers' college; coeducational.

College of Education.

Admission: Four-year high-school course, or the equivalent.
Degree: B. S.—Four-year courses.

Studies are arranged by groups, so that students may be prepared specifically for teaching or supervising agriculture, biology, chemistry, classical and modern languages, primary education, elementary education, rural education, school administration, secondary education, English, geography, public health, history and economics, home economics, industrial arts, international relations, Latin-American relations, music, physical education, psychology.

Graduate School of Education.

Admission: A standard bachelor's degree, or equivalent.
Degrees:
A. M.—One year of graduate work; thesis.
Ph. D.—Two years of graduate work, minimum; usually 3 years; dissertation.

Expenses:

Tuition, $2 per credit hour of work taken; per quarter of 12 weeks, approximately	$35–40
Room and board per month	30–35
Total annual expense	400–500

Faculty, 89.
Students, 1,750.

Of special interest to foreign students.—Peabody has a large endowment and aims to provide the best possible instruction for workers in all fields of education. The department of industrial arts offers training for teachers of manual arts and also for specialists in wood and metal working, printing, supervision of drawing and handwork; the department of home economics offers courses in almost all lines of women's work in the home, with opportunities for specialization in textiles and sewing, foods and cooking, and home demonstration work.

The Seaman A. Knapp School of Country Life includes courses which aim to train leaders for work in rural communities, in agriculture, animal husbandry, farm demonstration work, food conservation, rural sanitation and health, rural education, community cooperation, etc.

The Correspondence Study Department offers a large number of courses of interest to teachers, supervisors, and school administrators. Regular college credit is granted for work completed by correspondence. This feature is of special value for students located at great distances from Peabody.

Peabody also opens its National Bureau of International Educational Correspondence, which promotes educational letter exchange between the pupils and students of all nations. Students at Peabody have a great opportunity of becoming familiar with this new educational agency.

The College is in session throughout the year, the work being divided into four quarters of about 12 weeks each. A student may materially shorten the number of academic years of residence required for any degree by attendance during the extra summer quarter.

An agreement with Vanderbilt University, whose campus adjoins that of Peabody, enables students registered in either institution to enjoy the advantages of the other without additional charge. Peabody students thus have available for one fee all the facilities of the two institutions, representing assets of nearly $15,000,000.

VANDERBILT UNIVERSITY, Nashville, Tenn., a city of 118,342 inhabitants. Incorporated, 1872; coeducational.

The College. Undergraduate department of arts and sciences.

Admission: 15 units. For A. B. degree, 14 prescribed—3 English, 3 mathematics, 4 Latin, 3 Greek, 1 history or science. For B. S., 12 prescribed—3 English, 3 mathematics, 4 foreign language, 2 history or science.

Degrees: A. B., B. S.—Four-year courses.

Graduate Department.

Admission: Bachelor's degree from recognized college.

Degrees:

M. A., M. S.—One year of postgraduate study; thesis.

Ph. D., D. Sc.—Three years of postgraduate study; thesis.

Engineering Department.

Admission: 15 units, as for B. S. degree.

Degrees:

B. E.—Completion of four-year undergraduate courses in civil engineering, mechanical engineering, electrical engineering, chemical engineering.

C. E.—One year of postgraduate work in civil engineering; thesis.

M. E.—One year of postgraduate work in mechanical engineering; thesis.

E. E.—One year of postgraduate work in mechanical engineering and physics; thesis.

Biblical Department.

Admission: No definite requirement. Anyone judged capable of doing the work is admitted, provided he is well recommended.

Degrees: B. D. (A bachelor's degree from a recognized college is a prerequisite).—Three years of postgraduate study; thesis. To those not possessing a bachelor's degree, who complete courses in the Biblical Department, a diploma is awarded.

Law Department.

Admission: 14 units; 6 prescribed—3 English, 2 mathematics, 1 history.

Degree: LL. B.—Three-year course.

Medical Department.

Admission: One year of collegiate work, including physics, chemistry, biology, and a modern language.

Degree: M. D.—Four-year course.

Pharmacy Department.

Admission: 14 units; 8 prescribed—2 English, 2 mathematics, 2 foreign language, 2 history or science.

Degrees:

Ph. G.—Two-year course.

B. S. (in Pharm.).—Four-year course.

Dentistry Department.

Admission: Graduation from an approved secondary school.

Degree: D. D. S.—Four-year course.

Expenses:

Tuition (including matriculation and library fees)—

Biblical Department	$25
Pharmacy Department	70
Academic and Engineering Departments	105
Law and medicine	150
Dentistry Department	175
Board and room, per month	15–18
Total annual expense	300–417

Faculty, 120.

Students, 1,000, of whom 16 are from foreign countries, as follows: China, 4; San Salvador, 1; Hawaii, 2; Japan, 5; Panama, 2; Cuba, 1; Canada, 1.

Of special interest to foreign students.—The thorough courses offered by the Department of Dentistry, and the excellent equipment, place it among the high-grade dental schools of the country.

Vanderbilt is now affiliated with the George Peabody College for Teachers, and students registering in either institution may, for the single fee, avail themselves of all advantages and opportunities for instruction offered by the other.

AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS, College Station, Texas, five miles from Bryan, a town of 6307 inhabitants. Founded, 1876; a "land-grant" institution; for men.

Undergraduate courses.

School of Engineering.

Admission: 15 units; 6 prescribed—3 English, 3 mathematics.

Degree: B. S.—General courses of four years in following: Architecture, chemical engineering, civil engineering, electrical engineering, mechanical engineering, textile engineering, industrial education.

Undergraduate courses—Continued.

School of Agriculture.

Admission: 15 units; 6 prescribed—3 English, 3 mathematics.

Degree: B. S.—General courses of four years in following: Agricultural chemistry, agricultural education, agricultural engineering, agronomy, animal husbandry, biology, dairy husbandry, entomology, horticulture, landscape art.

School of Veterinary Medicine.

Admission: 15 units; 6 prescribed—3 English, 3 mathematics.

Degree: D. V. M.—Four-year course.

Graduate Courses:

Admission: Bachelor's degree from a recognized college.

Degrees: M. S., Ch. E., C. E., E. E., M. E.—One year of graduate work; thesis.

Nonolleglate two-year courses and short courses.

Faculty, 105.

Students, 1,152.

Expenses, estimated at about $300 per year.

UNIVERSITY OF TEXAS, Austin, Texas, a city of 34,876 inhabitants. Founded, 1883; coeducational.

College of Arts (undergraduate).

Admission: 15 units: 10 prescribed—3 English, 2 history, 3 mathematics, 2 in one foreign language.

Degrees:

B. A.—Four-year course.

B. B. A. (Bachelor of Business Administration)—Four-year course.

B. J. (Bachelor of Journalism)—Four-year course.

B. S. in H. E. (Bachelor of Science in Home Economics)—Four-year course.

School of Education.

Admission: One year's work in the College of Arts, or its equivalent.

Degrees: None. Work counts toward B. A. in College of Arts.

College of Engineering.

Admission: 15 units, as in College of Arts.

Undergraduate courses, four years:

	Degrees.
Architecture	B. S. in Architecture.
Architectural engineering	B. S. in Architectural Engineering.
Chemical engineering	B. S. in Chemical Engineering.
Civil engineering	B. S. in Civil Engineering.
Electrical engineering	B. S. in Electrical Engineering.
Mechanical engineering	B. S. in Mechanical Engineering.

Graduate courses.—One year of postgraduate study and research.

Admission: Bachelor's degree in the subject to be pursued.

Architecture	M. S. in Architecture.
Architectural engineering	M. S. in Architectural Engineering.
Civil Engineering	C. E.
Electrical engineering	E. E.

College of Mines and Metallurgy (at El Paso).

Admission: 14½ units.

Degree: Mining Engineer.—Four-year course.

School of Medicine (at Galveston).
Admission: Two years' collegiate work.
Degree: M. D.—Four-year course.
College of Pharmacy (at Galveston).
Admission: Graduation from an accredited high school.
Degree: Ph. G.—Two-year course.
School of Law.
Admission: Two years' collegiate work.
Degree: LL. B.—Three-year course.
Graduate School.
Admission: Bachelor's degree from a recognized college.
Degrees:
A. M.—One year of postgraduate study; thesis.
M. B. A.—One year of postgraduate study; thesis; successful business experience.
M. J.—One year of postgraduate study; thesis.
Ph. D.—Three years of postgraduate study; thesis.
Expenses.
Tuition, none.
Fees range between $25 and $75 in various colleges and schools.
Room and board cost between $30 and $50 per month.
Many students earn their way.
Faculty, 301.
Students, 4,118, of whom 31 are from foreign countries, as follows: England 3, Ireland 1, Scotland 1, Canada 1, Austria 2, Bohemia 1, Germany 6, Poland 1, Serbia 1, Russia 4, Sweden 2, Brazil 1, Mexico 9.

RANDOLPH-MACON WOMAN'S COLLEGE, Lynchburg, Va., a city of 30,070 inhabitants. Founded, 1893; for women only.

Admission; 15 units; 9½ prescribed—3 English, 2½ mathematics, 4 Latin.
Degrees:
A. B.—Four-year course.
A. M.—One year after A. B.
Certificates of proficiency are awarded to those completing courses in music or art.
Expenses:

Tuition	$140
(Additional charges for courses in art or music.)	
Board	350
Total annual expenses	490-650

Faculty, 50.
Students, 618.

UNIVERSITY OF VIRGINIA, Charlottesville, Va., a city of 10,688 inhabitants, at the junction of the Chesapeake & Ohio and the Southern Railroads. Founded, 1819.

The College. Undergraduate department.
Admission: 15 units; 10½ prescribed—3 English, 2½ mathematics, 1 history; for A. B., 4 Latin; for B. S., 4 modern languages.
Degrees: A. B. and B. S.—Four-year courses. If the student does sufficient work in one of the departments of natural or mathematical sciences the vocational B. S. may be conferred, with special mention of that subject in which he has specialized.

Department of Graduate Studies.
Admission: Bachelor's degree from a recognized college.
Degrees:
M. A. and M. S.—One year of graduate study.
Ph. D.—Three years of graduate study; thesis.
Department of Law.
Admission: 15 units; 6½ prescribed—3 English, 2½ mathematics, 1 history.
Degree: LL. B.—Three-year course.
Department of Medicine.
Admission: Two years of collegiate work.
Degree: M. D.—Four-year course.
Department of Engineering.
Admission: 15 units; 7½ prescribed—3 English, 3½ mathematics, 1 history.
Degrees: C. E., M. E., E. E., E. M., Ch. E.—Four-year courses; thesis.
Expenses:

Tuition, free (in college and graduate departments) to students from Virginia—	
In college	$135
In graduate department	135
In departments of law and medicine	135
In department of engineering—	
Students from Virginia	95
Students from outside Virginia	135
University fee	40
(For Virginians in college and graduate departments)	20
Board (university commons), per month	18
Board (outside university), per month	20–30
Room (university dormitory)	50–135
Room (outside university), per month	5–25
Total annual expense	430–670

Faculty, 73.
Students, 1,207, of whom 5 are from foreign countries, as follows: Nicaragua, 1; Cuba, 3; Japan, 1.

Of special interest to foreign students.—The University of Virginia owed its beginning to Thomas Jefferson. The memory of Jefferson and the ideals which he set form the university's strongest tradition. His educational philosophy is still to some extent preserved in its curricula and organization.

The Medical School has laboratory facilities for special research work. Clinical instruction is provided for at the University of Virginia Hospital and Dispensary, and in connection with the hospital the university maintains a training school for nurses.

STATE COLLEGE OF WASHINGTON, Pullman, Wash., a town of 4,000 inhabitants. Founded, 1890; a "land-grant" institution; coeducational.

Undergraduate Courses.
College of Agriculture.
Admission: 15 units from accredited high school.
Degree: B. S. in Agriculture—Four-year course.
College of Mechanic Arts and Engineering.
Admission: Same as in College of Agriculture.
Degrees: B. S. in Civil, Mechanical, Electrical, and Hydro-Electrical Engineering—Four-year courses.

Undergraduate courses—Continued.

College of Home Economics.

Admission: Same as in College of Agriculture.

Degree: B. S.—Four-year course.

College of Science and Arts.

Admission: Same as in College of Agriculture.

Degrees:

B. A. and B. S.—Four-year courses.

B. S. in Chem. Eng.—Four-year course.

College of Veterinary Science.

Admission: Same as in College of Agriculture.

Degrees:

B. S. in Veterinary Science—Four-year course.

D. V. M.

School of Education.

Admission: Same as in College of Agriculture.

Degree: B. A. in Education—Four-year course.

School of Mines.

Admission: Same as in College of Agriculture.

Degree: B. S.—Four-year course (mining and metallurgy).

School of Music and Applied Design.

Admission: Same as in College of Agriculture.

Degree: B. A. in Music—Four-year course.

School of Pharmacy:

Admission: Same as in College of Agriculture.

Degrees:

Ph. G.—Two-year course.

Ph. C.—Three-year course.

Graduate Courses:

Admission: Bachelor's degree from a recognized college.

Degrees: M. A., M. S., C. E., E. E., E. M.—One year of postgraduate study, thesis; graduates of State College three years of professional experience and thesis.

Expenses:

Tuition, none.

Board, per week	$5.00–$7.00
Room, per month	4.50–16.00
Entrance and incidental fees	21.00–30.00
Annual expense	350.00–500.00

Faculty, 150.

Students, 2,022, of whom 18 are from foreign countries, as follows: Philippines, 7; Hawaii, 1; Chile, 1; England, 1; Japan, 4; France, 1; Russia, 1; Holland, 1; Central America, 1.

UNIVERSITY OF WASHINGTON, Seattle, Wash., a city of 315,312 inhabitants. Founded 1861; coeducational.

College of Liberal Arts. Undergraduate.

Admission: 15 units; 11 or 12 prescribed—3 English, 2½ mathematics, 1 science, 2 foreign language, 1 history, ½ solid geometry, and 1 science or 2 foreign language.

Degree: A. B.—Four-year course. Includes general course, home economics, journalism, library economy, and commerce.

College of Science.

Admission: 15 units; 11 prescribed—3 English, 3 mathematics, 2 science, 2 foreign language, 1 history.

Degrees:

B. S.—Four-year course.

B. S. in Home Economics—Four-year course.

College of Business Administration.

Admission: 15 units; 7 prescribed—3 English, 2 mathematics, 2 history.

Degrees:

Bachelor of Business Administration—Four-year course.

Master of Business Administration—One year of postgraduate work after award of bachelor's degree.

College of Education.

Admission: As in College of Liberal Arts.

Degrees:

Bachelor of Education—Four-year course.

M. A. or M. S. in Education—One year after A. B. or B. S.

Diplomas are granted, valid in all public schools in the State.

College of Engineering.

Admission: 15 units; 10 prescribed—3 English, 3 mathematics, 1 science, 2 foreign language, 1 history.

Degrees:

B. S. in C. E., B. S. in E. E., B. S. in M. E., B. S. in Ch. E.—Four-year courses.

The college also offers another four-year course in each of the departments to meet the need for a broader foundation in general training and leading simply to the B. S. degree.

M. S. in C. E., M. S. in E. E., M. S. in M. E., M. S. in Ch. E.—One year of postgraduate study after baccalaureate degree; thesis.

C. E., E. E., M. E.—These are professional degrees conferred without resident study upon holders of the bachelor's or master's degrees after at least two years and one year, respectively, of successful professional work and the presentation of a thesis.

College of Fine Arts.

Admission: As in College of Liberal Arts. For courses in music an additional requirement of four years in music.

Degrees:

B. Mus.—Four-year course.

B. Arch.—Four-year course.

Certificates of Proficiency for those not having fulfilled requirements for degree.

Certificate of Proficiency, two-year course in art.

College of Fisheries.

Admission: 15 units. (See College of Science).

Degree: B. S.—Four-year course.

College of Forestry.

Admission: 15 units; 11 prescribed, as in College of Science, except that 1 unit botany is required instead of chemistry or biology.

Degrees:

B. S.—Four-year course.

M. S. F.—One year after bachelor's degree.

School of Journalism.
Admission: Two years of collegiate work.
Degree: B. A.—Four-year course including two years' collegiate work for admission.

The Puget Sound Biological Station (summer only).
(Cooperative under direction of the University of Washington.)
Located at Friday Harbor, Wash.
Admission: Ability to carry on marine biology.
Tuition, $10.
Living expenses for six weeks moderate.

School of Law.
Admission: Two years of collegiate work.
Degree: LL. B.—Three-year course.

College of Mines.
Admission: 15 units, as in College of Science.
Degrees:
B. S.—Four-year course in general science.
B. S. in Mining Engineering.—Four-year course.
B. S. in Geology and Mining.—Four-year course.
B. S. in Metallurgical Engineering.—Four-year course.
B. S. in Coal Mining Engineering.—Four-year course.
M. S. in Mining Engineering.—One year postgraduate study; thesis.
E. M., Met. E.—Professional degrees, conferred without resident study upon holders of the bachelor's degree, who have been engaged in professional work at least three years and present a thesis.

College of Pharmacy.
Admission: 15 units; 9½ prescribed—3 English, 2 foreign language, 2½ mathematics, 1 science, 1 history.
Degrees:
Ph. C.—Two-year course.
B. S.—Four-year course.
M. S. in Pharmacy.—One year of postgraduate work after B. S.; thesis.

Graduate School.
Admission: Bachelor's degree from a recognized college.
Degrees:
M. A. or M. S.—One year of postgraduate study; thesis.
Ph. D.—At least 3 years of postgraduate study; thesis. Limited at present to three departments: Chemistry, English, Botany.

Expenses:

Tuition (Colleges of Liberal Arts, Science, Education, Engineering, Fine Arts, Forestry, and Mines) ($10 per quarter of 12 weeks)	$30.00
College of Law	60.00
Biological Station	10.00
Board, at university, per month	22.50
Room, at university, per year	54.00
Board and room, outside university, per month	23.00–30.00
Minimum annual expense	350.00

Faculty, 217.

Students, 3,075, of whom 86 are from foreign countries, as follows: Japan, 9; Philippines, 8; Canada, 30; China, 7; Hawaii, 4; Alaska, 2½; Finland, 1; Russia, 2; Sweden, 1; Scotland, 1; Cuba, 1; Australia, 1.

Of special interest to foreign students.—Seattle is the center of the timber industry of the Northwest and furnishes opportunities for observation of the practical side of work in forestry. Examples of forest management may be seen in the near-by national forests. The curricula allow specialization in forest service and State work, logging engineering, and forest products, and advanced courses are given in dendrology, silviculture, wood technology, timber physics, and wood preservation.

The State of Washington and the adjoining country provide excellent opportunities to students in the College of Mines to become familiar with mining and metallurgical operations and mining machinery. The United States Bureau of Mines conducts a mines experiment station on the campus, and in connection with the College of Mines a number of graduate research fellowships are provided. Application should be made before May 15 to the Dean of the College of Mines.

The College of Fisheries meets the demands of the large fishery industry of the United States for technically trained experts and directors. The Puget Sound and the near-by Alaskan fisheries furnish unexcelled facilities for obtaining practical experience during vacations.

The College of Business Administration has made arrangements with Seattle business houses to accept a certain number of Oriental students for part-time work. Chinese students able to speak English and with special qualifications for the line of business they intend to pursue should make application to the Dean of the College of Business Administration before May 15.

The university will, during 1919–20, accept a number of Mexican students in accordance with plans approved by the Minister of Education of Mexico.

UNIVERSITY OF WISCONSIN, Madison, Wis., a city of 38,378 inhabitants, and the capital of Wisconsin. Founded, 1848; a "land-grant" institution; coeducational.

College of Letters and Science. Undergraduate.

Admission: 15 units; 6 or 7 prescribed—2 or 3 English, 2 mathematics, 2 foreign language, science, or history.

Degrees:

A. B.—Four-year course; thesis, or special research, with report.

Ph. B. (General course)—No foreign language required. Four-year course; thesis, or special research, with report.

Ph. B. (Course for normal school graduates)—Two-year course in philosophy and education for normal school graduates; thesis, or special research, with report.

Course in Chemistry, B. S.—Four-year course; thesis, or special research, with report.

Course in Commerce, B. A.—Four-year course; thesis, or special research, with report.

Course in Journalism, B. A.—Four-year course; thesis, or special research, with report.

Course in Pharmacy.

Admission: To the two-year course, graduation from an approved high school. 1919–20 nongraduates may be admitted who are at least 18 years old and who can present evidence of two years' high-school work and practical experience.

To the four-year course, 15 units, as above.

Degrees:

Graduate in Pharmacy—Two-year course.

B. S.—Four-year course; thesis, or special research, with report.

College of Letters and Science. Undergraduate—Continued.

Course for the Training of Teachers.

Admission: Two years' collegiate work.

Degree: B. A. or B. S.

Certificate: Granted on completion of major subject and special courses in philosophy, education, and departmental teacher's training courses.

Library School.

Admission: To independent library course of one year; competitive examinations in history, general literature, current events, and German or French. High School graduation or its equivalent required for admission to examinations.

Certificate of Library School.

Admission: To joint library course—90 credits in College of Letters and Science. Must pass entrance examinations in Library School.

Degree: B. A. and certificate of Library School.

Admission: To Teacher-Librarian course. Open to juniors and seniors who are prospective teachers.

Medical School.

Admission: Two years' collegiate work. The school offers only the first two years of a medical course.

Degree: B. S., Medical Science Course. Thesis.

School of Music.

Admission: 15 units, as in College of Letters and Science. Ability to play piano or violin and to read music.

Degree: Bachelor of Music—Four-year course. For those taking the two-year course for supervisors of music in public schools a certificate is granted.

College of Engineering. Undergraduate.

Admission: 15 units; 7 prescribed—2 English, 3 mathematics, 2 foreign language.

Degree: B. S. (with specific mention of course taken). Four-year course in civil, mechanical, electrical, chemical, or mining engineering; thesis, or special research, with report.

College of Agriculture. Undergraduate.

Admission: 15 units, as in College of Letters and Science.

Degrees; Thesis, or special research, with report required.

B. S. (Agriculture)—Four-year course in agriculture.

B. S. (Home Economics)—Four-year course in home economics, with the following majors: General, food, textiles, hospital administration, bacteriology.

B. S. (Home Economics)—Four-year vocational course for the training of teachers in home economics.

Certificates: Graduate in Agriculture—Two-year course in agriculture. Graduate in Home Economics—Two-year course for training vocational teachers in home making.

Law School.

Admission: Two years' collegiate work.

Degree: LL. B.—Three-year course and at least six months' clerkship in an accredited law office.

Graduate School.

Admission: Bachelor's degree from a recognized college.

Degrees:

M. A., M. S., Ph. M.—A minimum of one year of postgraduate study.

C. E., M. E., E. E., Ch. E., E. M.—One year of postgraduate study in engineering, and thesis. Graduates of the College of Engineering, of the University of Wisconsin who have spent three years in professional work—at least one of them in a responsible position—and who present a thesis, may also receive the advanced engineering degree, without resident study.

Ph. D.—At least three years' postgraduate study; thesis.

M. P. H.—One year's postgraduate work in public health for those holding M. D. from an approved medical school.

Dr. P. H.—Two years' postgraduate work in public health for those holding M. D. from an approved medical school.

University Extension Division.

Several hundred correspondence study courses, many of which may be taken by properly qualified students with a view of accumulating university credit toward a degree, are available in the University of Wisconsin through postal instruction. Special bulletins of the Extension Division describe these courses in full, giving facts, not only with reference to the content of the course, but also information as to instruction fees, textbooks and laboratory requirements, and the number of credits involved.

Expenses (for resident study):

Tuition (free to residents of Wisconsin)	$124
Incidental fee	30
Library School—	
Resident tuition per year	50
Nonresident tuition per year	124
Room at university	75 to 160
Board at university	180 to 240

Faculty, 751, of whom 191 assistants and lecturers average half time.

Students, 5,385[a], of whom 69[a] are from foreign countries, as follows: China, 35; Canada, 9; Philippine Islands, 3; Australia, 2; Chile, 2; Hawaiian Islands, 2; Japan, 2; Norway, 2; Alaska, 1; and one from each of the following countries: Argentina; Austria; Belgium; England; India; Java; Peru; Porto Rico; Spain; and Uruguay.

Of special interest to foreign students.—Graduate and undergraduate work. The special course in chemistry is arranged to meet the needs of those planning to enter upon chemistry as a life work, and includes a general course, and courses for the industrial, agricultural, soil, physiological, and sanitary or food chemist. The work of the first year is the same for all these groups. The course in pharmacy is especially strong, and the university is one of the few institutions to give systematic consideration to plant chemistry.

The work in journalism includes courses to familiarize the student with present political, social, and economic conditions, and with his own and foreign literatures; to develop his skill in writing; and to give the necessary technical instruction. Opportunity for study is offered to those interested in professional and trade journalism.

[a] Figures for 1916–17.

In cooperation with the Legislative Reference Department of the Wisconsin Free Library Commission, the Library School also offers a special course of training for legislative and municipal reference work and the various sociological phases of library service. The course is intended for college graduates with special aptitude and personal qualifications for this type of library service who have a definite preparation in political science, economics, and sociology.

The Department of Physics, which has one of the largest and best equipped laboratories in the country, offers an unusual opportunity for research.

In connection with the work in the College of Agriculture, special mention should be made of the courses in animal husbandry, dairying and dairy husbandry, and soils. There is opportunity for research work in almost all departments and close association is maintained with the State experiment station.

The Forest Products Laboratory is conducted in cooperation with the work of the university, and offers especially valuable opportunities for engineering students to carry on advanced study and research pertaining to the utilization of forest products.

The university is the culmination of the free educational system of Wisconsin, and sustains a similar relation to the high schools that the latter sustain to the primary and grammar schools. Moreover, the university maintains the closest connection with all the interests of the State, and through its extension service aims to provide a better education for all the people.

SECTION VII.

STATISTICAL TABLES FOR THE YEAR 1918.

TABLE 1.—*State universities.*

Names of universities followed by an asterisk (*) include the agricultural and mechanical colleges.

Location.	Institution.	For men, for women, or coeducational.	Faculty, collegiate and professional.	Students, collegiate, graduate, and professional.	Income.	Endowment.
1	2	3	4	5	6	7
University, Ala	University of Alabama	Coed	82	805	$177,431	$742,806
Tucson, Ariz	University of Arizona*	Coed	61	442	511,072	10,500
Fayetteville, Ark	University of Arkansas*	Coed	136	569	368,474	132,666
Berkeley, Calif	University of California*	Coed	727	7,249	3,632,986	5,490,430
Boulder, Colo	University of Colorado	Coed	200	1,203	988,000	80,000
Gainesville, Fla	University of Florida*	Men	51	310	281,906	.....
Athens, Ga	University of Georgia*	Men	82	725	475,647	379,168
Moscow, Idaho	University of Idaho*	Coed	103	453	387,575	1,500,000
Urbana, Ill	University of Illinois*	Coed	791	5,087	3,075,400	849,012
Bloomington, Ind	Indiana University	Coed	206	2,659	754,582	878,400
Iowa City, Iowa	State University of Iowa	Coed	260	3,503	1,722,594	336,813
Lawrence, Kans	University of Kansas	Coed	243	2,270	920,980	.....
Lexington, Ky	University of Kentucky*	Coed	100	719	627,247	187,185
Baton Rouge, La	Louisiana State University and Agricultural and Mechanical College*	Coed	70	752	368,712	318,712
Orono, Me	University of Maine*	Coed	95	913	375,129	252,050
Ann Arbor, Mich	University of Michigan	Coed	438	5,942	2,647,883	1,326,412
Minneapolis, Minn	University of Minnesota*	Coed	538	4,972	2,803,703	1,785,570
University, Miss	University of Mississippi	Coed	32	377	117,462	700,000
Columbia, Mo	University of Missouri*	Coed	224	3,188	1,118,961	1,309,339
Missoula, Mont	University of Montana	Coed	56	496	305,002	.....
Lincoln, Nebr	University of Nebraska*	Coed	240	3,292	1,717,702	871,507
Reno, Nev	University of Nevada*	Coed	48	324	274,275	330,554
Albuquerque, N. Mex	University of New Mexico	Coed	24	177	122,269	20,721
Chapel Hill, N. C	University of North Carolina	Coed	93	855	325,427	216,548
University, N. Dak	University of North Dakota	Coed	70	666	290,006	2,051,150
Athens, Ohio	Ohio University	Coed	66	837	336,297	153,133
Columbus, Ohio	Ohio State University*	Coed	447	4,406	2,209,386	1,035,678
Oxford, Ohio	Miami University	Coed	74	836	268,677	118,107
Norman, Okla	University of Oklahoma	Coed	190	1,050	971,944	3,670,000
Eugene, Oreg	University of Oregon	Coed	142	1,043	311,502	55,000
Columbia, S. C	University of South Carolina	Coed	32	337	159,616	.....
Vermillion, S. Dak	University of South Dakota	Coed	51	466	353,411	.....
Knoxville, Tenn	University of Tennessee*	Coed	118	833	1,344,006	405,000
Austin, Tex	University of Texas	Coed	152	2,267	1,105,778	2,000,000
Salt Lake City, Utah	University of Utah	Coed	111	1,052	331,909	20,000
Burlington, Vt	University of Vermont and State Agricultural College*	Coed	104	583	328,087	1,063,525
Charlottesville, Va	University of Virginia	Men	98	780	289,754	2,277,775
Seattle, Wash	University of Washington	Coed	217	2,771	874,154	5,000,000
Morgantown, W. Va	West Virginia University*	Coed	117	890	685,837	116,000
Madison, Wis	University of Wisconsin*	Coed	456	4,230	2,748,287	704,399
Laramie, Wyo	University of Wyoming*	Coed	41	193	305,584	239,339

TABLE 2.—*Agricultural and mechanical colleges not connected with State universities.*

Location.	Institution.	For men, or coeducational.	Faculty—collegiate and professional.	Students—collegiate, graduate, and professional.	Income.	Endowment.
1	2	3	4	5	6	7
Auburn, Ala.	Alabama Polytechnic Institute.	Coed.	87	648	$281,683	$281,500
Fort Collins, Colo.	Colorado State Agricultural College.	Coed.	70	536	373,031	202,783
Storrs, Conn.	Connecticut Agricultural College.	Coed.	35	137	151,277	256,000
Newark, Del.	Delaware College.	Coed.	41	336	391,148	280,000
Lafayette, Ind.	Purdue University.	Coed.	188	1,672	1,204,188	110,000
Ames, Iowa.	Iowa State College of Agriculture and Mechanic Arts.	Coed.	322	2,272	2,028,870	689,530
Manhattan, Kans.	Kansas State Agricultural College.	Coed.	195	1,533	1,211,903	241,346
College Park, Md.	Maryland State College of Agriculture.	Men.	49	179	416,121	221,944
Amherst, Mass.	Massachusetts Agricultural College.	Coed.	74	441	651,115	262,000
East Lansing, Mich.	Michigan Agricultural College.	Coed.	161	1,140	1,001,760	961,210
Agricultural College, Miss.	Mississippi Agricultural and Mechanical College.	Coed.	46	520	245,321	210,787
Bozeman, Mont.	Montana College of Agriculture and Mechanic Arts.	Coed.	26	194	126,335	630,250
Durham, N. H.	New Hampshire College of Agriculture and Mechanic Arts.	Coed.	73	551	347,318	950,000
New Brunswick, N. J.	Rutgers College.	Men.	43	161	158,400	891,277
State College, N. Mex.	New Mexico College of Agriculture and Mechanic Arts.	Coed.	26	13	240,525	
Ithaca, N. Y.	New York State College of Agriculture (Cornell University).	Coed.	[94]833	[94]1,160	[94]2,812,264	11,221,998
West Raleigh, N. C.	North Carolina College of Agriculture and Engineering.	Men.	60	464	388,553	125,000
Agricultural College, N. Dak.	North Dakota Agricultural College.	Coed.	55	421	471,901	1,393,777
Stillwater, Okla.	Oklahoma Agricultural and Mechanical College.	Coed.	34	505	527,552	
Corvallis, Oreg.	Oregon State Agricultural College.	Coed.	78	1,597	734,149	202,663
State College, Pa.	Pennsylvania State College.	Coed.	235	2,044	1,086,352	500,000
Kingston, R. I.	Rhode Island State College.	Coed.	28	243	182,256	50,000
Clemson College, S. C.	Clemson Agricultural College.	Men.	68	761	451,664	151,439
Brookings, S. Dak.	South Dakota State College of Agriculture and Mechanic Arts.	Coed.	61	335	709,907	390,941
College Station, Tex.	Agricultural and Mechanical College of Texas.	Men.	105	834	1,418,080	200,000
Logan, Utah.	Agricultural College of Utah.	Coed.	86	498	385,881	
Blacksburg, Va.	Virginia Agricultural and Mechanical College and Polytechnic Institute.	Men.	55	457	518,513	314,312
Pullman, Wash.	State College of Washington.	Coed.	54	1,555	742,911	906,668

[94] Entire university

TABLE 3.—*Schools of mines not connected with universities.*

Location.	Institution.	For men or coeducational.	Collegiate faculty	Collegiate and graduate students.	Income.	Endowment.
1	2	3	4	5	6	7
Golden, Colo.	Colorado School of Mines	Men	18	164	$146,746	
Houghton, Mich.	Michigan College of Mines	Men	21	69	84,958	
Butte, Mont.	Montana State School of Mines	Coed.	7	52	39,184	
Socorro, N. Mex.	New Mexico School of Mines	Coed.	8	18	45,534	
Rapid City, S. Dak.	South Dakota State School of Mines.	Coed.	13	46	43,495	

TABLE 4.—*Technological schools independent of university organization.*

Location.	Institution.	For men or coeducational.	Collegiate faculty.	Collegiate and graduate students.	Income.	Endowment.
1	2	3	4	5	6	7
Pasadena, Calif.	California College of Technology	Men	35	180	$100,671	$502,328
Atlanta, Ga.	Georgia School of Technology	Men	75	801	203,600	2,000,000
Chicago, Ill.	Armour Institute of Technology.	Men	50	469	224,630	2,500,000
Terre Haute, Ind.	Rose Polytechnic Institute	Men	16	200	43,850	850,000
Cambridge, Mass.	Massachusetts Institute of Technology.	Coed.	284	1,634	1,853,000	9,626,000
Lowell, Mass.	Lowell Textile School	Coed.	21	122	102,629	
Worcester, Mass.	Worcester Polytechnic Institute.	Men	45	429	186,687	948,875
Hoboken, N. J.	Stevens Institute of Technology.	Men	41	518	215,925	1,550,000
Alfred, N. Y.	New York State School of Clay-Working and Ceramics.	Coed.	6	45		
Brooklyn, N. Y.	Polytechnic Institute of Brooklyn.	Men	35	816	148,571	804,118
Potsdam, N. Y.	Clarkson College of Technology.	Men	9	79	22,280	350,500
Troy, N. Y.	Rensselaer Polytechnic Institute.	Men	57	588	313,458	1,571,452
Cleveland, Ohio.	Case School of Applied Science	Men	37	142	215,643	2,511,360
Philadelphia, Pa.	Drexel Institute	Coed.	48	521	204,511	2,000,000
Pittsburgh, Pa.	Carnegie Institute of Technology.	Coed.	218	1,432	718,569	9,150,000

Medical colleges rated as class A by the Council on Medical Education of the American Medical Association.

ALABAMA.

University of Alabama School of Medicine ..... Tuscaloosa.

CALIFORNIA.

Leland Stanford Junior University School of Medicine ..... San Francisco.
University of California Medical School ..... San Francisco.

COLORADO.

University of Colorado School of Medicine ..... Boulder-Denver.

CONNECTICUT.

Yale University School of Medicine ..... New Haven.

DISTRICT OF COLUMBIA.

Georgetown University School of Medicine ..... Washington.
George Washington University Medical School ..... Washington.
Howard University School of Medicine ..... Washington.

GEORGIA.

Emory University School of Medicine ..... Atlanta.
University of Georgia Medical Department ..... Augusta.

ILLINOIS.

Northwestern University Medical School ..... Chicago.
Rush Medical College (University of Chicago) ..... Chicago.
University of Illinois College of Medicine ..... Chicago.

INDIANA.

Indiana University School of Medicine ..... Bloomington-Indianapolis.

IOWA.

State University of Iowa College of Medicine ..... Iowa City.

KANSAS.

University of Kansas School of Medicine ..... Lawrence-Rosedale.

KENTUCKY.

University of Louisville Medical Department ..... Louisville.

LOUISIANA.

Tulane University of Louisiana School of Medicine ..... New Orleans.

MARYLAND.

Johns Hopkins University Medical Department ..... Baltimore.
University of Maryland School of Medicine and the College of Physicians and Surgeons ..... Baltimore.

MASSACHUSETTS.	
Boston University School of Medicine	Boston.
Medical School of Harvard University	Boston.
Tufts College Medical School	Boston.
MICHIGAN.	
Detroit College of Medicine and Surgery	Detroit.
University of Michigan Medical School	Ann Arbor.
University of Michigan Homeopathic Medical School	Ann Arbor.
MINNESOTA.	
University of Minnesota Medical School	Minneapolis.
MISSISSIPPI.	
University of Mississippi School of Medicine[a]	Oxford.
MISSOURI.	
St. Louis University School of Medicine	St. Louis.
University of Missouri School of Medicine[a]	Columbia.
Washington University Medical School	St. Louis.
NEBRASKA.	
John A. Creighton Medical College	Omaha.
University of Nebraska College of Medicine	Omaha.
NEW HAMPSHIRE.	
Dartmouth Medical School[a]	Hanover.
NEW YORK.	
Albany Medical College	Albany.
Columbia University College of Physicians and Surgeons	New York City.
Cornell University Medical College	New York City.
Long Island College Hospital	Brooklyn.
Syracuse University College of Medicine	Syracuse.
University and Bellevue Hospital Medical College	New York City.
University of Buffalo Department of Medicine	Buffalo.
NORTH CAROLINA.	
University of North Carolina School of Medicine[a]	Chapel Hill.
Wake Forrest College School of Medicine[a]	Wake Forest.
NORTH DAKOTA.	
University of North Dakota School of Medicine[a]	University.
OHIO.	
Ohio State University College of Medicine	Columbus.
University of Cincinnati College of Medicine	Cincinnati.
Western Reserve University School of Medicine	Cleveland.
OREGON.	
University of Oregon Medical School	Portland.

[a] Gives only the first two years of the medical course.

PENNSYLVANIA.

Hahnemann Medical College and Hospital	Philadelphia.
Jefferson Medical College of Philadelphia	Philadelphia.
University of Pennsylvania School of Medicine	Philadelphia.
University of Pittsburgh School of Medicine	Pittsburgh.
Woman's Medical College of Pennsylvania	Philadelphia.

SOUTH CAROLINA.

Medical College of the State of South Carolina	Charleston.

SOUTH DAKOTA.

University of South Dakota College of Medicine*	Vermilion.

TENNESSEE.

University of Tennessee College of Medicine	Memphis.
Vanderbilt University Medical Department	Nashville.

TEXAS.

Baylor University College of Medicine	Dallas.
University of Texas Department of Medicine	Galveston.

UTAH.

University of Utah School of Medicine*	Salt Lake City.

VERMONT.

University of Vermont College of Medicine	Burlington.

VIRGINIA.

Medical College of Virginia	Richmond.
University of Virginia Department of Medicine	Charlottesville.

WEST VIRGINIA.

West Virginia University School of Medicine*	Morgantown.

WISCONSIN.

Marquette University School of Medicine	Milwaukee.
University of Wisconsin Medical School*	Madison.

* Gives only the first two years of the medical course.

INDEX.