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ABSTRACT

The historical evolution of vocational education is discussed in an attempt to show that obvious comparisons can be drawn between the industrial education movement and debate of American educational history and the concepts of career education today. The document covers the period from the mid-1800's to the present. Major factors influencing the development of vocational education are highlighted: the establishment of trade schools in the 1800's, Industrial Revolution, the industrial education movement, the American Civil War, federal legislation (e.g. Morrill Land Grant Act), foreign educational influence, the manual education movement, the formation of industrial arts associations, and various industrial shifts and societal changes. A bibliography is appended. (SH)

A History of Vocational Education

by

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VOCATIONAL EDUCATION

Many educators are familiar with the attacks that are currently waged against the educational system for being too abstract, not applicable to a student's future career, totally divorced from the needs of American society, or too costly in the context of increasing inflation and pragmatic needs of students. The concept of career education is currently being hotly debated by many educators today and is widely believed to be a panacea to cure many of the problems that currently exist in American society, particularly the ailing educational system.

For example, Dr. Sidney P. Marland, Commissioner of Education in the early 1970s, gave career education first priority for the United States Office of Education. Marland firmly held the conviction that career education possessed the innate capacity to stimulate vast changes in the American educational system. Dr. Marland stated:

> All education is career education, or should be. And all our efforts as educators are bent on preparing students either to become properly, usefully employed immediately upon graduation from high school, or to go on to further formal education. Anything else is nonsense.[1]

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[1] Sidney P. Marland, Jr., Marland on Career Education, reprinted from American Education (November 1971), Washington, D.C.: United States Office of Education.

In addition, in 1971 Robert Taylor of the Center for Vocational and Technical Education at Ohio State University commented that career education is designed for all students, to prepare them for any or all of their roles in life. ". . . Career education should be viewed as lifelong and pervasive, permeating the entire school program and extending beyond it."[2] To continue, Keith Goldhammer has commented that career education is a useful mechanism whereby the individual, through the school, is given the opportunity to develop to this fullest capability and potential for individual self-fulfillment, thus having a positive effect on himself as well as society.[3]

To those familiar with the educational history of the United States, these comments, though just a small sample, may ring loudly an echo of the industrial education debate that swept across this country in the nineteenth and early twentieth century. Since this movement had an effect upon virtually thousands, we shall travel back into American educational history and analyze some of the significant developments of this movement, keeping in mind that, like career education, industrial education was commonly believed to be the cure for an ailing educational system.

Industrial education is an extremely complex and all-encompassing term. It is a term that can be used to apply to the education of people

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[2]Robert E. Taylor, "Perspectives on Career Education," speech presented to the Career Education and Manpower Development Seminar, National Academy for School Executives, Atlanta, Georgia, November 18, 1971.

[3]Keith Goldhammer, "Notes on a Careers Curriculum" (Columbus: The Center for Vocational and Technical Education, the Ohio State University) as cited by Robert E. Blum, "Overview of Career Education," ERIC ED092733, April 8, 1974, p. 2.

for employment as skilled, semiskilled, technical, semitechnical or professional endeavors.

> The term has also come to include education derived from industrial processes, but included in school programs as a part of the general educational program, though without specific vocational content. Industrial education, in its broadest sense, includes trade and technical education at all levels as offered in elementary courses, trade schools, technical institutes, high school, colleges, and universities.[4]

Charles A. Bennett in two works, History of Manual and Industrial Education up to 1870 (1926) and History of Manual and Industrial Education 1870-1917 (1937) notes that even prior to the Ranaissance the idea of industrial and manual arts was the concern of philosophers and theologians. However, our analysis will be concentrated on much more recent history.

The growth and development of industrial education in America was definitely influenced by the developments in Europe. The principal of free education at public expense that existed in America was an extremely fertile field to sow the seeds of new ideas.

Berenice M. Fisher in Industrial Education: American Ideals and Institutions (1967) points out that the debate about industrial education has been, and continues to be, an argument that concerns itself primarily with the role that industry should play in American life. She further contends that the chief argument that lends a supportive role to the development of industry has been clustered around the desire to fulfill America's economic destiny and to utilize her natural resources to the fullest extent.

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[4]Colliers Encyclopedia, 1968 ed., s. v. "Industrial Education," by J. J. Ray.

> Although this argument has roots which extend as far back as pre-colonial days, its force first became evident toward the end of the eighteenth and in the early years of the nineteenth centuries, when national leaders began to debate the advisability of imposing tariffs on manufactured products.[5]

It seems that no matter how far we venture back into educational history and literature, "it is impossible to find a period when the problems of industrial education were not with us,"[6] or at least so believed Albert H. Leake. The advent of industry from its very rudimentary forms perhaps even to the present is the tale of man's power to direct and exert an extensive degree of influence over nature and thus his environment for his own use and benefit. The effects of the Industrial Revolution here in America manifest themselves in the very fabric of American life in terms of economic, social and even moral life.

The American Civil War in many ways marked the end of a system of apprenticeship that caused the development of a new and different system to take the place in some ways of the apprenticeship system. Machines began to replace the men who had formerly done work by hand. Small shops gave way to large factories. The apprentice no longer learned skills and values from a master craftsman. And even the idea of a master craftsman lost its significance. Workers were being put into large factories and only worked on small parts of the total output; they no longer were able to comprehend the relationship between their job and the finished product.

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[5]Berenice Fisher, Industrial Education: American Ideals and Institutions (Madison, Wisconsin: University of Wisconsin Press, 1967), pp. 3-4. See also Fisher, Chapter 1.

[6]Albert H. Leake, Industrial Education: Its Problems, Methods and Dangers (New York: Houghton Mifflin Co., 1913), p. 3.

The complexity of systems of industrial training, combined with the types of industrial schools, tended to support the idea that not one single variety of training was totally adequate for the industrial training of the worker. Sears is of the opinion that since 1870, "industrial history has shown greater and greater efficiency in the development of manufacturing. Processes, methods, machines have been steadily perfected."[7]

> Leisurely craftsmanship disappeared after the effects of the Industrial Revolution became manifest. Local industries gave way to national industries competing for world markets. Quantity production supplanted small production. The artisan gave way to the machine. The journeyman no longer owned his tools, and his dependence upon a capitalist became fixed.[8]

In 1906 the National Society for the Promotion of Industrial Education was founded. This organization was composed of many outstanding persons from education, industry and politics. In its constituency this organization represented the entire gamut of the industrial education debate, and by 1917 it helped win one of the greatest victories for vocational education proponents--the passage of the Smith-Hughes Act.

When we analyze the entire spectrum of industrial education during this time, it can be divided into several divisions. These separations are based upon typologies of institutions. To illustrate, Bulletin 17 of the Federal Board for Vocational Education lists six types of trade or industrial schools or classes which may be organized under the provisions of the Smith-Hughes Act. They are:

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[7]William P. Sears, Jr., The Roots of Vocational Education (New York: John Wiley & Sons, 1931), p. 107.

[8]Ibid.

1. Unit trade schools
2. General industrial schools in cities under 25,000 in population
3. Part-time trade extension schools
4. Part-time trade preparatory schools
5. Part-time continuation schools
6. Evening schools[9]

For the moment, we shall turn our attention to describing the types of industrial schools as outlined in an effort to broaden our understanding of the entire industrial education movement.

During the mid-1800s, private trade schools were established for the prime purpose of elevating the lot, if you will, of members of the working classes. Generally the private schools were organized around a single trade. Among some of the more noteworthy trade schools were: the New York Trade School (1881), the Philadelphia Builders Exchange (1890), Drexel Institute (1892), and the Manhattan Trade School for Girls (1901).[10] Sears also points out that since 1907 many city systems of education had taken over the administration of some of the private schools. He further notes that New York City had founded the Vocational School for Boys (1909), the Murray Hill Vocational School (1914), and the Brooklyn Vocational School for Boys (1915).[11]

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[9] Ibid., p. 105. I indicated the typology of institutions as developed by the Federal Board of Vocational Education only to illustrate a codified division.

[10] Ibid., p. 109. See also Thomas Woody, A History of Women's Education in the United States, Vol. II (New York: Science Press, 1929), Chapter II.

[11] Sears, Roots of Vocational Education, p. 109.

As a logical outgrowth of the Industrial Revolution and the subsequent specialized worker, many industries attempted to give their workers training in order to increase efficiency and thus increase their productivity. Therefore, many industries set up factory schools and one of the first was that of Hoe and Company of New York City which, in 1872, set up a plant school for the purpose of training apprentices in the skilled trades and in particular the machinist trade. Several other plant schools were established, among which were the Westinghouse Electric Company in 1888, the General Electric and Baldwin Locomotive Works in 1901, and the International Harvester Company in 1907, among others.[12]

The general importance of education held by many and the need for some type of industrial education, combined with the failing of many of the existing educational institutions caused the creation of correspondence schools. Two basic types of correspondence schools existed. One was the proprietary school whose prime reason for existance was the profit motive, and the second was the non-profit, tax supported institution frequently affiliated with a college or technical school.

Basically, the concept of the evening school had its roots deeply planted in the idea of studying in one's spare time. Sears points out the fact that during the Colonial period, evening schools were quite common. The purpose of these evening schools was chiefly vocational, adding to the work of the apprentice and others who were involved in the contemporary

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[12]Ibid., p. 111.

occupations of the time.[13] The idea of an evening school seems to have been well accepted and it currently enjoys a prominent place in the total scheme of American education.

The part-time institution was a concerted effort to try to fit education into the "modern" industrial world.

These schools were obviously very successful in their purpose and many still exist today. Recently, the Carnegie Commission on Higher Education released a report entitled Toward a Learning Society in which it pointed out that the range of post-secondary educational opportunities is vast and includes not only colleges and universities which are not the largest segment of it but private trade, technical, and business schools, correspondence schools, educational programs in business and industry, etc.[14]

The industrial education movement in the United States grew rapidly. By the year 1870 the Mechanic Institute Movement which had begun in 1820 had done a considerable amount of important work providing instruction in secondary education as well as in technical subjects. Some of the most famous of these institutes were the Franklin Institute of Philadelphia, Pennsylvania, the General Society of Mechanics and Tradesmen of New York, and the Ohio Mechanics Institute located in Cincinnati. By 1827, the Gardiner Lyceum located in Gardiner, Maine had become one of the primary institutions in leading the movement toward higher education in the applied

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[13] Ibid., p. 113.

[14] Carnegie Commission on Higher Education, Toward a Learning Society (New York: McGraw-Hill, 1973).

sciences. It had done this by offering a three year science curriculum which included civil engineering, surveying, navigation, mechanics, and agricultural chemistry. The Rensselaer School which had been founded in 1824 and which had become the Rensselaer Polytechnic Institute had become America's most famous school of engineering.[15] The Sheffield Scientific School was established at Yale College in 1847, the Lawrence Scientific School at Harvard College, in 1847, and the Chandler Scientific School at Dartmouth College in 1852.[16]

In 1862 the Morrill Land Grant Act had been passed which provided for the endowment of higher educational institutions in agriculture and mechanical arts.[17] This development in the applied sciences was causing the industries of the nation to benefit, but simultaneously there remained an increasing importance of work for the purpose of training more engineers, persons to design machinery, factory managers, and other persons for both scientific principles and pragmatic details. This type of training was to incorporate instruction in both the mechanical arts and the processes of manufacturing as well as in terms of mathematics and science.

One of the first educational institutions that made adequate provision for this type of education was the Worcester County Free Institute

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[15]For a description of Rensselaer Polytechnic Institute, see John S. Brubacher and Willis Rudy, Higher Education in Transition: A History of American Colleges and Universities, 1636-1968 (New York: Harper & Row, 1968), pp. 30, 63, 89, 90, 102, 210, 212, 228.

[16]Charles A. Bennett, History of Manual and Industrial Education up to 1870 (Peoria, Ill.: Manual Arts Press, 1926), pp. 348-353.

[17]Ibid., pp. 353-358.

of Industrial Science opened in 1868, which later became known as the Worcester Polytechnic Institute at Worcester, Massachusetts. This new shop plan encompassed two important features. They were: (1) the shop was to be run on a commercial basis, and it was to produce articles for the purpose of sale, and (2) the entire operation of the shop was to be done by the students for the purpose of teaching them how to operate it; and no pay was to be received by them for their work.[18] The purpose of the shop work can be equated to work done in a scientific laboratory. Instruction included pattern making, elements of cabinet making, and various forms of machinists' work. It was felt that combining shop work and other types of studies into one course would be advantageous to both.[19] Shortly after the establishment of the shop work type of teaching method at the Worcester School, several other engineering institutions started to incorporate this method into their curriculums.

As a result of the Russian influence in 1876, teaching of various types of industrial training grew very rapidly here in America. In many ways the movement toward manual education first gained national notoriety after the Centenial Exposition in Philadelphia, Pennsylvania of 1876. As a result of a display of workshop instruction that had been developed by the Moscow Imperial Technical School, the idea was brought forth that manual training, if properly designed, could fit into all levels of schooling.

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[18] Charles A. Bennett, History of Manual and Industrial Education 1870-1917 (Peoria: Manual Arts Press, 1937), pp. 310-312.

[19] Bennett, History of Manual and Industrial Education up to 1870, pp. 317-325.

The Russian system tended to stress a separation of the technical instruction from production. This type of instruction was aimed at teaching the future engineer, draftsman, foreman, etc. the basic principles of industrial productivity through a carefully designed series of graded manual exercises. The Russian exhibit at the exposition strongly influenced John D. Runkle who was president of the Massachusetts Institute of Technology and Calvin M. Woodward, professor of Mathematics and applied mechanics at Washington University and later head of Manual Training School at the University.

Calvin M. Woodward (1837-1914) was one of the major proponents in promoting the development of manual training into the school program with the same significance as any other course of study. Basically, Woodward felt that shopwork, and thus the mechanic arts, were to be taught like any other academic type of subject. Thus if the mechanic arts were so taught, they would not be used exclusively for the purpose of teaching trades, but this method would be beneficial because manual training was capable of educating the mind through the hand. Therefore, Woodward was basically stressing that manual training tended to be as broad and liberal as intellectual training. Woodward was arguing that everyone tended to gain from this process since it stressed the moral values of precision, logic, diligence, and economy. Lazerson and Grubb note that the manual education movement here in this country tended to have a multiplicity of themes. Essentially, those themes were:

1. Industrial effleiency

2. pedagogical reform

3. the preparation of skilled workers[20]

The pronponents of manual training like many other Americans of the last half of the nineteenth century tended to idealize and to look back to pre-antebellum America with a certain degree of romanticism. However, this romanticism may have been a nostalgic oversimplication of the era. They tended to view America in its pre-antebellum days as a societal network composed of a homogeneous structure of institutions. The home tended to teach children moral values. The workshops tended to be extensions of the home, instilled with the value of work, and passed on to youth traditional skills as well as attitudes. For girls in particular, the home was a unit that not only passed on moral values but also taught domestic practices and stressed the stability and strength of the family. Religious institutions concerned themselves with morality. The school was able to build on the values and morality that had been taught and added literacy to the training of youth. In the last analysis, pre-Civil War society was perceived as a series of institutions--the home, workshop, religious organization, and school--all working in harmony with one another in the process of educating youth.[21] Frequently when looking back at the past

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[20]Marvin Lazerson and W. Norton Grubb, eds., American Education and Vocationalism: A Documentary History 1870-1970 (New York: Teachers College Press, 1974), p. 7.

[21]This point was brought out in a report by John D. Runkle, President of the Massachusetts Institute of Technology, who noted in 1878 that the changes in society caused by industrialization fostered a need for America's schools to modify their position and to teach more pragmatic subjects than had been taught previously. See John D. Runkle, "The Manual Element in

there is a danger of being over-romantic, of slighting injustices and difficulties that existed. Society may never have been, or for that matter may never be, quite as simplistic as this description supposes, but it should be remembered that this is the way many late nineteenth century Americans tended to view the past.

The first high school in America dedicated to manual training was the Manual Training School of Washington University located in St. Louis, Missouri. It began operation in 1880, designed as a three-year secondary school, and included courses in its curriculum in shopwork, drawing, as well as courses in mathematics, science and language. Each of the potential students seeking admission to the Manual Training School was given an examination in spelling, arithmetic, geography and penmanship. Basically, it should be observed that the school's primary objective was not preparing its students for college; however, college preparation was possible within the structure of the curriculum.

With the Manual Training School successfully under way, Woodward, like John D. Runkle, was able to give his full attention to campaigning for manual training as an essential segment to general education. In addition, Woodward became one of the major proponents of manual training, and it can be argued that he in fact became the leader of this educational movement.

Education," in Massachusetts State Board of Education, Forty-First Annual Report of the Board Together with the Annual Report of the Secretary of the Board (Boston, 1878), pp. 185-188, cited by Lazerson and Grubb, American Education and Vocationalism, pp. 57-60.

However, although Woodward and Runkle seemed to agree on the methods and purposes of manual training, their arguments tended to incorporate a degree of uncertainty which had a tendency to undermine the expansion of the manual training movement. Originally Runkle and Woodward has asserted that manual training should be aimed at educating America's industrial leaders and her professional engineers. On the next level, Runkle, as well as Woodward, emphasized that their system of manual training would firmly establish a corps of skilled technicians who would be capable of supervising the output of American industry, thereby increasing productivity and contributing toward greater efficiency because they would have a workable insight into the complexities of industrialization. Manual training, they believed, would meet the country's need for skilled labor. The worker's child would have the possibility of upward social mobility as a result of education. Thus, manual training was geared toward future vocations. As previously noted, Runkle and Woodward stressed that manual training was as broad and liberal as intellectual training. And Woodward firmly believed that all would gain from manual training because, as mentioned, it taught moral values of precision, logic, economy, and diligence. Incidentally, Woodward and Runkle firmly believed that through the implementation of their systems of education, a democratic system with great appeal to students would thus emerge. Many of the major supporters of manual training were the leaders of America's industries who thought that the schools could be used as a source to supply the needs of industry.

This argument in many ways reminds us of the principles with which Sidney P. Marland has asserted for career education. Perhaps it can be argued that Marland, like John Runkle and Calvin Woodward, believed that his plan of education tended to balance the abstract intellectual training of the contemporary school with more practical and relevant learning experiences.

Before turning our analysis to specific examples of industrial or manual training, certain other factors should be brought to light. By the dawn of the twentieth century, the conditions which had fostered the development of manual training seemed to grow stronger. The growth of this country's industrialization steamed further ahead and the skilled laborers of the past were replaced by the unskilled who were required to tend the machines of industrialization. As a corollary to industrialization was the immigration into America's cities from overseas as well as rural areas. With this immigration, the troubles and traumas of the cities were accentuated. Previously the city had been primarily local in nature. Its markets were geared to the needs of the immediate surroundings. But by the early 1900s New York, Chicago, and Philadelphia had all passed the million mark in terms of their population. This tremendously rapid, unplanned and unprecidented growth had developed hand in hand with a multiplicity of problems. Some of these problems were disease, poverty, housing, crime, child welfare, etc. There was also a lack of adequate provisions for fire prevention, crime prevention, transportation, as well as countless other services.

By the turn of the century big business had become one of the most powerful forces in America, if not the most powerful. By 1900 America had slightly less than 200,000 miles of railroad tracks. That was more than all of Europe had combined. It was an era of such people as John D. Rockefeller, the oil giant, Andrew Carnegie, J. P. Morgan, etc. By 1900 labor unions were firmly established after having asserted their rights for existence with much violence and hatred already taking place between organized labor and capital. As time progressed, the frequency of violent disputes between the forces was decreasing. However, for the purposes of this analysis, it is not essential to describe in exact detail any of these events, but merely to instruct the reader to keep these factors in mind.

During the first quarter of this century, there tended to be a gradual clarification in the meaning of the term "manual training." There was a shifting away from its emphasis on the manual aspect to the term "industrial arts." "Industrial arts" emphasized industrial techniques and this new term came to be applied to all instruction that was involved in elementary schools.[22] Industrial art generally was in the form of some type of mechanical drawing and/or design.

In New York City as well as in other urban areas, the beginnings of industrial or manual type training into public elementary schools can be linked to the efforts of church missions or of private philanthropy. Because sewing, cooking and woodworking instruction were deemed to be of significant value to the small percentage of boys and girls who attended

[22] Collier's Encyclopedia, p. 737.

privately supported institutions, it became a widely held belief that this type of instruction would benefit all if made part of the public school curriculum.[23]

Perhaps if we briefly analyze one example of an experiment in this type of education, it will help us to better understand the industrial education movement. The Kitchen Garden Association was established under the direction of Emily Huntington. This organization later became the Industrial Education Association and ultimately through the efforts of Grade Dodge developed into the New York College for the Training of Teachers, and then Teachers College, Columbia University. Briefly, in 1874 Emily Huntington came to New York City to become the head mistress of the Wilson Industrial School for Girls which at that time was located at Saint Mark's Place. Charles A. Bennett describes that institution as "an institution founded in 1854 and supported by charitable Christian women."[24]

Albert Leake notes that the term "kitchen gardening" was widely used to describe that type of training for children which was devoted primarily to domestic work. This type of training was generally taught in the form of play. "Toy utensils were used, and the operation was conducted on a scale proportioned to the size of the utensil. The method was used with children five years old and upwards, . . ."[25]

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[23] Bennett, History of Manual and Industrial Education 1870-1917, p. 411.

[24] Ibid., p. 412.

[25] Albert Leake, The Vocational Education of Girls and Women (New York: Macmillan Co., 1918), p. 20.

Basically, the kitchen garden method, as introduced by Emily Huntington in 1877, can be referred to as the kindergarten of household instruction. Through the words of Ms. Huntington, perhaps we can gain an insight into the method she devised. Writing in 1901, she described it as follows:

> Kitchen garden is a system by which children are taught the many little duties, which, when properly performed, go to make a home comfortable, except the cooking of food. The system is a combination of songs, exercises, and plays, designed in a thoroughly practical way to train a child in simple household work. It is divided into six distinct parts or occupations, each taking a month to master. They comprehend the following details: kindling fires, waiting on the door, bed making, sweeping and dusting, completely arranging a room, with the manipulations of a broom, whisk broom, etc.; also all laundry processes from the preparation of the tubs to the polishing and folding; scrubbing; and laying a dinner table in the due order of courses. In connection with this a pricking lesson teaches in kindergarten style the parts of beef and mutton and how to cook and cut each. Last of all comes the pie play. Molding clay as a substitute for pastry and dough, the children knead bread, turn tiny rolls, cut out biscuits, and make pies. All the lessons are enlivened and emphasized with appropriate songs. Thus with the simple device of toy appliances for real domestic apparatus, the children acquire the order, precision, and neatness essential to household service. The age of the children taught varies from six to sixteen.[26]

Grade Dodge became interested in this experiment and through her efforts she enlisted the help of many other persons. In 1880, the Kitchen Garden Association was organized and sought to promote its type of instruction which became very popular.

By approximately 1884, the members of the association saw that a need existed and felt a desire to broaden the work of the association and

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[26] Emily Huntington, How To Teach the Kitchen Garden or Object-Lessons In Household Work, cited by Leako, Vocational Education of Girls and Women pp. 20-21.

include some type of industrial training for older children. Therefore it was decided to abandon the work of the Kitchen Garden Association on March 21, 1884 and simultaneously the Industrial Education Association was formed.[27] The Constitution of the new organization outlined its purpose as:

First--To obtain and disseminate information upon Industrial Education, and to stimulate public opinion in its favor.

Second--To invite cooperation between existing organizations engaged in any form of Industrial Training..

Third--To train women and girls in Domestic Economy and to promote the training of both sexes in such industries as shall enable those trained to become self-supporting.

Fourth--To study and devise methods and systems of industrial training and secure their introduction into schools; also, when expedient, to form special classes and schools for such instruction.

Fifth--To provide instructors for schools and classes and, if necessary to train teachers for this work.[28]

The new organization brought many prominent people together. For example, Alexander Webb, then president of New York City College, was elected president. Frederick Barnard, Seth Low, and others were members of this organization as well. Very rapidly the association acquired an international reputation and began to function as a clearinghouse on industrial education.

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[27] See Abbie Graham, Grace H. Dodge: Merchant of Dreams (New York: Woman's Press, 1926), p. 121.

[28] As cited in Bennett, History of Manual and Industrial Education 1870-1917, p. 413.

The second annual report of the Industrial Education Association sought to explain the use of the word "industrial" in its name. Generally, it is widely believed that the purpose of this organization was primarily for the teaching of trades and to implement trade training as a feature of public educational systems. In an effort to change this view, the report quoted from an article by W. Gladden in "The Century":

> There is an industrial training which is neither technical nor professional, which is calculated to make better men and better citizens of the pupils, no matter what calling they may afterward follow; which affects directly, and which will be of constant service to him through all his life, whether he be wage worker or trader, teacher or clergyman. The training of the eye and of the hand are important and essential elements in all good education. These elements the State is bound to furnish.[29]

Gladden's article exemplifies the types of training that was to be the foundation for the curriculum of the Industrial Education Association. It was to be a type of instruction that was to transcend mere technical training. It was to combine a system of education that students would be able to use throughout their entire lives, regardless of whatever else they were to do. In a sense, it stressed a type of moral or intellectual training which no doubt became an extremely crucial phrase of the Industrial Education Movement. The reader is reminded to refer back to the statements made by Sidney P. Marland and Robert Taylor in defense of career education.

As already noted, when the Industrial Education Association was formed, one of its stated purposes was to train and provide teachers that

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[29] Ibid., pp. 413-414. The reader is cautioned to keep in mind the arguments previously discussed, particularly remembering Woodward's and Runkle's charges that this type of training was capable of training the mind through the hand.

were capable of teaching industrial education courses. It became evident immediately that to take on the responsibilities of a teacher training college, guidance was needed from an expert educator. A search began at once for the right man for the presidency.[30] Nicholas Murray Butler was selected as the first president of the New York College for the Training of Teachers (later to become known as Teachers College, Columbia University) and simultaneously maintained a post as professor of philosophy and education at Columbia University. The first announcements of the institution stated, "for the present at least the instruction given will be almost wholly confined to those hitherto neglected factors in education which may be included under the name industrial education."[31]

In 1891 Butler resigned his presidency of the New York College for the Training of Teachers and Walter L. Hervey became the President. The year 1892 saw the introduction of a special course in woodworking and mechanical drawing given primarily for teachers and supervisors of manual training. On July 1, 1893 the degree conferring power of the institution was placed under the jurisdiction of Columbia University. The growth and development of this institution is only one of the many examples of institutions that can legitimately be placed under the rubric of "industrial education." In a period of twenty years, Teachers College had developed

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[30] Issac Edwards Clarke, Art and Industry, U.S. Bureau of Education 1885-1889, p. 295, cited by Bennett, History of Manual and Industrial Education 1870-1917, p. 467.

[31] Bennett, History of Manual and Industrial Education 1870-1917, p. 467.

from a philanthropic endeavor training young children in work skills into a teachers' college that stressed manual training and ultimately into an institution that was an advanced teacher preparatory school.[32]

But while manual training was being placed into operation in many schools there tended to be a gradual and deadly shifting away from its original ideology. For example, the widely held view that hand learning would tend to alter pedagogical learning for the better was proven to be untrue. The curriculum was essentially the same, and students were still taught in the traditional way, only now tools were added. The transfer of training idea that manual training had rested upon was being replaced by the concept that learning must be directed toward an immediate end. Many began to question the goals that manual training was aimed at as being unattainable. In addition, as society was changing, manual education began to lose its economic relevance.[33] Many of the previously held beliefs in favor of manual training (i.e., its moral value, the ability to improve the situation of the poor) were later picked up by vocational education advocates.

When the educational rhetoric shifted its emphasis from manual education to vocational education just before the 1900s began, the underlying differences did not appear in its methodology nor in its content. But they differed in this respect--manual training was believed to be able to train the hand and by so doing was a general cultural education.

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[32]Fisher, Industrial Education, p. 102.

[33]Lazerson and Grubb, American Education and Vocationalism, pp. 14-15.

Vocational education, on the other hand, was designed to train a student for a specific job.[34]

The Industrial Education Association is one example of an experiment in the larger manual or industrial education movement, but certainly there were others. For example, the Manual Training High School of Baltimore, Maryland opened on March 3, 1884. The Philadelphia Manual Training School opened in 1887. These were among the first secondary schools to be supported by public funds. Although an example was cited of the development of industrial education in New York, the support that was given to this cause by the people of Montclair, New Jersey who voted in 1882 to establish a public elementary manual school, or the manual training shop established in 1882, at Jamestown, New York, as well as countless others could have been described also.

Before concluding the description of "industrial education" in the United States, some additional developments will briefly be discussed--the Douglas Commission to the Massachusetts Legislature in 1906 and the creation of the National Society for the Promotion of Industrial Education. It can be argued that these two events combined to mark, in a sense, the beginning of the vocational education movement.

From the 1890s to about 1910 the vocational education movement began to illicite widespread support from almost every sector in American society that had an interest in education. Vocational education was

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[34] For a description of the vocational education debate and a documentary history of its growth, see Lazerson and Grubb, American Education and Vocationalism.

widely held to be a panacea to solve most, if not all, of the growing complexities of an industrialized society. The manual training movement, the predecessor of the vocational education movement, tended to attract the attention of different parts of society, whereas vocationalism tended to solidify itself around a strong core that incorporated every group with political power and that ultimately fostered itself in the creation of the National Society for the Promotion of Industrial Education (N.S.P.I.E.).[35]

Governor William Douglas of Massachusetts appointed a commission in 1905 for the purpose of analyzing the educational needs of the various industries located in his state:

> They shall [the report stated] investigate how far the needs are met by existing institutions, and shall consider what new forms of educational effort may be advisable, and shall make such investigations as may be practicable through printed reports and the testimony of experts as to similar educational work done by other states, by the United States government, and by foreign governments.[36]

Fisher believes that the Douglas Commission report tended to carve the beginnings of vocational education legislation, and in a sense marked a summation of the industrial education debate. She also notes that this report tended to add little to the industrial education debate that had not already been discussed but summarized many of the arguments that had been projected over the preceeding century.[37]

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[35] See Lazerson and Grubb, American Education and Vocationalism, pp. 15-32.

[36] Report of the Commission on Industrial and Technical Education, State of Massachusetts, 1906, pp. 1-2.

[37] Fisher, Industrial Education, p. 128.

The Douglas Commission did tend to negatively criticize the existing programs of manual education and recommend that a more industrially-oriented educational system be established. The Commission went so far as to urge the creation of separate public trade schools to be run independently from the existing public school system. The Commission's recommendations, notes Fisher, were interwoven with pleas of a philanthropic nature combining a concern with the need for skilled labor. There was also an appeal for "industrial intelligence"[38] based firmly on "principles" combined with a request for more democratic education and a new and different view of work in social terms.[39]

The Commission recommended for elementary schools a system of:

> [industrial] instruction and practice in the elements of productive industry, including agriculture and the mechanic and domestic arts, and that this instruction be of such a character as to secure from it the highest cultural as well as the highest industrial value; [and] that the work in the high schools be modified so that the instruction in mathematics, the sciences, and drawing shall show the application and use of these subjects in industrial life, with especial reference to local industries, so that these subjects are not designed primarily and solely for academic purposes, but that they may be utilized for the purposes of practical life.[40]

In this we can see that the Commission recommended that secondary schools give math and science courses that related to the local industries and

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[38] The Commission defined "industrial intelligence" as the mental power to see beyond the specific task that one was currently engaged in. It was the ability, in short, to see each operation in terms of what preceeded and what was to follow--the ability to see the whole process.

[39] Fisher, Industrial Education, pp. 128-129.

[40] Report of the Commission, pp. 128-129.

to their needs and also that separate industrial institutions be established to provide training to students over the age of 14-18. Finally, a state commission was established to act as an auditor of industrial schools, to establish a State-wide industrial school system, to relate the separate industrial school system to that of the state system of public education.

Bennett has summarized the findings of the commission by noting that it showed an expressed concern for training for the vocations, and that there was a practical and a personal interest shown by manufacturers as well as working persons. "Students of social phenomena" and education showed a theoretical interest in it. In addition, there was not a sufficient number of skilled workmen in industries although this lack was not chiefly a direct result of insufficient "manual dexterity" but was caused by a void in "industrial intelligence."[41] Public schools, according to the report, were not adequately meeting the problems of "modern industrial and social conditions." The public school was viewed as too literary in "spirit, scope and methods." Finally, the report stressed that the expense for an industrial educational system was the responsibility of the States and should therefore be financed by them in whole or in part.[42]

A second commission was established and it immediately proceeded to carry out the purpose for which it had been created. Fisher points out that in her [illegible]on,

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[41] See Footnote number 38 where the author has defined industrial intelligence.

[42] Bennett, History of Manual and Industrial Education 1870-1917, pp. 513-514.

> It [the commission] avoided the philanthropic and mobility-oriented aspects of the previous report and launched a fairly direct appeal for trade training, discussing the questions of time and place for such training. Each of the Massachusetts reports, however, reveals an important point; the first, that a broad industrial education movement was bound to call on many of the ideologies which had been developing for the past century; the second, that among these, the trade school idea was dominant, and undoubtly would be the major factor in shaping legislation.[43]

In 1909 the work of the Douglas Commission was taken over by the State Board of Education.

The National Society for the Promotion of Industrial Education (NSPIE) in many ways was an extension of the Douglas Commission. The findings of the Douglas Commission seemed to typify the attitude that industrial education needed the support of government. Thus the NSPIE was established for just such a purpose, and by 1917, with the passage of the Smith-Hughes Act which granted federal funds for vocational schools, they had won their greatest victory.

Those persons who became members of the NSPIE were as diverse in their background and thinking as the industrial education movement itself.[44] Basically, some of its membership included the following. Dr. James P. Haney who was at that time the director of art and manual training of the New York City School system. Charles R. Richards was professor of manual training at Teachers College, Columbia University w ad been trained at the Massachusetts Institute of Technology (MIT). On June 9, 1906 Mr.

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[43] Fisher, Industrial Education, p. 129.

[44] Ibid., p. 130.

Richards held a meeting of interested businessmen and educators, and within a few months the larger organization was established. Henry S. Pritchett, who was at that time president of the Massachusetts Institute of Technology, was elected to be president. M. W. Alexander of the General Electric Company became vice president, F. Everet Macy became treasurer, and Charles R. Richards secretary. The Board of Directors also included Milton P. Higgins, a Worcester, Massachusetts manufacturer, Robert Woods of Boston settlement house fame, Jane Addams of Hull House, Fredrick Taylor, Frerick Fish, president of American Telephone and Telegraph Co., Samuel Donnelly, as well as many others.[45]

It is sufficient for our analysis to stop at this point and merely point out that the NSPIE became extremely active in getting legislation passed which favored vocational education and which tended to solidify the needs of industry and this country into mutual compatability.

Berenice M. Fisher has identified three fundamental phases of the industrial education movement here in this country. She notes the industrial education position that:

> . . . emphasizes the prevention and cure of industrial evils became prominent before the Civil War; that which stresses success and industrial leadership began to attract widespread attention in the second half of the century; and the third which contends that industrial education should be aimed at training skilled workers as a key national resource emerged toward the end of the century.[46]

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[45] National Society for the Promotion of Industrial Education, Proceedings of the Organization Meetings, Bulletin No. 1 (New York: n.p., 1907). See also Fisher, Industrial Education and Bennett, History of Manual and Industrial Education up to 1870, pp. 517-518.

[46] Fisher, Industrial Education, p. 12.

Fisher points out that the underlying theme that tended to pervade the efforts of the prevention-and-cure camp can be termed the "philanthropic" idea, or the ideal of the "honest workman." The theme which underlies the rhetoric of the second group Fisher refers to as the ideal of "success," or occasionally the "engineering" ideal. Finally, the notion that seems to dominate the rhetoric of the third group which calls for industrial education as a method by which to utilize national resources is termed the ideal of the "skilled worker" or the "trade training" ideal.[47]

In pre-antebellum America, the idea of industrial education was believed to be a method to modify changes that were occurring in American society. Some of these changes were occurring within industry itself. As industry began to shift toward the greater use of machinery, it became increasingly more necessary to employ people in previously unaccustomed settings. The factory system, argued business people, had made the system of apprenticeship obsolete. No longer was the worker a skilled artisan making a finished product, but just one of many workers doing one specific operation and perhaps never seeing the relationship of his function to the whole product. Fisher states:

> In occupational terms, the new order was marked by instability, a movement of people into unaccustomed geographic settings and unfamiliar kinds of work. For philanthropic industrial educators, the major threat which such upheaval posed was that of the loss of independence on the worker.[48]

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[47] Ibid., pp. 12-13.

[48] Ibid., p. 14.

The worker, according to this position, would be subjected to new types of opportunities and would therefore be compelled to learn new methods and ways of coping, but, argued the philanthropists, the worker might succumb to these new challenges. The philanthropists believed that this type of independence was at the very core of American society, and they believed that this type of independence was not exclusively limited to artisans, but also was characteristic of the "small town and rural Americans." Therefore, according to Fisher, the burden of the philanthropically oriented industrial education programs was to provide the mechanism to "preserve, restore, or recapture that independence which all workers seemed to be in peril of losing."[49]

But the changes in pre-antebellum America went much deeper than growth of industry. Society, as previously mentioned, was once viewed as a group of homogeneous institutions, all contributing to the education of youth. But even before the troops from Charleston loaded their cannons and began their bombardment of Fort Sumpter on April 12, 1861, which was to mark the beginning of the American Civil War, America was changing. For example, immigration began to rapidly move forward in the 1830s and reached previously unprecedented proportions by the following decade. Almost all of these pre-antebellum immigrants came from the shores of Northern Europe, and approximately 50 percent came from Ireland. A significant percentage of these immigrants bought farms in the Midwest. Others, particularly the Irish, after having had bad experiences with farming

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[49] Ibid.

in Ireland, did not want to, or could not afford to, buy land, so they turned their hopes and aspirations to the cities and found some jobs in construction fields or in domestic endeavors. The Irish were also one of the first immigrant groups to experience prejudice and discrimination. Some factories actually went so far as placing signs stating "Irish need not apply." This type of discrimination, unfortunately, was not, and for that matter is not, exclusive of pre-Civil War America, but became characteristic of the discrimination shown many other immigrant groups, i.e., Chinese, Jews, Italians, etc.

Society was changing in some other, more positive, ways. Greater productivity and efficiency were occurring in agriculture. By the time of the Civil War, the steel plow, the reaper, and the mechanical thresher were invented and had revolutionized the agricultural industry. This mechanization of farming made specialization a possibility, and tied to this was the expansion of markets for farm goods in the East which was becoming more and more industrialized. Mechanization, in short, made specialization profitable. Subsistence farming quickly disappeared and commercial farming emerged. Wheat, corn, cattle, sheep, and hogs were supplied by the West and in turn the Eastern industries were selling their goods to the West.

By 1860 the railroads had become the principle means of transportation of people as well as of various types of goods and services. This country was tied together by a vast system of steel rails. By the time of the outbreak of the Civil War, railroad transportation was considerably cheaper and much faster than any other form of overland transportation.

It was not quite as inexpensive as canal or river transportation, but it was much more dependable, faster, and more flexible. In addition, it tied together many areas of this country that were land-locked. Also, two very significant developments in communication systems--the telegraph and the postal system--appeared. By 1858 the first trans-Atlantic cable was laid. By 1860 there were over 50,000 miles of telegraph cable strung, and by 1861 communication by cable went from coast to coast. Thus we see that America was changing, and many believed that industrial training possessed the key to unlock a solution to America's growing pains.

Also included under Fisher's heading of the "Philanthropic Ideal" were those industrial educators who concerned themselves primarily with those persons who had migrated into urban areas. Of special concern to this group was the condition of the children of the worker. Therefore, as a result of this situation, programs of industrial education began to appear as "part of the movements for penal reform, kindergartens, playgrounds, and a host of social-work schemes which continued to present themselves through the end of the century."[50]

The tremendous increase of industrialization and industrial activity that came after the Civil War tended to put the self-made man in the limelight. This post Civil War period was marked by enormous economic growth. It saw the development of the Big Business mentality and saw the exploitation of the farmer as well as that of industrial labor. It was a period of governmental corruption by big business and was an era of the

[50] Ibid., p. 15.

"Robber Barons" and "the Great Corrupters." The widely held image of the self-made man, with the Big Business mentality, who had first amassed tremendous wealth by cutthroat competition and then toward the end of the century by a shrewd merging of various businesses, was an extremely potent force in the post-Civil War image of industrial education.[51]

This new concept of the ideal of success tended to combine itself with the concept of the philanthropic ideal. Fisher further makes the assertion that as the industrial world grew more complex, "several ideals could thrive, that of the honest workman no less that of the self-made man."[52] Although the belief in the concept of the worker's independence played a significant role in both of these ideologies, the attitude of social harmony and well-being "within one's own group had shaped the philanthropic interpretation of independence, its limits were less rigidly defined in the new social climate."[53]

However, as Fisher notes, the idea of the self-made man was in many ways ironic. She points out that even those who shunned education and other independent attempts at success realized that learning had to be acquired in a social setting that involved encounters with others. Therefore they had to attempt to get manufacturing training from the people in the shops or factories around them. Thus, even ". . . the

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[51] Ibid., p. 50.

[52] Ibid.

[53] Ibid., p. 51.

proponents of self-education had to acknowledge the role of the setting as they evolved their formula for success."[54]

These new proponents of post-Civil War industrial education also believed that youth must get ahead, but strongly clung to the idea that at specific times in the lives of youths formal education was of particular importance. Keeping these factors in mind, these educators did not reject the ideal of the "self-made man" in total but instead used it as a basic outline, put together a new idea of success, and combined a different view for career timing as well as for the educational setting.[55]

Fisher gives examples of such a group of educators who tended to mesh their concern in the idea of mobility with a staunch commitment to scientific education. She further notes that this group's interpretation of social mobility tended to vary based upon their idea of scientific study.[56]

> . . . Daniel Coit Gilman, at one extreme, thought in terms of membership in a scientific research elite; Andrew White, at the other, interpreted scientific education in terms of technological progress and the raising up of industrial leaders who could build a better country.[57]

A second group, according to Fisher's categories, was a group of engineering educators who followed White's concept and thus believed industrial leadership would develop that had its roots firmly planted in the sod of science and technology, and one that most assuredly would

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[54] Ibid.

[55] Ibid.

[56] Ibid., Chapter 3.

[57] Ibid., p. 51.

produce leaders capable and willing to lead the nation. However, this group was compelled to refine this concept and arrive at a verdict as to the attitude that science alone was capable of dictating the qualities for leadership positions or whether business ideals were to be considered. Once engineers had resolved this conflict and developed their own ideal, they then could turn their attentions to the problem of educating people in the lower strata of the industrial sphere. Mobility for the people in the lower stratas of society was not always believed to be a desirable situation. Simultaneously as the engineering educators were abandoning their image of "rising youth" secondary school educators were beginning to adapt their position and make the ideal of the socially mobile engineer a significant part of the plan that they devised for industrial education.[58]

The third phase of the industrial education movement, as defined by Fisher's categories, evolved after the turn of the century. This phase encompassed the idea of trade training and seems to have gained wide acceptance among professional educators. About 1900, notes Fisher, the advocates of trade-schools began to attack the National Education Association and by 1910 came out with a program and gave support to the idea of trade training for secondary schools while maintaining a form of manual training in the elementary schools.[59]

The ideal of the skilled workman encompassed the attitude of industrial efficiency which tended to have conflicting elements. To some,

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[58] Ibid., p. 52.

[59] Ibid., p. 85.

the idea of industrial efficiency, tied to the development of manufacturing and a division of labor, brought with it feelings of eventual prosperity and relative well-being and security to the populace in general. However, not everyone felt this way. Some viewed giant industry as a threat to the tenets of democracy and equality. The growth of big business resulted in circumscribed mobility. As a result, the "rags-to-riches" era that characterized the ambitious climber was to be abandoned. The trade-school advocates were forced to develop a new idea that could reach a workable compromise between the pre-antebellum ideal of the honest workman with that of the mobile workman.

Industrial management--or as Fisher calls it, "circumscribed mobility"--is one example of this new compromise. Here planning and each phase of production was analyzed. Thus the educational task became one of devising an industrial training in an industrial world that was becoming increasingly more complex and which tended to break production down into minute tasks and occuaptional niches. However, the division of labor was not the only method to achieve efficiency for it was felt that it was possible to break a task down too much and thus have a negative impact on efficiency.[60]

Before the turn of the twentieth century, exponents of industrial education seemed not to concern themselves with the geographic settings upon which their plans would be utilized. Industrial educators tended to assume that many of their concepts would be put into use in the Northeast since that was the heaviest industrialized area of this country. The

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[60]Ibid., pp. 85-86.

point that is to be stressed, and that Fisher also notes is that as industrialization spread and workers sought training in order to become economically independent, communities, particularly heavily industrialized areas, began to modify the programs that they developed to fit their individual needs.

In analyzing this movement it becomes clear that each phase overlapped with one another. Actually, industrial education may be more accurately viewed as a philosophy or type of education that existed similar to labeling a type of education post-secondary, for example. Just as this type of education may vary from place to place, so did industrial education, and if one reads the Carnegie Commission Report, Toward a Learning Society, it will be noted that there are many types of post-secondary educational institutions, i.e., (1) colleges, universities, community colleges, (2) private trade, technical and vocational schools, (3) educational programs in business and industry, (4) educational opportunities in the military, etc., to name just a few.[61]

In conclusion, we have seen that industrial education was extremely relevant to the needs of a changing society in that it provided a pragmatic approach to education leading to skills for employment and, in this way, allowed people to make a positive contribution to society. An important aspect of industrial education was that it helped to train the students' mind through the training of the "hand," and thus was considered to be as broad and liberal as intellectual training. It also led to the upward

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[61] Carnegie Commission, Toward a Learning Society.

mobility of students. Whether this is good or bad is not for us to say. What we are saying, however, is that obvious comparisons can be drawn between the industrial education movement and debate of our educational history and the concept of career education today, and the conclusions are left for the reader to determine.

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