

**AN INTERPRETIVE  
HISTORY  
OF INDUSTRIAL ARTS**

**1981**

*American Council on  
Industrial Arts Teacher Education*

**30th yearbook**

AN INTERPRETIVE HISTORY  
OF INDUSTRIAL ARTS:

The Interrelationship  
of Society, Education,  
and Industrial Arts



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OF INDUSTRIAL ARTS:

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of Society, Education,  
and Industrial Arts

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**30th yearbook 1981**

*American Council on  
Industrial Arts Teacher Education*

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# Foreword

Yearbooks have been developed and presented to the profession by the American Council on Industrial Arts Teacher Education for three decades. Each topic of the series has been carefully screened and proposed to the profession for authorship.

The yearbook series has been an outstanding sequence of scholarly presentations and is looked at as a significant part of our professional literature. This yearbook, being the 30th yearbook in the series, carries on the fine tradition of its predecessors.

Richard Barella and Thomas Wright, as editors of *An Interpretive History of Industrial Arts: The Interrelationship of Society, Education and Industrial Arts*, have provided us with a publication that promises to be a valuable resource in our field. Industrial education has a rich and compelling history, yet in many cases it is not easy to draw it out. This yearbook does this in an “interpretive” manner and thus opens up new views of our past. The viewpoints from our early European and Colonial heritages, the influence of forces that have shaped the development of industrial arts, and the redirections that it has taken come alive in this work.

Our thanks to the editors and authors of this 30th yearbook.

M. James Bensen,  
President 1981-82

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# Yearbook Proposals

Each year, at the AIAA national convention, the ACIATE Yearbook Committee reviews the progress of yearbooks in preparation and evaluates proposals for additional yearbooks. Any member is welcome to submit a yearbook proposal. It should be written in sufficient detail for the committee to be able to understand the proposed substance and format, and sent to the committee chairman by February 1 of the year in which the convention is held. Below are the criteria employed by the committee in making yearbook selections.

ACIATE Yearbook Committee

## Guidelines for ACIATE Yearbook Topic Selection

With reference to a specific topic:

1. It should make a direct contribution to the understanding and the improvement of industrial arts teacher education.
2. It should avoid duplication of the publications activities of other professional groups.
3. It should confine its content to professional education subject matter of a kind that does not infringe upon the area of textbook publication which treats a specific body of subject matter in a structured, formal way.
4. It should not be exploited as an opportunity to promote and publicize one man's or one institution's philosophy unless the volume includes other similar efforts that have enjoyed some degree of popularity and acceptance in the profession.
5. While it may encourage and extend what is generally accepted as good in existing theory and practice, it should also actively and constantly seek to upgrade and modernize professional action in the area of industrial arts teacher education.
6. It can raise controversial questions in an effort to get a national hearing and as a prelude to achieving something approaching a national consensus.
7. It may consider as available for discussion and criticism any ideas of individuals or organizations that have gained some degree of acceptance as a result of dissemination either through formal publication, through oral presentation, or both.
8. It can consider a variety of seemingly conflicting trends and statements emanating from a variety of sources and motives, analyze them, consolidate and thus seek out and delineate key problems to enable the profession to make a more concerted effort at finding a solution.

Approved, Yearbook Planning Committee  
March 15, 1967, Philadelphia, PA.

# Previously Published Yearbooks

1. *Inventory-Analysis of Industrial Arts Teacher Education Facilities, Personnel and Programs*, 1952. Walter R. Williams, Jr. and Harvey Kessler Meyers, eds.
- \* 2. *Who's Who in Industrial Arts Teacher Education*, 1953. Walter R. Williams, Jr. and Roy F. Bergengren, Jr., eds.
- \* 3. *Some Components of Current Leadership*, Roy F. Bergengren, Jr. *Techniques of Selection and Guidance of Graduate Students*. George F. Henry. *An Analysis of Textbook Emphases*, Talmage B. Young. 1954, three studies.
- \* 4. *Superior Practices in Industrial Arts Teacher Education*, 1955. R. Lee Hornbake and Donald Maley, eds.
- \* 5. *Problems and Issues in Industrial Arts Teacher Education*. 1956. C. Robert Hutchcroft, ed.
- \* 6. *A Sourcebook of Reading in Education for Use in Industrial Arts and Industrial Arts Teacher Education*, 1957. C. Gerbracht and G. O. Wilbur, eds.
- \* 7. *The Accreditation of Industrial Arts Teacher Education*, 1958. Verne C. Fryklund, ed., and H. L. Helton.
- \* 8. *Planning Industrial Arts Facilities*, 1959. Ralph K. Nair, ed.
- \* 9. *Research in Industrial Arts Education*, 1960. Raymond Van Tassel, ed.
- \* 10. *Graduate Study in Industrial Arts*, 1961. R. P. Norman and R. C. Bohn, eds.
- \* 11. *Essentials of Preservice Preparation*, 1962. Donald G. Lux, ed.
- \* 12. *Action and Thought in Industrial Arts Education*, 1963. E.A.T. Svendsen, ed.
- \* 13. *Classroom Research in Industrial Arts*, 1964. Charles B. Porter, ed.
- \* 14. *Approaches and Procedures in Industrial Arts*, 1965. G. S. Wall, ed.
15. *Status of Research in Industrial Arts*, 1966. John D. Rowlett, ed.
16. *Evaluation Guidelines for Contemporary Industrial Arts Programs*, 1967. Lloyd P. Nelson and William T. Sargent, eds.
17. *A Historical Perspective of Industry*, 1968. Joseph F. Leutkemeyer, Jr., ed.
18. *Industrial Technology Education*, 1969. C. Thomas Dean and N. A. Hauer, eds. *Who's Who in Industrial Arts Teacher Education*, 1969. John M. Pollock and Charles A. Buntun, eds.
19. *Industrial Arts for Disadvantaged Youth*, 1970. Ralph O. Gallington, ed.
20. *Components of Teacher Education*, 1971. W. E. Ray and J. Streichler, eds.
21. *Industrial Arts for the Early Adolescent*, 1972. Daniel L. Householder, ed.
- \* 22. *Industrial Arts in Senior High Schools*, 1973. Rutherford E. Lockette, ed.
23. *Industrial Arts for the Elementary School*, 1974. Robert G. Thrower and Robert D. Weber, eds.
24. *A Guide to the Planning of Industrial Arts Facilities*, 1975. D. E. Moon, ed.
25. *Future Alternatives for Industrial Arts*, 1976. Lee H. Smalley, ed.
26. *Competency-Based Industrial Arts Teacher Education*, 1977. Jack C. Brueckman and Stanley E. Brooks, eds.
27. *Industrial Arts in the Open Access Curriculum*, 1978. L. D. Anderson, ed.
28. *Industrial Arts Education: Retrospect, Prospect*, 1979. G. Eugene Martin, ed.
29. *Technology and Society: Interfaces with Industrial Arts*, 1980. Herbert A. Anderson and M. James Bensen, eds.

\*Out-of-print yearbooks can be obtained in microform and in Xerox copies. For information on price and delivery, write to Xerox University Microfilms, 300 North Zeeb Road, Ann Arbor, Michigan, 48106.

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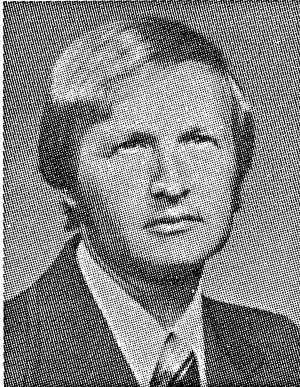
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## Chapter 1

# Introduction

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Man has always been in quest for order and right and truth and harmony. His endless need to control his environment has resulted in conquering frontiers from the wilderness of the great plains to the terrain of the moon. And while so doing, man has accumulated a vast storehouse of knowledge — so vast that many fields lack a general taxonomy for study, and the knowledge is difficult to comprehend and use completely. To assimilate knowledge in such an unsatisfactory repository is as impossible as it is vital. For with accelerating knowledge comes increasingly radical changes which hasten havoc in the minds of men. Thus, the “new frontier” must be the conquering of man’s accumulated knowledge in order that he can plan effectively for tomorrow. The principal vehicle for addressing ourselves to this “new frontier” is our educational system. Out of this educational system will come *all* of tomorrow’s business managers, industrial employees, government workers, and consumers, in short, “the very shape and texture of American life” (“The Mind of Everyman,” 1967, p. 4). Although this system is fraught with diverse programs and practices of varying degrees of quality, education is the one best hope for a better tomorrow — a peaceful, productive environment for future generations.



The major questions facing all educators are: What kind of educational experiences will help conquer knowledge? What kind of educational system will provide for a better tomorrow? Finding the solutions to these questions requires careful analysis. Butts (1955) suggested:

Whenever people are discussing a proposed plan of action, one of their first tasks is to analyze the problem situation that confronts them. This means a study of history in a real sense, for any present situation is what it is as a result of the past . . . . An adequate analysis of the present with a view of the future requires a study of the past. (p. 1)

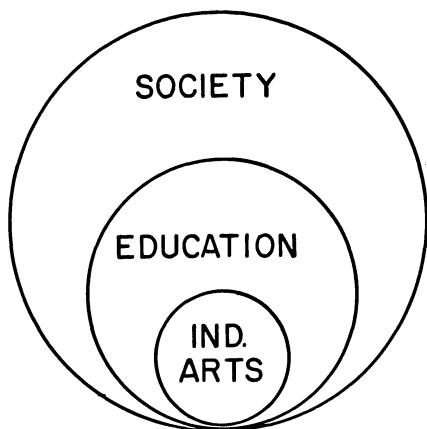
Any decisions about the future, in the last analysis, depend upon an interpretation of history. Yet the study of history by itself cannot solve our present problems. It can, however, help us see the problems with more clarity and plan for their solution more intelligently.

The use of history in formulating plans for future educational activities requires more than an understanding of historical chronology. Edwards and Richey (1963) stated, "The history of education, to be fully understood must be viewed as a whole part of the history of a people" (p.XI). Attention must be given to the social, philosophical, and economic movements at the various stages of man's development.

Since education . . . is a product of the civilization of which it is a part, consideration must be given to such matters as the worth and dignity accorded the individual, religious ideals, the sources of political power, the class structure, the nature and operation of the economy, and the thought pattern at the age because all are woven, at any given time and place, into the purpose and form of the educational enterprise. (Edwards and Richey, 1963, p. XI)

Robertson (1964, p. 1) suggested that without history man is separated from the information essential to decision making and deprived of the clues that help him untangle the complexities of the world around him.

The purpose of educational institutions is to prepare the learner to participate intelligently and helpfully in a society which is rarely static. New factors constantly exert forces on the very foundations of the society. Changes in economic, social, and ideological perspectives have decided impacts on a society at any given time. These forces cause the society to change to varying degrees. As the societal structure changes, old educational institutions and/or practices become inadequate to meet the demands of the "new society." Educational innovators and innovations exert various forces on the educational system. In reaction to the forces, education often changes to reflect the "new society." Characteristically there is considerable time lag between societal change and educational change and, in some cases, the educational system never really reflects societal change.



**Fig. 1-1. Society, education, and industrial arts interrelationship.**

With all these points in mind, this yearbook was undertaken to examine and to interpret the historical interrelationships shown in Fig. 1-1 that have existed between society, education, and industrial arts.

The central theme of the book, then, is to relate how industrial arts reacted or failed to react to changes in education and society. This emphasis will address itself to views of society's need for both liberal (general) and specialized (vocational) education. Education responds to these two basic needs, which may be described as follows:

- (1) Liberal education is defined as basic education for all youth. Industrial arts is generally considered as part of a total liberal educational program.
- (2) Specialized education is defined as education addressed primarily to job entry skills. Vocational industrial education or trades and industry education is an example of such a specialized education program.

Both educational needs respond to views of society and are influenced by educational innovators. In some cases, specialized education innovations have had great influence on liberal education programs. This influence will also be viewed and interpreted.

To these ends this yearbook will be a document that:

- (1) Emphasizes an interpretive rather than a sequential history of industrial arts.
- (2) Describes reactions of the educational institutions to the demands of a dynamic, transient society.
- (3) Identifies the impact of educational innovators and leaders as they perceived society's needs for liberal and specialized educational programs.

The yearbook is selective in its coverage since it attempts to highlight significant changes and movements in society, education, and industrial arts. No attempt has been made to produce a definitive work, but rather to produce a “painting” of our history characterized by broad brush strokes.

It is hoped that this type of history will supplement other histories and chronicle the achievements and failures of industrial arts as its practitioners struggled to interpret industry and technology in an increasingly complex world. A knowledge of the ideas and ideals of our founders and innovators may well provide insights into the course we must chart as the twenty-first century descends upon us. For, as Winston Churchill said, “The farther we can look behind, the greater we may see ahead.”

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# Background: The European Influence

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Industrial arts in twentieth century America is perceived by most educators and laymen alike to be a practical field. Although some may associate it with preparation for livelihood, such a concept places unfounded limitations on this important field of study. Its practicality is manifested in several ways. What is learned from the curricular content may be put to frequent use in everyday life whether in one's paid occupation or in leisure activity. Then, too, the integrated pattern of human behavior involved in industrial arts instruction including thought, speech, action, and tangible materials reinforces purely theoretical learning. The person who has studied industrial arts should be better prepared to become an intelligent participant in a culture characterized by industry and technology.

American industrial arts education and its forerunner, manual training, had their roots in the educational philosophies and practices which evolved in several of the European countries. To some people it may seem irrelevant to explore these roots in order to understand the field as it exists today or to project what it should be in the future. Some may feel the same way about investigating the more recent one hundred years of evolutionary events in the United States which have made industrial arts the important subject it is today. However, there are at least three reasons why it is valuable to give attention to the historical background.

First, industrial arts, like any other specialized part of the national pattern of the education, has come into being because of a confluence of social, economic, political, and even religious forces. A survey of how these forces have continually affected educational thought and practice with resultant general trends may give professional teachers new

insights into the forces currently acting upon their field. These forces, incidentally, are upon people who, in response, are influential in bringing about changes in their own time. For this reason, this introductory chapter will focus upon selected European people who, due to circumstantial forces in their lives, have contributed significantly to educational thought and activity that has become a part of the present day industrial arts movement. A complete roll call of such important persons is beyond the purpose of this chapter, so five have been chosen as representative. The first three respectively illustrate leadership in the continuity of *general* trends in practical education throughout the periods of realism, naturalism, and nationalism in European education. The last two are Europeans whose prominence through the schools that they headed had *direct* influence on the founding and improvement of manual training in America. Their homes were in five different European countries.

Second, some of the *general* trends in European education resulted in specific practical curricula in European schools. These curricula and these schools had *direct* influence on the origin and development of manual instruction in America — some during the colonial period, but most during the latter part of the nineteenth century. To reflect upon these direct contributions may inspire professional industrial arts educators in the latter part of the twentieth century to explore ways of assisting educators in underdeveloped countries in their efforts to initiate and improve practical education programs.

Third, it has often been said that one value of studying history is to be better able to avoid the mistakes of the past. Rather, the positive corollary seems more appropriate: a study of the lives and contributions of selected educational leaders who dared to risk what others might deem mistakes should stimulate present day educators to move forward with greater boldness in their attempts to make the educational content and methods more relevant for today and tomorrow.

## SELECTED EUROPEANS WHO PROMOTED PRACTICAL EDUCATION

### Comenius

At about the time that people from Europe were colonizing for the first time on the eastern shores of America, educational philosophy in Europe was shifting from humanism to realism. Humanism in its early form emphasized the teaching of classical literature from a purely grammatical and linguistic point of view. Realism, on the other hand, placed emphasis on natural phenomena and social institutions rather

than on languages and literature. During the transition came humanistic-realism and social-realism, but the main educational thrust of the new era was sense-realism.

John Amos Comenius\* was destined to become the most outstanding proponent of the sense-realism movement. Born at Nivnitz in Moravia in the spring of 1592, he grew up under Moravian Brethren religious influence during the turbulent aftermath of the Reformation and the Renaissance. His parents died while he was young, and he was raised by a guardian who sent him to Latin School at age sixteen. There he received a heavy dose of humanism as it was then narrowly defined under teachers whose method was characterized by grimness. Later in life he said of these schools that they were "the terror of boys and the slaughter houses of minds." Undoubtedly these experiences early in life motivated Comenius to become a change agent in education.

During the same period, Wolfgang Von Ratich, a German of considerable learning who was twenty years senior to Comenius, was attempting to articulate the concept of sense-realism with its inductive approach to the education process. For several reasons Von Ratich's educational efforts were considered a failure, but the ideas that he projected struck a vibrant chord with those of Comenius who moved them forward with vigor. The method of this new sense-realism movement, according to Laurie (1892, p. 23), was based on several tenets:

- Everything should be taught according to the courses of nature.
- Only one thing of a kind should be taught at one time.
- Repetition reinforces learning; therefore, repeat often.
- Everything should be taught in the mother tongue first. (This seems like a strange principle until one recalls that in the humanistic schools, instruction was conducted in the classical languages.)
- Teaching should be done without violence; the pupil must not fear the teacher.
- No learning should be done by rote.
- There should be uniformity in teaching things.
- The object should be taught first, then the characteristics of the object.
- All learning should be accomplished through experiences and investigation.

Comenius continued his studies and became a pastor and teacher, alternately and concurrently, throughout his lifetime. As one looks into the details of his life, a strange paradox stands out; i.e., adverse circumstances caused his educational innovations to be spread throughout the continent and, eventually, the world.

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\*Comenius is also referred to as Komenski.

Because of the political oppression of Protestant pastors by the Austrian government, Comenius was forced to live in several European countries. He became recognized as the Bishop of Moravian Brethren pastors, who were dispersed throughout the land by governmental oppression. He had the ability to turn adversity into something worthwhile. For example, while working with one of the exiled pastors who was a tutor for children of the people with whom he took refuge, Comenius became increasingly interested in educational method. This experience gave him an opportunity for experimentation.

Comenius' theological bent was reflected in his educational thought. He believed that happiness with God was man's ultimate end, that this end might best be realized by moral control over one's life, and that moral control might best be achieved by knowledge of one's self and all things. Generally, his aims in education were: first, to simplify the content and move gradually to the complex; second, to teach words by using things; third and conversely, to teach things through the use of words. His book *Orbis Pictus*, the first illustrated textbook for children, typified his three-part educational aim. Each chapter began with a picture, the parts of which were numbered and referred to in the text.

In 1631 Comenius wrote a school textbook entitled *Janua Linguarum* or *Janua* for short. *Janua* was eventually translated into fourteen languages and it made him well-known, his popularity attracting the attention of many educators and laymen alike throughout the continent. It was a language textbook in which he attempted to place words into sentences in such a way as to bring significance and understanding to what was being read. He was invited to Sweden in 1638 to undertake the reformation of their schools, but he declined, acting only as a periodic advisor. Later, however, after spending several months in England with Samuel Hartlib and other promoters of education, he went back to Sweden for extensive discussions at the University of Uppsala about his teaching methods, or didactic principles. He was persuaded to take residence for several years in nearby Elbing on the Prussian side of the Baltic Sea which was at that time a Swedish territory. While subsidized by the Swedes he wrote several didactic treatises which were published in Sweden in 1648.

It is appropriate at this point to interject some facts to illustrate how economic progress and wealth influenced the spread of the educational principles and ideals of the humble Comenius. A principal figure in this activity was Samuel Hartlib. Hartlib's father was a well-to-do Polish entrepreneur of German extraction. His father eventually settled in Prussia where he married the daughter of a wealthy English merchant and to this union Samuel was born. Thus, Samuel Hartlib was half English and, as a young man, became a merchant in London. His business affairs, however, frequently took him to various parts of the

European continent. He became wealthy and prominent. His interests were broad, his personality dynamic, and his philanthropy was obviously well-known. As a result, he became the leader of a group of prominent people who were influential in accomplishing social and educational reform.

Samuel Hartlib became interested in Comenius' educational ideas and initiated correspondence, asking Comenius to put on paper these ideas. Comenius did, and in 1637 Hartlib published this paper which was widely circulated, even without Comenius' approval. Four years later, Hartlib persuaded Comenius to come to England to join those who, with Hartlib, were working to influence social and educational change. Even Parliament officially greeted Comenius who, by then, was being vaulted to fame by those who were interested in both his pansophic and didactic ideas. The London group was primarily devoted to the furtherance of his pansophic project which was a proposal for a system of universal knowledge, a work containing information in all departments of learning.

Yet another nobleman of great wealth was instrumental in extending the didactic developments of Comenius. Ludovic de Geer was a Dutchman who emigrated to Sweden, a man of keen mentality and progressive ideas. One can easily perceive his importance to Comenius and his works. It was DeGeer who used his influence to bring Comenius to the attention of educational and political leaders in Sweden. He also subsidized Comenius during the six years that he pondered and wrote at Elbing. It is understandable, therefore, that Comenius dedicated to DeGeer the writing that he did at Elbing.

After the conclusion of his years at Elbing, Comenius in 1650 accepted the invitation of Prince Racocus of Transylvania and his widowed mother to live in the Hungarian village of Patak and become a consultant in the revision of the schools. While at that location he continued his writing, combining his previous pansophic ideas, i.e., ideas about the organization of all knowledge, with educational method.

After about fifteen years at Patak, Comenius went back to Lesna, his former home. Immediately after his arrival, a calamitous war broke out and the town was destroyed. All of his possessions were lost or destroyed, including his library and his manuscripts. Again, however, adversity stimulated Comenius to further achievement. For the remainder of his life he resided in Amsterdam, revising and publishing his previous works which would influence many educators who were to follow him. He settled in Amsterdam at the request of the ambassador from Sweden who was the son of the late Ludovic DeGeer, former friend and supporter of Comenius. There he remained until his death.

Why single out John Amos Comenius as one who contributed to the foundations of industrial arts education? Why focus on Comenius who



was so diversified in his educational thought and whose writings were so prolific and broad in content? Cannot all specialized fields of study such as science education, theological education, language education, and others lay equal claim in the 1980's to his early influence? Indeed! Consider, however, two points.

First, it was he who initially articulated on a broad scale throughout the European continent the necessity of applying all of the senses to the learning process. As part of this concept he endeavored to give meaning to words by associating them with objects that were familiar to the learner. In so doing he introduced a *practical method* of education. Industrial arts enjoys the reputation of being a practical field in today's schema of education.

Second, Comenius through his pansophic writings made great strides in trying to organize into an integrated whole all segments of knowledge which were a part of the culture of his time. While this effort has been expanding greatly in the past three hundred years, industrial arts educators have contended that a knowledge of the materials and processes of industry, an important aspect of progressive culture, is a significant part of the general or cultural education of our time.

### **Pestalozzi**

Johann Heinrich Pestalozzi was a late eighteenth and early nineteenth century educator and social reformer whose ideas about education included a keen interest in the industrial education of youth. While he was intent on having all young people, especially the poor, prepared for self-sustaining employment, he deplored the concept of preparing the individual for a single factory skill. He contended, rather, that preparation for vocation must be based upon a wide range of human education. It was important, he insisted, that the worker maintain his dignity and humanity rather than being a simple mechanism for the production of goods or the rendering of services related to the materialism of his time. Pestalozzi's points of view regarding educational method became recognized throughout the European continent and were transmitted to America through his writings and through the influence of those who had personal contact with him. Contemporary American industrial education, although molded by a variety of philosophies and ideas about the basis for its content and methods, reflects vestiges of Pestalozzian influence. For example, the issue of narrow vocationalism versus a broader educational background in preparing people for the world of work provides substance for popular debate among both secondary and post-secondary educators even in the late twentieth century.

Pestalozzi lived in a revolutionary period. When steam power began to be applied to the production of goods, factories and factory

towns sprang up, bringing with them both many worthwhile results and many devastating outcomes. Private ownership of the factories went unchecked by governmental restraint, and a number of people became exceedingly wealthy as they attempted to meet the market demands of the European continent and the expanding frontiers in other parts of the world. Many others became veritable slaves to the new system, for they worked long hours and lived in crowded, often unsanitary, conditions. Man became a producer of things and his social well-being became secondary to the production of marketable goods. This movement has been labeled the Industrial Revolution. It was an age of materialism. Leaders in government, religion, economics, and education groped to find ways of resolving the social problems of the time. Pestalozzi also felt the impact of the French Revolution, which was a series of upheavals in France between 1789 and 1799. It was a protest against the old order which was characterized by rigid monarchy and aristocracy. Thinkers of the time spoke out and wrote about the necessity of individual freedom as opposed to the restraint of the old order. Among them was Jean Jacques Rousseau whose writing, particularly about education, came to the attention of Pestalozzi.

Pestalozzi was born in Zurich, Switzerland on the right side of town, so to speak. The family into which he was born had been citizens of that city for nearly two centuries. Citizenship in towns was a coveted status handed down from generation to generation. Not all inhabitants were citizens nor did citizenship necessarily imply wealth. In fact, Johann's father left very little money at the time of his death when the lad was only six years old. Thus, early in life he experienced the paradox of prestige and poverty, which apparently had significant influence upon his professional motivation throughout his life. He developed an increasing concern for the poor as he occasionally visited his grandfather, a pastor in a nearby village where the people were relatively poor and lived a simple life. His grandfather assumed responsibility for the education of poor children, and young Pestalozzi seemed to have caught much of his altruistic spirit.

While there is some evidence in the literature that Pestalozzi was considered odd, he was intelligent and did well in school. In his late teens he entered an advanced secondary school where he was privileged to study under the tutelage of teachers who were at the cutting edge of educational controversies and political issues. As a result he became an eager reader, seeking support and foundation for his idealistic thoughts of social and educational reform. His quest brought him to the writings of Rousseau, especially the book entitled *Emile*. The book, which became a classic, was actually a cry for reform in the existing schools of the era. With an idealistic style the author creates a fictitious person, Emile, who is educated by a tutor from infancy to

manhood, at which time he is married to Sophie. In the five books (or chapters) Rousseau emphasizes the differences between age periods, specifying the things that should and should not be taught at each age level. The educational philosophy expounded in the book was a radical departure from the schools of the late eighteenth century. Therefore, it was lauded by some and condemned by many readers. It was burned in Paris and Geneva!

In his determination to become a reformer, especially with an eye toward improving the plight of the poor, Pestalozzi chose to achieve his ambition in the field of education. However, he did spend about a year studying agricultural methods on an experimental farm near Bern, an experience upon which he drew in his first of several educational experiments.

While it is beyond the scope of this survey to go into detail concerning the pedagogical principles employed by Pestalozzi in his writings or in his institutes, several of his basic tenets, although commonplace in our time, are worthy of note. These, according to Heafford (1967, ch. 8), included:

- The new-born child is not a mere object onto which adults might impose their image. Rather, it is an object of personality and intelligence. The aim of education is to provide stimulation necessary for the development of potential.
- Education must be sensitive to the nature of the child, taking into account the stage of development of the human being. Level of difficulty of the material to be learned must be geared to the child's ability.
- Education must be child-centered, and the teacher needs to gain insight into the way the child's mind works and develops. Ideally, the teacher should learn along with the child.
- Facts and experiences should be grouped in proper order from the most simple to the most difficult and the child should complete the elementary before proceeding to new concepts.
- Mental training should be the major emphasis rather than a mere knowledge of facts.
- Avoid harshness and show love and concern for the child, but discipline to the task is essential to learning.
- Education should develop the mental, moral, and practical potential of the child.

The principles stated above reveal clearly that instruction must be child-centered. For this reason, Pestalozzi is generally given credit for first applying psychology to the learning process. His method of instruction was characterized by the use of objects, whether they were part of the natural environment or man-made objects. Perception is improved by the use of objects, a principle that has persisted in educa-

tion from the time of Pestalozzi's experiments until the present. That particular principle was basic to manual training.

During his professional lifetime Pestalozzi tested his educational concepts and methods in four different school settings. The first was in his own home. Others were in Swiss settlements of Stans, Burgdorf, and Yverdun. While each of these situations was fraught with problems of various kinds, each attracted increasing attention of educators and laymen in Europe and off the continent.

Inspired by his apprenticeship on the experimental farm, Pestalozzi bought a farm of his own with the help of his wife's family. They called it Neuhof (translated New Farm). Underlying his educational theory was a belief that the ideal school setting was the home where the learner had security and love, but he acknowledged that most parents had neither the patience nor preparation to be successful teachers. Therefore, he felt that if he could bring a group of children into his home, he could vicariously provide the nearest thing to an ideal education. He could provide a good general and vocational education and produce a well-rounded person.

Understandably, poor children were recruited for the experiment at Neuhof. To develop mental capacity he taught reading, writing, and arithmetic. For moral development he taught religion. Practical education was provided by assigning farm jobs through which useful skills were learned. The farm tasks accomplished by the students, in addition to enhancing opportunity for eventual employability, were intended to help keep the enterprise self-sustaining. Such was not the case, which was a disappointment to Pestalozzi, and when external funds dried up, the school was forced to close.

For nearly two decades following the Neuhof experiment, Pestalozzi made a living for his family by writing, maintaining confidence in himself and in his philosophy of social and educational reform while, at the same time, feeling remorseful about the failure of his first educational thrust.

Perhaps his most recognized writing of that period was his didactic novel *Leonard and Gertrude* which conveyed, once again, his notion that correction of social plight was to be found in schools that based instruction on nature, love, and sound pedagogy.

Pestalozzi was given an opportunity to return to teaching in 1798 when the government established a school for children who were orphaned by a battle of the French Revolution. The school was established in a convent at Stans and was just getting well started when it was closed because the building was no longer available.

Pestalozzi's teaching career was quite stormy. Shortly after his experience at Stans, he taught in three schools in Burgdorf. At his first school in Burgdorf, his teaching techniques were so much more advanced

than the teacher who was already there that jealousy arose, and Pestalozzi was moved to a girls' school. There his work was evaluated so highly by government inspectors that he was transferred to a larger school that was considered the best in the area. There he became the head of the school as well as teacher and, although he was not considered a good administrator due to his lack of business sense, he was an inspiration to his many assistants. Due to political changes, the school had to leave the castle where it was located and in 1804 was merged with Fellenberg's Institute at nearby Hofwyl. Conflict between Pestalozzi and Fellenberg made it necessary for the former to relocate one more time.

The Institute at Yverdon was Pestalozzi's last and longest effort as an educational practitioner. He remained at Yverdon for two decades until he died. It was here that he worked out more of the abstract and theoretical aspects of his educational methodology. By now, it would appear, he had become as much of a teacher-educator as a teacher of children. As at Burgdorf, there were a large number of students in the school at Yverdon, requiring several assistants who were challenged by their leader. However, where thinking is challenged, differences also occur. Such was the case at Yverdon, where dissention among some of the staff developed to the extent that criticism was brought upon the institution. The Institute eventually failed, but in the years that followed, dispersion of teachers who had studied and taught with the famed Pestalozzi was the means of spreading his educational ideas to distant places.

A loyal Frenchman who was a soldier in the French Revolution is credited with first introducing Pestalozzi's educational methodology to the United States. Joseph Neef became a disciple of the famous educator in a most unusual way. Seriously injured in battle, he spent his recovery period reading the works of Pestalozzi and was sufficiently inspired that he decided to become a teacher (Guteck, 1978, p. 5ff). When he learned of an opening at the Burgdorf Institute, he applied and became one of the many assistants at that school. Zealous Neef learned rapidly and well the so-called natural education technique used at Burgdorf. Pestalozzi had so much confidence in him that when a philanthropic society in Paris asked that a school, fashioned after the one at Burgdorf, be established in that city, Pestalozzi sent Neef to be its first teacher. Although Neef had several complaints about his first teaching assignment, the school prospered and attracted as visitors high ranking public officials and other important people. Among those visiting was William Maclure, a wealthy Scottish-born American who had attempted without success to get Pestalozzi to come to America. Instead, he persuaded Joseph Neef to emigrate with his family in 1806. Neef first established a school near Philadelphia, but later joined

Maclure and Robert Owen in the social experiment called a Community for Equality in New Harmony, Indiana (Guteck, 1978, p. 30 ff).

### Froebel

Freidrich Froebel reinforced many of the educational concepts and practices of John Amos Comenius and Johann Pestalozzi. To these he added some of his own ideas, thus extending and enhancing the foundation upon which practical education was built. The story of his life is remarkably similar to that of Comenius and Pestalozzi. Each was born into a deeply religious family, and religion became a life-long motivation even in their professional careers and educational philosophies. Each lost one or both of his parents at a very young age and was shifted to relatives or other guardians for rearing. Each had some unpleasant experience or experiences when growing up that created a strong determination to correct conditions for children of the future. Each attempted other professional fields before becoming committed to education as a career. Froebel was a contemporary of Pestalozzi, although he was about thirty-five years younger. For that reason, he was subjected to the same social, political, and economic influences. Throughout most of his lifetime the industrial revolution was a driving force in the region of Europe in which he lived. Laissez-faire capitalism as purported by Adam Smith was the new, revolutionary economic theory of the time. He was a mere child at the outbreak of the ten-year French Revolution, so he spent most of his life in its aftermath, characterized by increasing nationalism and other earth-shaking changes. It was a period in which European schools were nationalized as much or more than any cultural institution.

Froebel was born in Germany in 1782 to a pastor and his wife. He was the youngest of five children. His mother died while he was still a babe in arms, but his father and older brothers continued to care for him until the father remarried. His stepmother loved him at first, but later rejected him, causing him to become morose and introspective. Therefore, he was taken into the home of an uncle who cared for him, sent him to school, and several years later left him a legacy that paid for some of his higher education.

At age fifteen Froebel became an apprentice to a forester for two years, providing an opportunity to further develop his love for nature and to expand his knowledge about plant life. He continued to be introverted, spending a good bit of his time being self-analytical and introspective. His religious nature seemed to increase in intensity with age. He sought always to make connections between facts or events and had a strong desire to understand the basic harmony and unity that God had intended for the universe. While an apprentice, he spent some of his leisure time in the self-study of mathematics and languages. Later

Froebel joined a brother who was studying at the University of Jena, and while there he audited a wide variety of courses in life sciences and mathematics. After his experiences at Jena, he returned to the vocation of forestry and surveying.

When he was in his early twenties and still casting about to find his place in life, Froebel went to Frankfurt intending to study architecture, but instead he became a teacher. He was influenced by the invitation of a man named Gruner who was headmaster of the Frankfurt Model School and a disciple of Pestalozzi (Lawrence, 1953, p. 18ff). Before starting to teach, Froebel went to Yverdon in Switzerland and visited Pestalozzi's Institute. He remained there for two weeks observing the teaching methods of the well-known educator and his assistants. He came away from Yverdon both inspired and disappointed, inspired because of the enthusiasm of the learners and disappointed because of the apparent lack of organization and the conflict that was evident among the assistants. Organizational laxity and conflict were contrary to the concept of harmony and unity which, by then, was almost an obsession with him.

He was fulfilled in his new vocation, teaching several subjects in the Frankfurt Model School. As time passed, though, he left that school and became a full-time tutor for three students who were completely entrusted to him by their parents. In this role he found opportunity to try his educational theories without interference. Also, he and these three students went to the Pestalozzi Institute of Yverdon for a two-year period. It is evident that Froebel had a deep respect for Pestalozzi, or he would not have returned to the Institute together with his students for such a lengthy period. Yet his second stay at Yverdon reaffirmed his differences with Pestalozzi's approach to the learning process.

Froebel continued to emphasize unity and inner connection as the basic tenet of his educational process. To him, the achievement of unity and inner connection through learning involved three elements: reception, reflection, and student response in the form of some type of production or creativity. Without all three of these elements, he considered the educational experience to be incomplete — less than unified. Pestalozzi's emphasis was more on the first of these three elements than the other two. Both of these educators were in agreement about the use of objects. However, Froebel felt that reception and reflection were interrelated, with understanding coming only when the learner made application of what was perceived in the form of some self-activity. Hughes (1897) summarized this concept by writing:

The child's powers may be classified as receptive, reflective, and executive. The receptive powers accumulate knowledge, the reflective powers classify knowledge and prepare it for use, the executive powers apply or use the knowledge gathered by the receptive and

classified by the reflective powers. Executive power means more than administrative ability. It means power to execute well what we know, to do what we plan, to be in progressive action all we are in matured thought and defined feeling. It enables him to represent his best conception in productive activity. (p. 87)

While an analysis of Pestalozzi's work reveals that the third element of self-activity is not totally absent, it is evident, by contrast, that Froebel gave it greater emphasis. Perhaps it was a matter of degree: the former focused more on the acquisition of fact, the latter more on mental expansion.

In 1811 Froebel continued his education at the University of Gottingen, still seeking the "unity" that seemed so important to him. Then after a stint in military service, he reentered the field of education with even stronger determination to apply and test his philosophical bases. He opened a school, calling on two friends from his military years to join in the venture. Concurrently, he wrote about his educational ideas and, ultimately, in 1826 published *The Education of Man* that was destined to become a classic not only in Europe, but throughout the world.

Manual training became an important part of Froebel's educational method. Like Pestalozzi he felt that preparing for a specific factory skill was much too limited a motive for the inclusion of manual training in school. He even suggested that all people, whether they intended to spend their lives in industrial employment or not, should have the privilege of manual training in the fulfillment of the self-activity component of his plan. He included manual training in early childhood instruction, suiting the material to the age level of the child. The tangible product of manual training in his scheme of education was to be considered as merely a symbol; the product was the child himself.

The significance Froebel placed on manual training was interpreted by Hailmann at the peak of the manual training movement. He cited a proposal that Froebel made for an educational project at Helba in 1829. It read as follows:

Froebel proposed to devote the forenoon to instruction in the current subjects of school study, and the afternoon to work in the field, the garden, the forest, in and around the house. His list of occupations comprised the preparation of wood for the kitchen and the furnace; the making of simple wooden kitchen utensils; the weaving and binding of mats for the table and for the floor; the binding of books and the ruling of slates and practice-paper; the making of a variety of collections of objects of nature and art, and of suitable boxes for these objects; the care of the garden, the orchard, the field; the plaiting of straw mats for the hot-beds, and basket-making; the care of pigeons, chickens, ducks, etc.; the preparation of artistic and geometrical forms with paper in folding, cutting and mounting, pricking, weaving, interlacing, etc.; the use of pasteboard in the making of stars, wheels,



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boxes, napkin-rings, card-baskets, lamp-shades, etc.; play with splints, tablets, sticks and peas; the whittling of boats, windmills, water-wheels, etc.; the making of chains and baskets from flexible wire; modeling with clay; drawing and painting; and many other things.

Froebel's project failed; yet much of the seed he had scattered broadcast had fallen on good soil. A stray grain had taken root in distant Finland, where in 1866, Cygnaeus, an ardent admirer of Froebel, introduced sloyd (wood-work) as an obligatory branch of instruction in the schools of his country. (Froebel, 1896, p. 38)

### Salomon

The name Otto A. Salomon is synonymous with educational sloyd. It was Salomon who gave this system of instruction its first impetus, and it was he who propagandized it through his writings, public lectures, and his inspirational teaching in the teacher education institution which he headed from its founding in 1874 until his death in 1907.

Times were ripe in Sweden for Salomon to come on the educational scene when he did. The social, moral, political, and economic climate of the nation had evolved to a point where the new direction in education that he initiated was welcomed. These historical factors are important to an understanding of the movement.

First, sloyd played an important role for several centuries in the development of the social and moral fiber of the people of Sweden, to say nothing of its economic value. To understand the real function of sloyd, one must realize that the country's terrain was very rugged, demanding unusual physical stamina and implements suited to the difficult task of producing food and other materials essential for survival and progress. In the rural areas these implements were made by hand in the homes of their users. These home industries became one of the cultural universals of Sweden.

Because of its far north location Sweden is sometimes called the "land of the midnight sun," for long hours of daylight characterize the summer season. Conversely, though, one might logically refer to the country as the "land of the long, dark winters," for then the sun sets at mid-afternoon and rises again in mid-morning. During these winter seasons it was traditional for households to join together for the purpose of making the many objects that would be necessary to get them through the next year. Not only was it a time of hard work, but likewise a time for socializing in the otherwise lonesome areas of the country. Folk music and dancing were common. The smorgasbord, popular with hungry people even in our time, had its origin in these gatherings as tables were spread with the variety of food that had been assembled. This institution of these productive gatherings became identified as

hem-slöjd which translated means home-handwork. The English version of the term is simply home-slöyd.

A modification of early home-sloyd has been revived and continues to be a prominent part of the Swedish scene today. In every major city one will find a Home-Sloyd Store where a large variety of craft items, both functional and decorative, is displayed and may be purchased. These stores are a part of the National Home-Sloyd Association which advertises with attractive brochures. Through this association the artisans' creations which are available in almost every medium are marketed. The shop of a sloyd craftsman may be found almost anywhere, in the sparsely populated countryside near the village of Hestra or in an extra bedroom of one of the huge apartment complexes on the outskirts of Gothenburg.

Sloyd as a home industry declined during the middle of the nineteenth century seemingly in inverse proportion to increasingly progress of the factory industries. Availability of equipment and supplies needed in the rural areas made it unnecessary to hand-make these essentials any longer. Although Swedish factory industry began in the seventeenth century, its slow, steady advance could hardly qualify it as part of the industrial revolution. It is interesting, if not significant, to observe that the Swedish factory system had its beginning in Gothenburg which was later to become the birthplace of Otto Salomon and the center of his influential practical education enterprise.

Historian Stomberg (1931, p. 656 ff) regarded Louis DeGeer as the founder of Sweden's industrial enterprises. He, along with other capitalists and workers, was invited to immigrate and settle in Gothenburg, a city which is located on the western shores of the country and accessible to the sea. The abundance of copper and iron ores coupled with vast forests for charcoal and the availability of water power set the stage for industrial development. The DeGeer family was one of the most influential in Sweden for many years. The reader will recall the support given to the educational efforts of John Amos Comenius by the DeGeer family, as previously mentioned in this chapter.

While the factory system thrived from the outset, much of its output was military equipment. For many years the Swedes were engaged in a series of costly military campaigns. Additional military equipment was exported to other countries. Only when warring days were over did the products of industry begin reaching the rural areas, signalling an end to sloyd as a home industry.

Another factor that made the introduction of Salomon's educational sloyd timely was the alarming moral and physical decadence Sweden had been experiencing for many years. Throughout their history Swedes had been known for their appetite for alcoholic beverages. Stomberg (1931, p. 656 ff) explained that by mid-1800 the country

was moved toward destruction by drunkenness and its adverse social effects. The powerful drink to which so many were addicted was a gin made of potatoes or grain called branvin. Even children were given the drink under the assumption that it was good for them. As a result, one-half of them died before they were three years old. Brawls were prevalent. Worshipers, too, would drink enroute to and from church. There were an estimated one hundred seventy private stills in Sweden until reformers had laws passed in 1853 to restrict and tax still owners so heavily that the flow of liquor was considerably curtailed.

There were other areas of weakness and dissatisfaction in the nation needing reform. The economy, although improving as the factory system expanded, was not yet healthy. The national legislative body known as the Riksdag was still class-structured. People were rebelling against the dominance of the state-church, forming independent churches. The educational structure, although well organized long before, was not progressing at a rate commensurate with the need. Over one-half of the parishes had no elementary schools. All of this was to change, however, between 1844 and 1872, a time that Stomberg (1931, p. 645 ff) called the period of liberalization and reform. It was an orderly process of change.

Under the leadership of a DeGeer, the Riksdag was divided into two chambers elected by the people without regard to social class distinction. Local government was concurrently revised. This governmental restructuring into a more democratic system was consummated in 1866. Also, by 1859 the old conventicle laws of early eighteenth century that allowed heavy penalties for people found worshipping in groups other than in the state-church or the home were scrapped, thereby officially signalling freedom of religion. Schools became the object of perhaps the greatest improvement. In 1842 the old Riksdag decided to shore up the schools by funding a school in every diocese for the training of teachers, and it furthermore stipulated that there should be at least one qualified teacher and a school board in each parish.

During this period of reform there were leaders who felt that a restoration of sloyd would be valuable as a means of improving both the economic and moral status of national life. There was no hope, however, of reviving the home industries as they had functioned in years gone by. Rather, sloyd schools were established and funded by private societies, provincial councils, and individuals. The primary purpose of these schools was to prepare students for employment and a constructive life. Private sloyd schools were started as early as the 1840's, but it was not until 1872 that they were given financial support by the government.

Three Swedish reformers in particular need to be mentioned because of their relationship with Otto Salomon in the development of

educational sloyd. They are Hos Thorsten Rudenschöld, S.A. Hedlund, and August Abrahamson.

Thorsten Rudenschöld, who is referred to as count or earl, was a man of influence who gave up an outstanding career in military service to devote his life to the development of schools. He is considered by some as the founder of the folkschools in Sweden, but in all likelihood he was given that recognition because he established a private school for the poor which became so highly respected that his method was sought after in many areas. Rudenschöld was apparently well respected in government circles also and, as a result, was made inspector of the new schools that were established by the legislature of 1842.

Another Swedish reformer, Sven Adolf Hedlund, was married to Thorsten Rudenschöld's daughter. Hedlund was editor of *Handelstidningen*, the prominent newspaper of Gothenburg. Not only did he use the editorial page of his newspaper as a propagandizing medium for all kinds of social reform, but it is also evident that he made his points known by articles published in journals of the time. For example, in copies eight, nine and thirteen of the 1847 volume of *Hermoder* he wrote regarding school issues. In these it is interesting to note his references to Rudenschöld, statements that suggest he and his father-in-law worked together in their efforts to promote the extension and improvement of education.

Hedlund was among the reformers who felt that there was moral value in being creative with one's hands, so it is not surprising that he became one of the original promoters and strong supporters of the Sloyd Teachers' Seminary in Nääs. He maintained close personal and professional relationship with Otto Salomon. In spite of the fact that they lived only about twenty miles apart, there was quite an extensive exchange of letters between the two concerning the progress of the educational sloyd movement. In the salutation of these letters each refers to the other as "My honored brother," indicative of the fondness they held for one another.

A third person who had much to do with the establishment of educational sloyd was Salomon's uncle, August Abrahamson. He was a wealthy Gothenburg merchant and well-known philanthropist whose wife was a Swedish opera singer. They purchased Nääs, a large and beautiful estate about thirty kilometers from the center of Gothenburg. In former years it had been a hunting retreat for Swedish kings. Like Rudenschöld and Hedlund, both of whom he knew very well, Abrahamson used his wealth and influence in the campaign to build a better Sweden. He was especially interested in the development of education. Therefore, as one would expect, he established a sloyd school for peasant youngsters at Nääs in 1872 and put Otto Salomon, who had been assisting him with the estate, in charge. While most of the private sloyd

schools were inclined to be trade schools, the school at Nääs was probably one of the first sloyd schools established to enhance the student's general education. In this school Herr Salomon, relying on his own resourcefulness, was privileged to apply his educational ideas with the support and encouragement of his uncle. At first only boys were admitted, but after 1874 both boys and girls were enrolled. In addition to sloyd, the subjects included arithmetic, Swedish, geography and drawing. Seven out of every ten hours were spent in various types of sloyd instruction (Farley, 1907 a, p. 150). In 1874 the Sloyd Teachers Seminary was begun at this same location, an enterprise to which August Abrahamson eventually willed his foundation and entire personal estate in order that sloyd instruction might be extended on a worldwide basis.

One would think that the person who became internationally recognized as the Director of the Sloyd Teachers Seminary would, himself, have had extensive formal teacher education preparatory to the task. Such was not the case with Otto A. Salomon. In writing about his mentor, Gustaf Larsson (1908, p. 104) said very little about Salomon's early life. He was born of Jewish parents in Gothenburg in 1849 and took his early schooling in that city, undoubtedly in the real gymnasium. At age nineteen he passed the entrance exams to the Institute of Technology in Stockholm, but after only one year there he responded to the invitation of his uncle to come and help manage the estate at Nääs. In 1870 and 1871 he spent some time at the Ultuna Agricultural Institute. He continued his formal education except for a period in 1877 when he went to Finland for part of the year to study with Uno Cygnaeus.

It is not surprising that Salomon would choose Cygnaeus as one with whom to study. After five years of teaching based on his own resourcefulness, Salomon probably felt the need for a recognized educator who could help him establish a more complete theoretical base for his methods. The Finnish educator was about forty years older than Salomon and had nearly twenty years of experience as Chief Inspector of the School System of Finland. In addition, he was Director of the Normal College of Jyväskylä ("Life of Uno Cygnaeus," 1895). Like so many of the leading European educators, Cygnaeus had changed fields. He was a pastor and spent several years on the North American continent working with common people, during which time he studied the writings of Pestalozzi, Froebel, and others. At the same time, he was formulating a plan for elementary education that he initiated when he returned to his native Finland after making his choice to become an educator.

Probably a second and equally important factor that influenced Salomon to study with the Finnish educator was that Cygnaeus insisted that physical education and manual training were essential parts of the

school curriculum. Furthermore, he maintained that school was not the appropriate place to teach a trade. One can easily imagine the harmonious relationship between mentor and scholar as they mutually reinforced each other's educational philosophy. It has been suggested that Cygnaeus was the link between Salomon and Pestalozzi and Froebel. This could very well be true, for throughout his lifetime Salomon translated the works of six educators and philosophers among whom was Pestalozzi. He also translated the works of Comenius who, a hundred plus years before, had been commissioned by the Swedish government to publish a series of writings on pedagogical methods.

The purpose of the Sloyd Teachers Seminary of Nääs was to prepare people to teach in the independent sloyd schools or in the elementary schools. At first the course of instruction was one year in length, but this was discontinued in 1882 in favor of training periods of shorter duration. Only those who were committed to the teaching of sloyd were admitted. Tuition and other fees were waived. The only expense was a modest amount for room and board. Swedish-born Gustaf Larsson who emigrated to the United States and became Director of the Boston Manual Training School was a member of the last one-year class. He is credited with introducing sloyd methods into the manual training movement that was becoming established in America at the time of his arrival in this country. Larsson (1908, p. 105) wrote that instruction at Nääs was provided in mathematics, natural science, pedagogies, psychology, school methods, mechanical drawing, Swedish, and physics, along with such sloyd courses as carpentry, turning, carving, and forging. Fifty-five contact hours per week of instruction were required.

Teachers and educational administrators from all over the world came to study at the Sloyd Teachers Seminary\*. George S. Hodson (1901), an educator in England, in a lengthy position paper on sloyd described dramatically the interest of educators in the school:

And every year their journey to Nääs, the Mecca of sloyders, pilgrims from nearly all parts of civilization; and there, for a time, they live and breathe and work in an atmosphere of sloyd, and then return to their own homes and duties, carrying with them the strong conviction that here is the best means hitherto discovered of filling the gap in our systems of education, which has been proclaimed by a succession of great educationists and thinkers, from Luther to Pestalozzi, Herbart, and Froebel. (p. 14)

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\*The scholar who wishes to delve more deeply into Swedish Sloyd should know that the archives of the Nääs Sloyd Teachers Seminary are preserved. The documents are kept by Ländsarkivet, the local public record office in Gothenburg. Also, there are many useful documents in the University of Gothenburg Library.

So far, our reference to Otto Salomon has focused primarily on the national circumstances which enabled him to become the most outstanding figure in the educational sloyd movement and also upon the institution at Näås that was his mechanism for spreading the sloyd movement throughout the world. In conclusion, we shall turn our attention to the characteristics of educational sloyd. During the late 1800's and early 1900's, professional educators in several countries wrote extensively for or against the content and methods of the popular sloyd movement. Hundreds of pages of detailed discussion about the aims of sloyd, the basis of the system, method of procedure, design and arrangement of models, and even the knife as the basic tool of sloyd may be found in the literature of that era. However, the most comprehensive and yet succinct description of Swedish Sloyd is found in a pamphlet published by the school at Näås. Mr. Salomon appended it to an article which he wrote in 1888 for *Monographs of the Industrial Education Association*. It reads as follows:

#### A. Aim of the Instruction

Whilst the elementary schools prepare the children indirectly for life, the chief aim of the teaching of Sloyd is to give the pupils formal instruction, that is, to develop their mental and physical powers. It has also for its material and practical aim the acquisition of general dexterity of hand.

This formal education which Sloyd has in view aims principally at instilling a taste for and love of work in general; inspiring respect for rough, honest bodily labour; training in habits of order, exactness, cleanliness and neatness; accustoming to attention, industry and perseverance; promoting the development of the physical powers; training the eye and sense of form.

#### B. The Method and Means of Instruction

##### I. General Principles

Attendance at Sloyd instruction should be voluntary on the part of the pupils. In order to insure this the work must fulfill the following conditions:

1. It must be useful.
2. It must not require fatiguing preparatory exercises in the use of the various tools.
3. It must afford variety.
4. It must be capable of being carried out by the pupils themselves.
5. It must be *real* work, not play.
6. It must not be so-called knick-knacks, that is, articles of luxury.
7. It must become the property of the pupil.
8. It must correspond with the capabilities of the pupils.
9. It must be of such a nature that it can be completed with exactness.
10. It must admit to neatness and cleanliness.
11. It must exercise the thinking powers and not be merely mechanical.

12. It must strengthen and develop the bodily powers.
13. It must assist in developing the sense of form.
14. It must allow the use of numerous manipulations and various tools.

## II. The Teacher

1. The instruction must be given by a trained teacher, if possible by the same teacher who instructs in intellectual subjects.
2. The teacher should conduct, superintend and control the work; but guard against directly putting his hand to it.

## III. The Age of the Pupil

In order to follow with advantage the course of instruction the pupil ought to have reached that stage of development usually attained at the age of eleven.

## IV. Branches of Instruction

The simultaneous employment of several different kinds of Slojd acts detrimentally for the following reasons:

A sufficient number of subjects are already taught in the school and every different branch of Slojd is a subject in itself;  
 The time to be devoted to this work is short and limited;  
 By different kinds of work the interest of the pupils would be easily diverted, — therefore the instruction in Slojd should be confined to one branch.

For the above-mentioned standard of age wood-slojd is the most suitable. It includes carpentry, turnery and wood-carving.

Slojd-carpentry differs from trade-carpentry in the following respects:

1. As to the character of the objects made; in general the objects are smaller than those made in the trade.
2. The tools which are used; for instance, the knife, is the most important tool in wood-slojd — in carpentry it is rarely used.
3. The method of working; in trade-carpentry there is division of labor — in Slojd none whatsoever.

Turnery may be taken as a different branch of instruction, and as such be quite well separated from wood-slojd.

## V. The Number of Pupils

Individual instruction is generally advisable. This is especially the case with Slojd, which on fundamental and practical grounds cannot be taught as a class subject; therefore, the number of pupils taught by one teacher must be limited.

## VI. The Models

In order to make the instruction as intuitive as possible, models ought to be used in preference to drawings. The form should be sketched either directly, by placing the model on the piece of wood, or by means of a diagram drawn with ruler and compass on the wood.

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In arranging a series of models the following points must be observed:

**A. As to the Choice of the Models**

1. All articles of luxury are to be excluded.
2. The objects made are to be capable of being used at home.
3. They are to be such objects that the pupils can finish them without any help.
4. They are to be such objects as can be made entirely of wood.
5. The work is not to be polished.
6. As little material as possible is to be used.
7. The pupils are to learn to work both in hard and soft woods.
8. Turnery and carving are to be used as little as possible.
9. The models are to develop the pupils' sense of form and beauty.  
In order to attain this, the series must include a number of examples of form, such as spoons, ladles and other curved objects which are suitable for execution by the hand alone, guided by the eye.
10. The whole series must be so arranged as to teach the pupils the use of the necessary tools, and to know and carry out all the most important manipulations connected with wood.

**B. As to the Arrangement of the Models**

1. The series must progress without break from the easy to the difficult, from the simple to the complex.
2. There must be a refreshing variety.
3. The models must follow in such progressive order that by means of the preceding ones, the pupils may obtain the necessary aptitude to make the following ones without direct help.
4. The models must be so graduated that at every stage the pupil is able to make an exact copy, not merely an approximate one.
5. In making the first models only a small number of tools must be used; as the work progresses the number of tools and manipulations should gradually increase.
6. At first the knife, as the fundamental tool, should be mostly used.
7. Rather hard woods should generally be used for the first models.
8. At the beginning of the series the models should be capable of being quickly executed, and gradually models which require a longer time should be given. (pp. 202-204)

Much has been written about the inclusion of sloyd in the schools of Europe, but one of the most important evidences of the strength of the movement is the publication *Hand and Eye*, a periodical which began in the late 1800's as the medium of communication between the members of the Froebel Society, the Sloyd Association of Great Britain and Ireland, the Northern Counties' Sloyd and Educational Handwork Association, and the Sloyd Association for Scotland.

In Chapter 6, reference will be made to the specific contributions of the sloyd movement on manual training and industrial arts in the United States.

## Della Vos

Although the name Victor Della Vos is an important name in American Industrial Education history, he is not considered a renowned educator in the same sense as the preceding personalities. In fact, relatively little is known about him. One may search the history of education literature or general histories of Russia and scarcely find his name. Yet he and the Polytechnical Institute in Russia that he directed became the spark that ignited the manual training movement in the schools of the United States. It would be exaggeration to say that without Della Vos, manual training would never have been initiated in the United States. But it seems safe to say that its origin would probably have been delayed at least a decade or two. His contribution to the field, while significant, was quite inadvertent. The story of how the display of objects at the Centennial Exhibition in 1876, made by students in his school, gave impetus to American Manual Training will be given further consideration in a later chapter.

Undoubtedly, the most up-to-date information about the life of Della Vos is supplied in the following summary by William Schurter from his research for a doctoral dissertation at the University of Maryland:

Viktor Karlovich Della-Vos was born 31 January 1829 and attended the gymnasium attached to the Rishel'yevskii Lyceum in Odessa. He continued his higher education at Moscow University under the philosophy faculty.<sup>a</sup> In 1853 Della-Vos obtained the candidate's degree<sup>b</sup> from the department of natural science of the school of physics and mathematics.

Upon graduation Della-Vos taught at the Main Horticultural School of the Ministry of State Property for three years. In 1856 he accepted a position as instructor of mathematical sciences at his former secondary school at the Rishel'yevskii Lyceum in Odessa. He was commissioned in 1858 and 1859 to lecture in mathematics in the Lyceum's

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<sup>a</sup>The University's registry showed that he was a member of the second-year class at the conclusion of the 1848-49 school year and supplied this smattering of information: Della-Vos, at nineteen years of age, provided his own tuition (i.e., was not state supported), was of the petty bourgeoisie class, of the Roman Catholic faith, demonstrated "good" behavior, had performed "satisfactorily" in his science courses, and had been in attendance at the university for two years. "Imennaia vedomost'," *Otchet o sostoianii i deistviiakh imperatorskago moskovskago universiteta: za 1848-1849 akademieskii* (Moscow: 1850).

<sup>b</sup>Equivalent to the Master's degree.

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university courses.<sup>c</sup> While there, Della-Vos, together with Valentine Rosenberg, wrote a physics textbook<sup>d</sup> that was published (1860) in Odessa.

In 1859 Della-Vos was sent abroad to study manufacturing facilities and techniques and also to become acquainted with teaching methods in the technical schools of Western Europe. In France he visited the Foremen's schools of Chalon-sur-Marne, Aix, and Angers.<sup>e</sup> In 1862 he attended the London Exposition. His travels in Europe lasted until the end of 1864.

Upon his return from abroad Della-Vos was appointed professor at the Petrovskii Agricultural and Forestry Academy in Moscow. Then, in 1867 he assumed the position of director of the Imperial Moscow Technical School, where he remained until 1880. During his first year at the technical school it was reorganized from a long-standing trade (vocational) school into a higher technical educational institution.<sup>f</sup> Della-Vos and his staff developed a new system of industrial education during the next few years. This "Russian system" of instruction was first demonstrated at the St. Petersburg exhibition in 1870. It was also shown at the world exhibitions in Vienna (1873), Philadelphia (1876), and Paris (1878). Della-Vos personally represented the Russian educational exhibits in Vienna and Paris.

Della-Vos was instrumental in organizing a society of technicians who obtained their education at the Moscow Higher Technical Institute. The first meeting of the Polytechnical Society attached to the Imperial

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<sup>c</sup>In May 1837 a "feeder" gymnasium was attached to the Rishel'yevskii Lyceum. Featuring special courses in technical subjects, the gymnasium was intended to bolster declining enrollments at the Lyceum. However, the universities continued to attract most of the students seeking further education, including Della-Vos. The Lyceum itself consisted of a physio-mathematical section and a juridical section, each offering a three year program beyond the regular gymnasium curriculum. A.H. Steven, "The Reform of Higher Education in Russia during the Reign of Nicholas I, 1825-1855" (Ph.D. dissertation, Princeton University, 1974), pp. 138-145.

<sup>d</sup>The title of the book was: *Sobranie fiziyeskikh zadach dlia vospitannikov srednich uchebnykh zavedenii* (A collection of physics problems for pupils in middle-level educational institutions).

<sup>e</sup>See *Description of the Collections of Scientific Appliances Instituted for the Study of Mechanical Arts in the Workshops of the Imperial Technical School of Moscow*. Moscow: W. Gautier, (1876).

<sup>f</sup>The early history of the school is in question but most accounts give 1830 as the date when the school was founded as a trade school for training skilled masters with a knowledge of theory. The school was administered under the Department of the Institutions of the Empress Maria until 1887, when it was transferred to the Ministry of Public Education.

Technical School was held on 18 October 1877. Among the society's publications were reports on the school's activities prepared by its director.

In 1880 Della-Vos was invited to join the Ministry of Transportation<sup>g</sup> to develop and organize the training system of the technical schools of this department. He became head of the training department of the Ministry of Transportation upon its formation in 1883, where he remained until his death. He represented Russia at the artistic-industrial exhibitions in London and Antwerp in 1885. At the beginning of June 1890 Della-Vos went to Paris for treatment of a long-time heart ailment. He died in Paris on 27 July 1890 at the age of 61.<sup>h</sup> His body was returned to Moscow and buried in the Alekeyevskii Monastery. In 1897, on the anniversary of his death, a memorial service was held at which a tombstone was placed on his grave and a requiem liturgy was conducted in the monastery's cathedral. On the same day a requiem liturgy was also held at the grave of A.S. Ershov (1818-1867) who was also buried at the Alekseyevskii Monastery. Ershov held a professorship at the University of Moscow in the School of Physics and Mathematics when Della-Vos was a student there. In addition, he was a director of the trade school before it became the Moscow Higher Technical Institute. Among others present at the service was the current director of the technical school, I.V. Aristov.<sup>i</sup>

The schools with which Comenius, Pestalozzi, Froebel, and Salomon were associated included manual instruction primarily as part of the student's general education, only incidentally as preparation for a livelihood. On the contrary, instruction in the Imperial Technical School of Moscow, which Victor Della Vos directed, was principally vocational in intent. It was a well-respected higher education institution. Its primary mission was the preparation of mechanical constructors, mechanical engineers, and technical engineers. The school was organized into three divisions: Special, General, and Preparatory. Della Vos (1876) described the program of studies as follows:

The three years' course of the general division embraces the following subjects: Religion, Free hand and Linear Drawing, Descriptive

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<sup>g</sup>The term *Soobshcheniia* is literally the "ways and communications"; yet *ministerstva putei soobshcheniia* is commonly translated "Ministry of Railroads." However, the purview of the ministry included land and sea communication, as well as travel upon the canals and rails of the Empire; thus, "Ministry of Transportation" was the translation preferred in this study.

<sup>h</sup>Most of the information presented in this biographical sketch was derived from the *Russkii Biograficheskii Slovar'*, Volume 6 (1905), pp. 192-94.

<sup>i</sup>These and other details of the memorial service were reported in *Russkiiia Vedomostia* (Moscow), No. 194, 16 July, 1897.

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Geometry, General Physics, Zoology, Botany, Mineralogy, Chemistry, Geodesy, Analytical Geometry, Higher Algebra, Differential and Integral Calculations, General Mechanics, Drawing of Machine-parts, the French and German Languages, i.e. all Scientific subjects, the previous knowledge of which is required from the pupils of all the three following Branches.

In the special department, the three years' course of the three branches contains the following subjects: Organic and Analytical Chemistry, Technics of Wood and Metals, Analytical Mechanics, Construction of Machines, Practical Mechanics, Railway Construction, Engineering and Constructive Art, Projecting and Estimating of Machines, Works and Mills, Industrial Statistics and Book-keeping.

Every one of the appointed sciences is taught fully or in a condensed form, according as it is considered a fundamental or collateral subject of the given branch. The students of all the classes are occupied during a stated time in practical work in the laboratories and mechanical workshops.

The school has also a preparatory division, of three classes, with the same curriculum as the higher classes of commercial schools, and is intended for such pupils as, by any reason whatever, have not been enabled to pass through the full course of the commercial or of the classical schools. (pp. 1-4)

Entrance into the Imperial Technical School was by competitive examination, which was typical in the polytechnical schools of Europe in the nineteenth century. Recall for example, that Otto Salomon was admitted to the Stockholm Institute of Technology by examination. The school in Moscow was rather large, having five hundred and eighty-six students in 1876.

Della Vos and the governing board of the school were committed to the belief that the well-prepared engineer and technician should have practical hands-on experience as well as purely theoretical education. Della Vos wrote critically of the fact that the efforts of directors of technical institutes in Europe to add practical work to their curricula had been "unattended with success." So, to assure practical instruction in his school Della Vos required students to work in the large mechanical works that were associated with the school. They were instructed in this production industry by technologists who were specialists in their line of work. This type of practical instruction lasted until 1868 when, "the School council considered it indispensable in order to secure the systematical teaching of elementary practical work, as well as for the more convenient supervision of the pupils while practically employed, to separate entirely the school workshops from the mechanical works in which the orders from private individuals are executed, admitting pupils to the latter only when they have perfectly acquired the principles of practical labour" (Della Vos, 1876, p. xix).

With the new workshop type of instruction came the necessity for developing methods of teaching the mechanical arts. The teaching methods that were devised had to meet four requirements. First, competency should be attained in the least amount of time. Second, supervision of student work should be improved, taking into account the gradation of student achievement. Third, the study of practical work must provide for sound, systematic acquisition of knowledge. Fourth, the method of instruction used must facilitate the demonstration of student progress. Methods conforming to these requirements were formulated and used in systematically teaching the arts of turning, carpentering, fitting, and forging.

Students were expected to construct exercises with special attention being given to the structural elements which were involved. The exercises were graded on a pedagogical sequence from simple to complex, from easy to difficult. The exercise was not necessarily a useful object and was discarded when the student had received the value from its construction.

It is understandable why Calvin Woodward, the father of American manual training, was attracted to the Russian system of practical instruction when he became fully acquainted with it. He was an engineering professor who had the same concern as Della Vos that his engineering graduates might have the ability to apply in practical situations the theoretical and scientific knowledge they had acquired. An extensive discussion of Woodward's work is included in Chapter 4.

## SUMMARY

Throughout the historical development of organized European education there were threads of practical instruction woven into its pattern. Various leaders, such as those characterized in the foregoing pages, introduced functions that required to an ever-greater extent the use of human senses. Teaching-learning methods were enhanced by increased use of sight and touch in the perception of basic concepts. These and other educational leaders developed situations in which the learner was forced into action involving tangible materials, thus improving learning effectiveness.

Practical education in Europe during the seventeenth, eighteenth and nineteenth centuries was evolutionary. For example, Comenius gave added significance to words by using pictures and objects that were familiar to the student. Pestalozzi, using similar methods, theorized and tested activities appropriate at different age levels of students, stressing the importance of broad practical training as

necessary for future employability. Froebel's method added to Pestalozzian influence a stronger element of creativity, the use of tangible materials being a natural outlet for creative expression.

While the efforts of the above-mentioned leaders and their contemporaries gave impetus to *general* trends in practical education, the work of Salomon and Della Vos provided *direct* influence on the founding and development of manual training and industrial arts education in America because of the prominent schools they founded and managed.

Societal forces on the individual lives of the men listed in this chapter — religious, economic, industrial, social and political — consciously or unconsciously compelled them to improve the educational programs of their time.

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# Industrial Education In Early America

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## ESTABLISHING THE AMERICAN COLONIES

### Early Colonial America

The beginnings of American education are rooted in the colonists' constant and continuous struggle to sever the ties with their European ancestors. Colonists left their homeland for many reasons; some of which were to gain political and religious freedoms, enlarge their potential for economic gains, attain a higher social status, and search for a new life in a new land. These factors and others will be explored in detail in this part of the chapter.

The new settlers met many obstacles and hardships upon their arrival in America, many of which they were not prepared for nor did they expect to encounter. These obstacles included such things as a vast untamed wilderness, hostile Indians, wild animals, the lack of adequate shelter and clothing to provide protection from the climate, inadequate implements to cultivate a land pervaded with trees, rocks, and boulders, and a shortage of food. With obstacles such as these, present day people may wonder how the early colonists even survived such hardships.

Although the settlers were seeking freedoms from their European ancestors in one form or another, they continued to maintain a close linkage with their mother country, especially during the early years of establishing the colonies. This close linkage was characterized in their religious beliefs, the types and methods of education they exercised, the form of government they inaugurated in the separate colonies, the types of industries they established, and the industrial goods they exported. Likewise, the mother country encouraged and in many cases demanded this close linkage with the new colonies. Exemplifying the tight weld of this linkage were the restrictions placed on the colonies in

the exportation of goods both within the colonies and abroad, to Europe and the West Indies in particular.

Why then, did this close linkage continue to exist when, in fact, it was the settlers who left their mother country to achieve various forms of freedom? The colonists left their homeland with various "understandings" and "convictions." In addition, particularly in the early years, the opportunity to move to a new land did not supercede the many colonists' commitment to their mother country. It must also be understood that the mother country's influence on the colonists during this period was so great that it was almost impossible to sever all ties immediately and completely. Finally, it was not timely either politically, socially, or economically to completely sever the colonies from their mother country. These factors will be expanded on in the following paragraphs.

While the new settlers in America had many characteristics in common, they also had many uncommon characteristics. It has been previously emphasized that the colonists left their homeland to gain various types of freedom; these were the characteristics they had in common. However, they settled in different parts of America along the Atlantic coast because of their unique characteristics. Significant among these characteristics were the differences in their religious indoctrination or beliefs that would influence the direction education would take in America.

In order to adequately understand the beginnings of education in America, it is first important to critically examine the political, economic, and social developments of colonial America. For purposes of clarity, the discussion of these elements will be categorized under three main geographic areas: Southern Colonies, Middle Colonies, and New England Colonies. The scope of this chapter prohibits an in-depth analysis of the three colonial regions. However, an overview is provided to allow the reader a better understanding of those factors that influenced the roots of American education.

**Southern Colonies.** The founding of the first colonial settlement in Jamestown, Virginia, set the stage for much of the political, economic, social, and religious activity that would follow in the other Southern Colonies. Bolles (1881) described the Southern Colonies as consisting of two distinct types of systems: the aristocratic people who maintained the houses and large land holdings with indentured servants and slaves to work them, and the Scotch merchants and mechanics whose prime purpose was the exportation of industrial goods.

The farms in the Southern Colonies, especially those that fronted the Atlantic coast, consisted of large plantations that extended well into the coastal interior. Each plantation contained a large mansion for the plantation owner and his family, and the land was dotted with tenant

houses for the land managers and cabins for the slaves. The colonial mansions were immaculately decorated, typical of the European mansions of the time. The division of labor common to Europe was feudal, and the feudal system was adopted in the colonial South.

The southern colonial climate, unlike that of the North and Middle Colonies, was ideal for agricultural advancements. Even though the farm implements were crude and had been brought from the mother country, they were adaptable to the soil and thus to cultivating crops. In addition, the southern climate with its long summers and short winters allowed for the planting of a variety of farm crops. Farm crops that were not consumed by the southern colonists were exported to England and the West Indies. There was little trade in the beginning among the Northern, Middle, and Southern Colonies because good roads were scarce and other modes of transportation were almost non-existent. Trade was guarded and, for many years, England forbade the southern colonists from purchasing foreign manufactured products other than those from the British. Thus, the Southern Colonies provided a pure example of the tight linkage between the British crown and the colonies.

As southern agricultural efforts became economically successful and as the cooperative efforts that had begun in Jamestown failed, large tracts of land were sold. It has been previously mentioned that the large plantation owners held title to much of the colonial South's land. These plantation owners procured this land because of the acquired wealth that they had previously established in England and brought to America. There were other factors, too, that allowed one to obtain large tracts of land. Each of these, however, including the one previously mentioned, had the mother country's influence. For example, large blocks of land could be obtained because of one's meritorious work performed in England prior to arriving in America or simply through special favoritism. Thus, in the early years of the colonial South, it was difficult for those who did not already hold grants for large tracts of land to acquire them. However, there did exist a number of farmers on small tracts of land who tilled their own plots and benefited directly from their own toil.

The land, whether large tracts or small ones, became the basic form of economic growth for the colonial South in the very early years. Tobacco quickly became the staple crop of the colonial South. The soil, unlike that in the North, was well suited for tobacco, and tobacco growing consumed almost all the southern colonists' attention up to the eighteenth century. When it was found that other crops were also suited to the soil and climate and when England's demand for other farm products increased, the southern colonists expanded their production to include rice, hemp, olives, gum, silk, indigo, opium, and logwood.

**New England Colonies.** The settling of the New England Colonies provides a sharp contrast to the settling of the Southern Colonies. In New England, small farms were distributed to individuals, groups, and congregations for cultivation. The land was based on the town system with small communal villages in the center. The town served as the center for all governmental, political, cultural, and educational affairs. It may be said that the administration of the town by the public was the purest form of democracy that occurred in all the early American colonies. All decisions regarding the town, e.g., political, educational, economic, and social, were made at the town meetings, where people were invited and encouraged to attend and participate.

The economic challenges of New England were far different from those of the Southern Colonies. The soil was heavily wooded and rocky and required implements to work it that were entirely different from those used in the colonial South or England. In addition, the climate had a considerable influence on the economy. The summers were short and cool, and the winters were long and cold. These challenges were so immense that it required all people (children, parents, ministers, etc.) to work the land. The hardships incurred were great and if it were not for the colonial spirit of determination, love of liberty, and experimentation, the New England Colonies would not have advanced so rapidly (Bolles, 1881).

From the very beginning, the New England colonists learned much from the Indians, especially in the methods of cultivating crops such as corn, pumpkins, potatoes, tobacco, squashes, fruits, and vegetables. These colonists soon learned how to clear the forests, remove rocks and boulders from the fields, and work the stubborn soil.

A greater variety of crops were harvested in the North than in the South, and barley, corn, beans, rye, and wheat soon became the most dominant crops planted. However, the colonists were forced to be frugal regarding their farming methods, and often they farmed the land until crops could no longer be grown on it. Then they moved to new land. Farming was so important to the survival of the New England colonists that one was looked down upon unless he or she engaged in farming. For more than a century and a half, the New England colonists remained in somewhat of a stationary state with no great advances economically or politically.

**Middle Colonies.** The Middle Colonies evidenced a balance in the political, economical, social, and educational forms between the Southern Colonies and the New England Colonies. As in the colonial South, the land played a significant role in the early development of the economy and had strong European linkage. The Middle Colonies consisted of various racial groups including the Germans, Dutch, Swedes,

Welsh, English, and Scotch-Irish and each contributed in various ways to the growth of the Middle Colonies.

Unlike colonial South and except for New York and Pennsylvania, land holdings in the Middle Colonies were relatively small, but not as small as they were in the New England Colonies. Agriculture was superior to that of the New England Colonies but did not approach the advancements made in the colonial South.

The Middle Colonies may be most noted for the advancements made in agriculture technology that, in turn, influenced the economic growth of the colonies. Typical of these were the advancements in crop rotation (tried in New England without much success), land fertilization, and land irrigation. Corn was first tried without success, and wheat soon assumed the role of the staple crop in the Middle Colonies. Bining (1955) described the Middle Colonies as the "bread colonies" because of their reliance on wheat as a basis for bread and biscuits. The importance of wheat in the growth of the economy of the Middle Colonies is evidenced in the demand for its exportation to other colonies, Europe, and the West Indies. "Spring houses" were constructed and allowed for the storage of goods. These buildings were constructed over a stream where farm products could be kept cool and were the forerunner of modern day refrigeration systems. Although the farming methods were crude compared to today's standards, the Middle Colonies made significant advancements in raising livestock for meat and milk, and in growing vegetables and fruits. It was not uncommon by the late 1750's to find most farms fenced.

### **Economic Development in the American Colonies**

Lippincott (1933) noted that the economic development in the colonies was vigorously influenced by legislation both in England and in the American colonies. In both regions laws were passed for the regulation of commerce and manufacturers, and a dichotomy soon developed between the desires of the lawmakers in the two areas.

The English lawmakers were most interested in economic development of the colonies and what benefits this development might have for English commerce. For example, the English lawmakers encouraged in colonial America the production of raw materials needed by the English. The English were also concerned with the advancements that were made in colonial manufacturing and wrote legislation to protect English manufacturers from the rising influence of colonial manufacturers. Finally, the English lawmakers were protecting the colonial markets from any foreign manufacturers so the English would have exclusive first rights to the colonial finished goods markets.

Running at cross purposes to the English concern was the concern of the colonial lawmakers. It must be remembered that the American

colonists were seeking various types of freedom from their mother country even though close ties of one type or another continued to be maintained up to the latter half of the eighteenth century. One of the these freedoms was economic independence, and the colonists in almost all parts of America strived diligently for this independence. One of the first concerns of the colonial lawmakers was to identify and establish certain industries that would manufacture goods needed in the colonies and thus contribute significantly to their economic development. In addition, colonists lacked substantial personal savings; therefore, colonial legislatures were interested in producing a supply of needed commodities with as low a price as possible.

It was because of these conflicting ends that much of the legislation passed in England and America tended to be contradictory as the colonists strove toward political and economic freedom. As England passed laws to strengthen and maintain the mother country's hold over the colonies, the colonies passed laws to gain more freedom. While the immediate effect of early colonial legislation was negligible, the laws did influence economic growth and political influence at a time when the colonists most needed it. For example, the net result of early colonial legislation was five-fold (Lippincott, 1933). First, laws were passed that provided for the conservation of desirable raw materials needed in the colonies. Second, there were laws passed that granted aid in various forms to colonists who produced certain desirable commodities. Third, there were laws that prohibited or restricted the exportation of various raw materials needed in the colonies. Fourth, there were tonnage duties that granted special favors to owners or builders of vessels. And fifth, laws were passed that provided grants of monopoly, including such things as patents.

By 1760, there was evidence of a definite change in attitude toward the colonists by England. Even though close ties had been maintained, England commenced a sterner policy in her activities with the colonists. Strongly accounting for some of this change was the ascension to the English throne of George III, a true monarch. Another important factor was that England had just completed the Seven Years War and was heavily burdened with debt, a debt the colonists were expected to help eliminate or drastically reduce. In addition, England was required to maintain troops in America to protect her interests from France and the Indians. England had suffered in the war as a manufacturing trade center, and the English manufacturers and producers desired to secure complete control over all colonial markets. Thus, the idea of the English regulating colonial commerce, an idea that had been implanted from the very beginning, took on a new focus. In order to add substance to England's desire for complete economic control over the colonies, a number of laws were passed in England including the Sugar Act of 1764,

the Stamp Act of 1765, the Townshend Act of 1767, and the Tea Act of 1767. While England's intentions were commendable for her own economic advancement, the net impact of these laws and others on colonial economic development was negligible, and the colonists continued to grow less reliant on England for their economic growth.

The preceding paragraphs may lead the reader to conclude that rapid advancements were made in manufacturing in colonial America. The opposite was true, however. Throughout the colonial period the advancements made in colonial manufacturing were, at best, slow. It must be remembered that well into the colonial period all manufacturing was done by members of the family, and the resultant products were used by the family since there was little or no commerce. This economic situation existed until communications were established with the outside world — other colonies, England, and the West Indies, for example. This communication was thwarted until modes of transportation were established.

The growth of towns in the colonies resulted in increased commerce and occupational differentiation. However, even with the growth of towns, economic expansion still remained within the family for many years. The great majority of production was done by hand because there was an absence of major forms of machinery. When machinery was developed, sources of energy to power the machinery had to be found and developed. Most of the manufacturers in the towns were small and were managed by the "master." As previously noted, most of the early production was for the colonial market in order to sustain the colonists.

The slow beginning was no indication of the advancements to be made in manufacturing as the colonies developed into maturity. Soon, diverse types of manufacturing were developed to meet the needs of the colonies. In the Middle Colonies, for example, mills powered by water for grinding flour and meal flourished. In the Southern Colonies at first, but later in all colonies and particularly in the New England Colonies, textile mills began to dot the landscape. Lack of cloth and clothing promulgated the growth of textile mills in America with Whitney's cotton gin providing a sound foundation for the growing industry.

Various other types of mill industries also flourished throughout the colonies, including mills for sawing lumber and grinding malt, plaster, mustard, and flaxseed. Oftentimes, a mill combined many of these operations in order to maintain its mere existence.

Probably the best example of the growth of colonial manufacturing and thus economic growth and development may be found in the slow and yet methodical growth of the leather industry and its by-products (Hazard, 1921). The uses of leather became many and, in the beginning, leather was used mainly to make footwear. The first leather foot-



wear was produced in the home, from tanning to actual production. As time progressed and labor became more abundant, an itinerant cobbler went from house to house and made leather goods such as boots, straps, clothing, and harnesses. Still later, leather work passed from this handcraft stage to the factory system.

It would be misleading for the reader to believe that the above industries were the only industries that developed and flourished in colonial America. Many others were developed according to a specific colonial, community, or individual need that had a net result of furthering economic development in the colonies. Each industry made specific demands on the social climate, political attitudes, expansion of commerce, and, as we shall see, had an important contributory effect on early American education. Some of these industries included the production of ships, carts, and wagons for transportation; cabinetwork; furniture; brass; copper; soap; candles for the home; and brick and timber products for construction.

### **Social Development in the American Colonies**

The social development in the American colonies was, in the beginning, two-fold. On the one hand, there was the interest in maintaining the social standards some colonists had experienced while living in their mother country; while on the other hand, there was the need to break social ties with the mother country and establish new standards for a new life in a new world.

It was impossible for most American colonists to break abruptly with the social conditions they had experienced in their mother country. For some, the eventual break was easier than for others and was strongly influenced by their religious beliefs, political indoctrination, educational expectations, and social demands. Strong English social influences were immediately apparent in the new world as the colonists' English background was evident in the trades they practiced, books they read, and the house and clothing fashions they followed. In addition, some of the more wealthy colonists sent their children back to England for an education. In spite of this, however, to conclude that the social conditions and development were homogeneous among American colonists would be misleading. In most instances, the social development was entirely different from one colony to the next or even from one town or family to the next. Not all the colonists desired to come to America since there were some who were considered "non-desirable" by the British crown, e.g., beggars and prisoners, and were shipped to America to make conditions better in England.

Also, into most colonies came a large emigration from Europe which brought a mixture of nationalities and classes to America. Each new person and class had its particular individual philosophy and man-

nerisms that expedited the social change in the colonies. It became evident very early that in almost all regions the ruling class was one of wealth, and this class, in turn, sought to impose its moral and religious rules over the colonists.

One of the most important factors causing change in colonial life was the obsession with the accumulation of nature's abundance. When the early settlers arrived from their mother country, there was plenty for everyone as each contributed hard labor to maintain his or her existence. Since all work was done by hand, one's ability to increase production goods raised not only personal social standards, but the social standards of the entire community. As the accumulation of nature's abundance contributed to one's increased livelihood and thus wealth, there was a concerted effort by the colonists to capture and control this abundance. These efforts were evident in the New England Colonies, Middle Colonies, and Southern Colonies.

The New England Colonies were abundant with forests, and the surrounding water contained an abundance of sea riches. Those who could capture and develop the forests and the resources of the sea were those who found the quickest road to wealth. Those who exerted their efforts in farming the rocky and untillable soil were, for the most part, unsuccessful and poor. The forests provided the wood used to construct houses, buildings, and ships, and the sea was abundant with fish. From these two natural resources, great industries could and would be developed in the years to come.

It was previously emphasized that the Middle Colonies were suited for farming. Great wealth could be accumulated with large farms that grew wheat, vegetables, and fruits for the other colonies and for the export trade.

Finally, the Southern Colonies with their remarkable climate for farming, were ideal for the plantation owner who wished to increase his wealth by buying more farms; producing cotton, wool, and other fibers so necessary to the making of cloth; and using indentured servants and slaves to work the plantation.

In spite of nature's many inherent gifts for the early colonists, it was still difficult to obtain and then maintain wealth. Unlike today's society, the differences between those who were wealthy and those who were poor were not great in early colonial America. A convenient monetary system had not been established, and there were no stocks or mortgages. Goods could not be produced in large quantities since there was no means to keep them from perishing. Colonial wealth was most evident in the amount of land one owned, tools possessed, jewelry and silver worn and stored, and ships and merchandise one owned. As more

and more immigrants came to America from Europe, any resemblance to a social class began to decay.

It may be said that the laboring class consisted of all colonists and, in the beginning, the most successful colonists were the "Jacks-of-all-trades." All classes experienced the hardships of work as each was expected to contribute, and a division of labor was, in the beginning, nonexistent. As the colonies developed and with the advent of indentured servants and slaves in the South, the higher well-to-do class was spared the difficult experiences of common labor.

The ability of the colonists to live and gain in a social class was only part of the social development that occurred in colonial America. Other advances included medical care, food preparation, travel, education, and publishing (Lippincott, 1933). While education will be discussed later, these other advances deserve a brief explanation. Medical care for the most part was based on tradition, a tradition carried over from the mother country. Most of the medical practices were based on superstition, and there was no real professional medical practice in the colonies until after the Revolution.

Early food preparation was done by the open fire of a fireplace. Later, the well-to-do had ovens. Tableware was often made of wood, and the techniques for food preparation and preservation simply had not been developed as they are known today.

It would be difficult for the present-day student to comprehend the hardships incurred by early colonists in traveling from one colony to the next or even from one town to another. In early colonial America there were no roads, and all travel was by foot or horseback. Many communities could not afford to build bridges or roads. Later as roads and bridges were developed, however, stagecoaches were used for travel. If long distances were to be covered, one would travel by boat. It was well toward the end of the colonial period before mail delivery was common, and, thus, prior to this time, communication was dependent on the most convenient modes of travel available.

The early newspapers were published in the home, and the type was set by hand. Although early publications were usually of a religious nature, these publications did provide an important means of communication. Many newspapers were published for the immediate community and contained news of local interest. Publications soon had an important political effect, however, as they provided people an important avenue to express opinions.

It was evident that the social development was as slow as the economic development previously discussed. The social development did, however, have an awakening experience on the colonists and set the pattern for much of the colonial life up to the Revolution.

## Political Development in the American Colonies

The political development in colonial America was one of a slow, continuous struggle to gain political freedoms and to preserve the rights of the colonists for which they left their mother country. Unlike other issues and developments in colonial America, almost all colonies assumed an active role in colonial political affairs.

From the very beginning, the colonists were interested in a number of issues that influenced their well-being. These important issues included: (a) the establishment of a government that met their needs, (b) the rights of each person to be a participatory agent in government affairs and the protection of those rights as defined in colonial charters, and (c) the protection of the colonists' rights and livelihood against the large proprietors and later the French Canadians and Indians (Lippincott, 1933).

The development of a formal political government in colonial America attracted much interest since England had had no prior experience in establishing a controlling government in any of its colonies. Just as the experience was new for England, it was also new for the colonists. At first, most of the governmental control England exerted over the colonies was established through experience with no historical precedent. As time passed and England realized the grip it embraced over the colonies was loosening, England tried to tighten its control, often without success.

Each colony devised its own form of political government; however, after a period of time the types of government found in the various colonies were very similar. The growth of a representative form of government in the colonies was evolutionary in nature. Most governments were reflective of a strong English tradition, and even today we witness English tradition in our own form of government. The highest official in the colonies was the Royal Governor who was appointed to the office by the British crown. The second highest office was the Colonial Council whose members were also appointed by the British crown. The third office, or branch of government, was the Colonial Assembly. Its members were elected by the people, and this represented the beginning of a democratic form of government. It was not a true democratic form of government since universal suffrage was not in existence, and often one's right to vote depended on the amount of land one possessed.

The struggle to gain political freedom in the colonies was closely tied to the colonists' struggle for economic and social independence as previously discussed. For example, for many years England exercised the authority to control the amount of trade both into and out of the colonies. While colonial governments commonly violated this mother country authority, England did continue to exercise this right, even up

to the time of the Revolution. This example of English political restraint over the colonies is just one of the political controls from which the colonists sought to free themselves. There were many others. These included such things as: (a) the political struggle for individual rights and well-being of the colonists, (b) the political struggle for the establishment and development of various colonial industries, (c) the political struggle to establish a colonial union, and (d) the political struggle for the colonists to regulate the customs and habits of their people (Lippincott, 1933). There were many other political struggles that, along with the economic and social struggles, made significant steps toward the outbreak of the Revolutionary War.

As the colonial governments developed in the various colonies, it became evident that there must be some form of income to support the governments. In the beginning, there was no common currency among the various colonies, and production goods were often used as barter. As industries developed and merchants found themselves handicapped by a barter system, a greater need arose for a common currency. Most colonies, in fact, developed their own paper money. Massachusetts was the first to do so and the other colonies soon followed. Fortunately, however, the overall lack of great economic development in the colonies negated any great need for a common currency for many years. This lack of need was further strengthened by the small demand for money to build bridges, highways, public buildings, and to support a militia. There were taxes in the various colonies however, to provide some source of income to support public projects (Dewey, 1902). In the North there were poll taxes, taxes on gross produce of the land, general property taxes, and occupational taxes. In the South and later in the other colonies to the north, there were import and export duties on such things as liquor, tea, coffee, and wine.

Thus, the political struggle had strong economic and social ties and the combination of these three influences contributed to the outbreak of the Revolutionary War. Lippincott (1933) suggested that the political influences that caused the Revolutionary War were the rapid growth of free institutions on this side of the Atlantic, the unwillingness of the colonists to relinquish their freedoms, and the failure of the English government to adequately understand the temper and attitude of the colonists.

### **General Education in the American Colonies**

Colonial America witnessed a slow, continuously evolving change in economic, political, and social developments up to about 1775. These developments had a significant impact on the direction education would take in America, from a system that was strongly Church influenced to one that was strongly State supported. While this change was gradual and had strong European antecedents, one must be cognizant

of the development of education in America in light of the society in general.

The beginnings of American education are directly traceable to the Protestant revolt in Europe when schools were instruments of the Church. Those European children who went to school were taught to read, so that they would become more familiar with the commandments of God. As people left their homeland for a new land, they carried with them many of their religious beliefs, especially the methodology of child education. Thus, the beginnings of American education are deeply rooted and directly traceable to Europe.

The early settlers in America commonly bonded together according to religious affiliation, e.g., the English Quakers who settled in Philadelphia, the Puritans (Calvinistic dissenters) who settled in the New England Colonies, and the Scotch who settled in New Jersey.

The Puritan settlements in New England contributed significantly to the future development of American education, and much of American education today is rooted in New England thought. Their philosophical ideas toward education resulted in the establishment of a system of education that was the responsibility of the Church and State. The Puritans were quick to establish a form of government with both civil and religious responsibilities.

Instruction in learning how to read and participate in Church services was a responsibility of the home. In addition, the home served as the center for apprenticeship training by a master apprentice. This type of education was modeled after the English apprenticeship except that it was controlled by the laws of towns instead of the guilds. The larger town governments established a college to train ministers for the Church. All of these (home instruction, apprenticeship, Latin grammar schools, college) had antecedents in England where education was voluntary and subordinate to the Church.

While the idea for voluntary education was excellent, it did not work well in many instances. The cause of failure is directly traceable to the unique conditions in the new homeland. The work entailed in establishing a home in a vast new wilderness required that parents and master apprentices spend all of their time in establishing their settlements. The result was that the child's education was neglected. This neglect caused the Puritan Church leaders to appeal to the State (the legislature) for assistance in the form of purposeful legislation that would mandate parents and master apprentices to provide education. The fruits of their efforts were the passage of the Massachusetts Law of 1642. The significance of this Law was twofold: it gave town officials the authority to impose fines on parents and master apprentices when proper instruction in learning how to read was not being provided, and it was the first recorded evidence of a state mandating through legisla-

tion that all children be taught how to read. The Law did not, however, establish schools or the employment of teachers. The passage of the Massachusetts Law of 1647 accomplished what the law of 1642 had failed to accomplish. That is, it provided for the following: a town of fifty householders was to employ and pay wages of a schoolmaster to teach reading and writing, and a town of one hundred householders was to establish a Latin grammar school to prepare children for the university.

What was the importance of the Law of 1647 to American education today? First, the State, acting as the servant of the Church, ordered the establishment of a school system in almost every town. Second, there was for, the first time, a right given to the State to require communities to establish and maintain schools or to pay a fine for neglect. Cubberley (1919) concluded that the combination of the Laws of 1642 and 1647 represented "the very foundation stones upon which American public school systems have been constructed" (p. 18). Thus, a State (through its legislative body) established a precedent and commenced a tradition as to who shall establish, maintain, and manage a school system.

The Middle Colonies' approach to education was quite different from the Puritan-Calvinists' New England efforts. The Middle Colonies, e.g., New York, New Jersey, Pennsylvania, although founded by a number of different Protestant faiths, represented many different nationalities. However, all of these Protestant faiths believed in the importance of education and the ability to read the Bible. The diversity of nationalities allowed no one particular sect to establish a universal form of education. The result was many different forms of education with no state mandates. Each sect did, however, require instruction in reading, counting, writing, and religion. Furthermore, each sect provided instruction in the language of the settlers, and there was no form of higher education. Education was left to the direction of the Church and to those who could afford it.

The educational ideas of the southern colonists were quite different from those of either the New England colonists or the middle colonists. In the Southern Colonies large plantation settlements emerged where immigrants worked the land. Whereas town governments were established in the New England Colonies, societal classes developed in the Southern Colonies, making the state-influenced school systems of the North nonexistent in the South. Educational programs of the South were directly influenced by the English schools. One must remember that the New England immigrants sought religious freedom while the Southern immigrants sought economic gains.

Education in the Southern Colonies was directly influenced by societal classes. Education for the poorer, lower classes was largely apprenticeship training and a select few pauper schools. The rich, higher classes enjoyed education in the home, private schools, or abroad in

England. Thus, education was directly related to what one could afford to pay. In a select few instances, Virginia, for example, legislation was passed that provided for apprenticeship training of the poor and for local and colony funds to be utilized to support this education. As a whole, however, education was not a function of the State, and the Church assumed no dominant role.

Thus, three forms of education began to emerge and take shape in the Colonies — State supported, Church related schools in the New England Colonies; Church dominated schools in the Middle Colonies; and privately supported education for the few in the Southern Colonies.

The preceding paragraphs have provided evidence that the English performed a significant role in early American education. One must also remember that it was the English who provided the greatest number of immigrants to America during the colonial period. Thus, many characteristics of the English educational system found their way into the American colonies. Exemplary among these characteristics were four unique schools: the dame school, the writing school, the Latin grammar school, and the pauper school.

**Dame School.** The dame school became the primary school for teaching elementary age children the rudiments of reading, spelling, writing, and counting in the New England Colonies. The dame school was quite popular during the eighteenth century in America. This neighborhood school was taught by a woman who received just “pennies” each week for her efforts. In New England successful completion of studies at a dame school became the prerequisite for entrance to the town Latin grammar school.

**Writing School.** Like the dame school, the writing school had antecedents in England. Pupils who attended the writing school were taught accounting, reckoning, and writing. The writing school gained its greatest popularity in the Middle Colonies. In New England the widely separated settlements caused the dame school and the writing school to be later combined into one school, the school of the 3R's (reading, 'riting, and 'rithmetic).

**Latin Grammar School.** While there is evidence of the existence of Latin grammar schools in the Middle and Southern Colonies, this type of school gained its greatest popularity in the New England Colonies. At the age of seven, a small number of young boys transferred from the dame schools to the Latin grammar schools. This elite group studied and mastered the language of the Church — Latin. They learned to write, read, and make quill pens so they could enter college at age fifteen. For the most part, there was no instruction in counting or writing in English. The success of the Latin grammar school in New England gained its greatest impetus from the passage of the Massachusetts Law of 1647. The Latin grammar school later evolved into the Academy, a



pure American type of higher school that provided a more practical curriculum than that which had been provided in the Latin grammar school. The curriculum in Academies consisted of studies in surveying, mathematics, accounting, and navigation. The Academy later replaced the Latin grammar school in all the colonies.

**Pauper School.** Schools in the Southern Colonies were rich with religious connotations. It has been previously emphasized that these schools were, for the most part, for the wealthy who could afford them. In addition, there were pauper schools. Southern schools, however, were quite unlike their northern counterparts. For example, the teachers were not well trained and educated, and they used poor teaching methods. The physical conditions of the schools themselves were poor, often logs were used for the school walls, desks, chairs, and floors. There were few or no books and supplies (including paper and pens) in most schools. The predominant teaching method was individualized instruction, and the students often wasted many valuable hours in reciting before a teacher.

The eighteenth century witnessed marked changes in the attitudes of the colonial settlers. Foremost among the many changes was the decline of supremacy of the Church over the settlers. As second and third generation people settled to the West, there was less transplanting of the religious beliefs that had predominated the original settlements along the Atlantic costs. Cubberley (1919) summarized the period from 1700 to 1750 as follows:

New settlements amid frontier conditions, where hard work rather than long sermons and religious disputation were the need; the gradual rise of a civil as opposed to a religious form of town government; the increase of new interests in trade and shipping, and inter-colony commerce; the beginnings of the breakdown of the old aristocratic traditions and customs, originally transplanted from Europe; the rising individualism in both Europe and America; — these all helped to weaken the hold on the people of the old religious doctrines. (p. 38)

These and other similar changes had a marked effect on American education at both the elementary and high school levels during the eighteenth century. At the elementary school level there was a rapid decline in Church-dominated education. In New England, for example, the town school struggled to maintain its very existence since it was becoming popular to establish district schools, and the dame and writing schools united to form the school for the 3-R's. These changes were influenced by a changing economy, a changing political climate, a changing social class structure, and the need to provide an American education more suitable for American children.

By 1725 the New England town totally collapsed due to a variety of causes, each of which had a significant impact on education and the

future of education in America. The New England town had been established as an irregular area of twenty to forty square miles. Within each unit was a town that contained a school, a meeting house, and a town hall. As the towns developed, they changed from centers for the discussion of religious matters to centers for the discussion of public questions and concerns. Later, new settlements were established within the towns, sometimes great distances from the town centers. These distances often prevented the people in the new settlements from attending town meetings and church, especially during inclement weather. In addition, children often did not attend school, and, thus, the laws of the colonies which required attendance at schools were often ignored. There arose within the new settlements a rapid decline in the people's interests in attending distant town meetings, churches, and schools. Thus, the new settlements often established towns that were completely isolated from the original towns. As the original towns became more subdivided, the people in the new towns demanded local rights to govern their settlements. The breakdown in the original town government was further evident in the division of towns into road districts, militia recruiting districts, and districts for assessing and collecting taxes.

These factors greatly influenced the decline in the original town school. In addition, the rise in popularity of the dame schools and private schools were contributing factors. The result of the combination of these factors was the establishment of "free" town schools that were supported through the taxation of property. Thus, we witness the decentralization of the town school into districts.

Originally, these new district schools were held in the parishes in the various districts. The town school moved periodically from one parish to another where school for the district pupils was held for a few weeks each year. By the end of the eighteenth century, parishes or districts were maintaining their own school for the district children. The districts elected their own school officials, levied district school taxes, and selected their own teachers. The district form of schooling was legally established in all New England states by the end of the Revolutionary War.

The change in the school governance by the end of the eighteenth century was significant. There existed a definite dichotomy between the religious town and the civil town. For the most part, no longer were school affairs discussed in the Church; no longer were Church taxes used to support and maintain the schools; and no longer was the elementary school teacher certified by the Church. Thus, the Church school was transformed into a State school. The schools were no longer dictated by European tradition, but were closely established to meet the needs of Americans.

### Education for Manual Activities

Colonial America paid little attention to industrial education. The meager attention this area of education did receive seemed to be as much a result of its European heritage as it was a response to local conditions. The industrial education that existed was found in either the apprenticeship system or in the evening schools.

**Apprenticeship.** The apprenticeship system came to America nearly as soon as the settlements along the Atlantic coast were established. Two major types were developed: apprenticeship for sustenance (compulsory) and apprenticeship for craft training (voluntary).

Compulsory apprentices were orphans and the children of the poor who were bound out as apprentices by town authorities as a means to maintain the children. Voluntary apprenticeship was used for craft training when a child was placed with a master craftsman to learn the "mysteries of a trade." The boy was motivated usually by a desire to learn a trade, and the absence of trade schools left apprenticeship as the main route into the crafts.

Apprenticeship was the main source of education for large numbers of youths of the colonies. This type of training played a significant role in the evolving economic strength of early America.

**Evening Schools.** Concurrent with the establishment in the American colonies of the four previously described schools, there also developed a unique institution called the evening school. Its curriculum included both liberal and vocational courses and was designed to meet the educational needs of those students who could not attend school during the daytime. Records indicate that evening schools existed during the early colonial period and lasted well through the nineteenth century.

The earliest of the evening schools offered rudimentary instruction only in reading, writing, and arithmetic. Each subject was studied separately in relation to a trade. (During the early years of development and existence, apprentices were the basic enrollees of these schools). At first these schools operated only during the winter months, usually October to April, but later developed into year-round schools. As the schools developed, they offered instruction in almost any subject matter area including arithmetic, geometry, trigonometry, algebra, book-keeping, surveying, leveling, gauging, mensuration, (sun) dialling, statics, pneumatics, optics, perspective, architecture, fortification, gunnery, and in the application and practical use of each. By 1825 evening schools were offering instruction in both rudiments and higher grades.

Seybolt (1925) described the goals of the evening schools as follows:

In their extension of educational opportunity to those who were engaged in occupational activities during the day, they were, necessarily, dem-

ocratic in character. They appeared in large numbers, and competition was keen to obtain and hold students. To all who could afford the small fees, they offered the opportunity of receiving instruction in any subject desired. There was no prescribed course of study to be taken by all; the students might pursue as many, or as few, subjects as they wished. The comprehensive curricula satisfied the requirements of those who had called the schools into existence and kept pace with their expanding interests and demands. Additions were made to the courses of study as soon as they were indicated by popular needs. (p. 58)

Evening schools gained their greatest success and highest enrollments in the large population centers and particularly along the seaports. Instruction focused on the practical application of the subject matter and many employers soon demanded that an employee obtain a minimum level of efficiency prior to employment. Trade training continued to be a function of the apprenticeship system, but the theoretical part of the instruction was supplied by the evening school.

Evening schools were sponsored and maintained by private interests and by a tuition fee charged to the students. The evening schools were one additional attempt to provide educational opportunities to the masses and, combined with apprenticeship, constituted the only formal methods of offering education and training for trades and mechanical pursuits.

## A NEW NATION IS FORMED

### Philosophical Changes

The preceding section outlined the essential ingredients that led to the establishment of the American colonies, the events that influenced the forming of a new nation, and the characteristics of early colonial education up to approximately 1776. The educational system that developed in the pre-1776 era was not suitable for the "contemporary" people of the post-1776 era with their liberal ideas and versatile interests. Beard and Beard (1927) described the Revolutionary period as having influenced every phase of American culture including "its class arrangements, intellectual concerns, aesthetic interests, provisions for the promotion of knowledge and encouragement of the arts" (p. 437).

The culture of the Revolutionary period was greatly influenced by a European movement called the Enlightenment. This movement reflected the accumulation of new knowledge and the development of the scientific method. A scientific culture was spreading in America and was soon to affect education. Edwards and Richey (1963) described this influence as reflected in:

. . . the reorganized course offerings of colleges and by the curriculums of many private schools and established academies. More important for education, perhaps, was the fact that on the basis of the new learning there was being formulated a philosophical or theoretical justification for a democratic system of schools. (p. 189)

Human progress was on the upswing. As the accumulation of knowledge accelerated and the application of this knowledge was demonstrated, people became masters of their destiny. This mastering emancipated people from restrictive humanism and struck at the foundation of the fundamental characteristics of colonial society — political, religious, economic, and social class distinctions. The immediate post-Revolutionary era witnessed a strong emphasis on deepening secular interests as evidenced in the maturation of a secular state and the realization of religious freedom. These roots of secularization were important to the later development of secular systems of public education in America.

Why did human progress contribute to secular systems of public education in the United States? Several relevant contributors are identifiable. First, the rapid and vast movement of people to the west of the Allegheny Mountains broke down, however slowly, social class distinctions in America. People sought new social class distinctions as they related to economic wealth, social prestige, and human equality. Second, the Enlightenment which promulgated the concept of freedom of thought and ideals was a contributory agent to democratic idealism. Finally, the disposing of colonial aristocracy allowed people to achieve new positions of authority in communities that prior to the Revolution were not attainable by them.

Concurrent to the shift in social class distinction was a shift in the political power toward the formation of a democratic state. The contents of the Declaration of Independence speaks to the shift in power: "We hold these truths to be self-evident, that all men are created equal; that they are endowed by their Creator with certain inalienable rights . . ." Government was to be governed by the masses to serve the ends of the common person. The champion of this democratic idealism was Thomas Jefferson. Craven (1941) described the movement toward democratic idealism in the following manner:

For the first time democracy became the weapon of an important element in American life for the purpose of giving shape to the political-economic structure. (p. 18)

Thus, those factors that contributed to the formation of democratic education are directly traceable to the social, political, and economic events immediately preceding, during, and the decades immediately following the Revolutionary War. Foremost among all of these was the

separation of the Church and State, and government by and for the masses.

### **Universal Education Takes Shape**

The period from 1776 through the first quarter of the nineteenth century encompassed great strides in the movement toward full acceptance of public universal education. Edwards and Richey (1963) summarized this time period as follows:

First of all, there was a growing recognition of education as a legitimate and necessary function of government . . . The second aspect . . . was to extend the benefits of education to larger members through various philanthropic agencies . . . The third major trend in American education . . . was the increased emphasis on private educational institutions . . . The fourth, and an extremely important, area of educational development was that of the new educational objectives now envisioned and the new instructional content introduced to achieve these objectives. (pp. 208-209)

Several plans for a national, universal form of education were promulgated, each with its distinguishing characteristics. Each plan, however, generally strove to create a national system of education that would train people to become better citizens who could lead and participate in a democratic state and contribute to the welfare of the republic. One may then question why the Constitution or Articles of Confederation made no direct mention of a national, universal form of education. Several relevant theories have been offered. Each, however, has generally emphasized that the historical educational tradition and background of the founding fathers was so great that, for the most part, they foresaw very little immediate need to make substantial changes in the present form of education, an education supported by private, philanthropic, and religious groups. Perhaps the pressures on the founding fathers in establishing a new republic far overshadowed the issue of universal education.

While the Constitution expressly states that all powers not conferred upon the Federal government are retained by the states, the Federal government did recognize the importance of education. When large lands to the west of the Alleghenies were made available for the creation of individual states, a section of land within each township within a state was reserved for the support of education. This national policy alone provided evidence that the new national government saw a need for educating the public. A mood was developing in America in support of public schools, and the people in the several states looked to the state governments for leadership in this area.

The first secular plan for universal education in America as a State function was Thomas Jefferson's plan for a system of public schools in

Virginia (Nakosteen, 1965). The plan was proposed in 1779 in "A Bill for the More General Diffusion of Knowledge." Jefferson's bill suggests that he supported education as a public responsibility through state rather than federal support. He did not, however, believe universal education to be mutually supported by federal and state governments. While the bill failed to pass the Virginia legislature at first, it was finally passed in 1796-1797. The new bill was not implemented by the Virginia government, however, but it did influence public education in the United States. Nakosteen (1965) identified these important influences:

These influences included Jefferson's concepts of religious liberty, separation of church and state, secularization of school curriculum, equality of educational opportunity, thorough-going scholarships, academic freedom, state systems of education, local educational initiative, and promotion by academic achievement. (p. 455)

The omission of any mention of education in six of the thirteen state constitutions by 1800 is indicative of the differing ideas of state founding fathers toward education as a state government function. However, the states admitted to the Union between 1800 and 1820 included statements in their constitutions concerning the need to diffuse knowledge among the general populace. Concurrently, many state legislatures were establishing state administrations to supervise the educational programs, and many states had established permanent school funds to be used to support the schools. While the amount of state aid to education is difficult to measure, its importance was evident as measured in the increased awareness of the public toward the need for education and the belief that education was more and more a function of the government.

The terms "public school" and "universal education" were coming into vogue. However, they did not have the same connotations to all people and in all geographical areas. For the most part, while the secularization of thought and freedom was being advanced by the educational philosophers and liberal statesmen, it was the masses who still did not visualize public universal education as a method of solving the great social, political, and economic problems of this period. Public education that did exist was, for the most part, at the elementary school level.

The early founding years of the United States, however, were not a lost cause for public universal education. Edwards and Richey (1963, p. 227) cited three important occurrences that were landmarks in the move to establish universal education at public expense:

1. A system of public primary schools in Boston in 1818.
2. The establishment of a public high school in Boston in 1821.

3. The passage in 1827 of a law in Massachusetts requiring the establishment of high schools in cities, towns, and districts of 500 families or more.

At the same time that the idea of universal education at public expense was developing, there continued to exist a movement to provide cheap mass education through private or philanthropic efforts. These efforts were directed to benefit the poor who could not afford an education or who were so ignorant that they did not recognize the need for an education. Good (1964, p. 135) identified these early efforts as resulting from the work of philanthropic societies who established schools for special classes of children. Cubberley (1922) identified four such efforts by philanthropic societies: (a) the Sunday-School movement, (b) the City School Societies, (c) the Lancastrian movement, and (d) the Infant School Societies. The successes of these philanthropic societies may have been short-lived but their impact in providing or stimulating an educational conscience for providing schools for the education of all was far-reaching. In addition, these schools increased the public's awareness and interest in providing schools at public expense.

The concerted efforts of the private and semi-private philanthropic societies were just one indication leading to full tax-supported public education. Other indicators included the rise of the factory system, changing social conditions, and the extension of manhood suffrage.

The rise of the factory system in America was slow and methodical. Influenced by the Industrial Revolution in England, small factories of various types began to dot the United States by 1820. The rise of these factories was influenced by several factors including the development of transportation systems among the several states (turnpikes, steam boats, trains), the rapid growth of small villages into towns, and the need to make the United States independent of foreign manufacturers. The rise of the factory system witnessed increases in the following areas: (a) concentration of densely populated areas, (b) poor working conditions, (c) social and moral problems, and (d) heterogenous communities. These alone were further evidence that philanthropic groups could not meet the educational needs of the populace. By 1825 the factory system had made a substantial impact on the need for universal education at public expense.

Prior to 1820 and in spite of the words of the Declaration of Independence, not all men exercised equal rights. There was a class rule based on property holdings, and it was these holdings that gave men the right to vote. The beginnings of a democratic movement around 1815 and the election of Andrew Jackson in 1828 culminated in full manhood suffrage. Its impact on education was that all males had a voice in the governance of the land — farmer and city worker alike. Cubberley



(1922) elaborated on the educational significance of the extension of suffrage:

With the extension of the suffrage to all classes of the population, poor as well as rich, laborer as well as employer, there came to thinking men, often for the first time, a realization that general education had become a fundamental necessity for the State, and that the general education of all in the elements of knowledge and civic virtue must now assume that importance in the minds of the leaders of the State that the education of a few for the service of the Church and of the many for simple church membership had once held in the minds of ecclesiastics. (p. 366)

From 1825 to about 1860 great changes occurred in the social, economic, and political make-up of American society and these changes strongly influenced the struggle for full tax-supported schools. While the changes had many similarities throughout the country, a short examination of three geographical regions is necessary to fully appreciate the struggle.

The plantation South with its rich cotton belt gained new economic foundations during this time period. New markets were found for cotton, and there resulted a great expansion in the social and economic order — an expansion of wealth, political control, and social prestige for the plantation owner and the exploitation and profiteering of slavery. Great efforts were made to defend and extend this strong social order and to uphold this strong institutional arrangement. Parrington (1927) described this period as a time when man began to change his support from Jeffersonian humanitarianism to economic realism. There developed a strong caste system with whites maintaining the superior level of the system. Its resultant impact was that whites would be educated at public expense so that they might learn to uphold the southern social, political, and economic institutions. Numerous proposals were put forth on means to educate all southern whites at public expense.

The problems of the industrial East were far different from those of the plantation South. Foremost among them was the rise in industrial output and its inherent social and economic impact on people. There was a rapid growth in the number of cities, population, manufacturers, transportation systems, and commercial trade. Production systems changed rapidly from domestic manufacturing to the factory system and capitalistic enterprise. The economic base was stronger than that existing in the South. As a result of the expansion of the industrial East, a distinctive laboring class developed. The status of the working class was characterized by meager wages, poor working conditions, nonskilled labor, and the exploitation of women and children, to name a few. These conditions caused the rapid formation of various

trade unions to protect the interests of the working people, including the development of a universal educational system that would provide tax-supported, non-sectarian schools. The embrace the upper class had on education was beginning to waver and there was growing a widespread feeling that education available to all would promote the general welfare of the people and the State.

The agricultural West presented very unique problems. The people supported the Jacksonian principles of a democratic state and sought to extend the rights of the common man. They sought better and cheaper ways of obtaining land of public domain and fought for the improvement of transportation systems to carry their products to market. The educational system that developed was reflective of the democratic ideals of people who settled in the West. Edwards and Richey (1963) described the western educational movement:

In the West there was greater emphasis on the preparation of youth to perform their civic duties in a democratic republic, and education was designed more than elsewhere to prevent the rise of social classes, to make social mobility a reality, and to release the moral and intellectual capacities of the individual. (p. 288)

The preceding paragraphs have emphasized the social, economic, and political conditions of the three major geographic regions of the United States. While each had unique problems, the three had several common characteristics that would greatly influence the establishment of tax-supported, public education. Foremost among these was the gradual and eventual acceptance of the belief that education that was free and available for all would contribute to the general welfare of society. To this end and in conjunction with the changing character of American society, the period between 1825 and 1860 witnessed a gradual evolution to tax-supported, public school systems in the various states.

It became readily apparent to many from almost the outset that the initial efforts of private groups and individuals, philanthropic societies, and such schools as the academies could not sustain the high cost of education without substantial public support. In addition, those forms of public assistance already in existence, such as land endowments, local taxes, and rate-bills, provided insufficient monies to fully support universal education. Around 1830 several states began to collect monies to support education through the taxation of all property. Thus, the door was open for the state governments to enforce state requirements since a community that did not enforce state requirements did not receive State aid. The impact on education was enormous. For example, an early state requirement was that local communities were required to collect local taxes for the support of education. It was not uncommon

to find requirements so written that the amount of local taxes to be collected was to be equal to the amount of State aid received. Thus, the initial step had been made whereby States could set minimum requirements for the operation of the schools.

While the taxation on property and the establishment of State minimum requirements were initial steps in tax-supported, universal education, it became readily apparent that there was no governmental body to oversee the local school system. To this end, many states commenced the establishment of a state school office, organized a state school system, and enacted new laws extending the control of the state.

In the late 1820's and early 1830's several states employed a state school officer to monitor the conditions and progress of schools within the state. Soon thereafter, some states established a State Board of Education to achieve some continuity among the various school systems within a state. Early Boards of Education employed a secretary who served in a position similar to that of a state school officer in other states. Thus, the power or authority of a State Board of Education largely depended upon the leadership of its secretary.

**The Academy.** The preceding paragraphs have emphasized the struggle for tax-supported, universal public education. These efforts occurred mostly at the elementary school level. However, at the same time these efforts were occurring, there was also a general awakening to the need for a general, universal education at the higher school level. The semi-private academies played an important role in providing a curriculum for the "middle class" of society. Sizer (1964) reported, "Few social institutions in American history better exemplify the grand optimism of the people of this republic than do the academies" (p. 1).

The academies were a distinct type of school and differed from the traditional elementary school in several ways. These included:

- (1) They were local schools but admitted out-of-towners.
- (2) Women were more often welcomed and, in time, many coeducational academies were in operation.
- (3) The curriculum was diversified and flexible and included English, classical, and practical studies.
- (4) Often any subject with an appreciable demand was offered.
- (5) In contrast to the single schoolmaster found in many elementary schools, the better academies had a faculty.
- (6) The best academies overlapped and challenged the colleges. (Kraushaar, 1976, p. 17)

The practical intent of the academies was expressed in the Catalogue of the Barre Academy (1852). It suggested that the goal was to furnish youth ". . . the means of securing a sound, practical education for the business of life."

With the movements that were occurring at the elementary school level, there arose a realization that public tax-supported education should be available at the higher school levels and to all boys and girls. Over time, the semi-private academies were replaced by the American high school, and this school became part of the various state common school systems.

## INDUSTRIAL EDUCATION DEVELOPS

The dawn of the Industrial Revolution in the United States drew sharp attention to the weaknesses of the apprenticeship system which was recognized by many educators of the day. The success of apprenticeship training was crippled as masters became employers and the training of apprentices was left to journeymen. This was especially true as many masters kept several apprentices for each journeyman (Bennett, 1926, p. 270).

Alternative methods of education for the manual trades were needed. Of those which were tried the Manual Labor, the Mechanics Institute, and the American Lyceum Movements were of the most importance.

### **Manual Labor Movement**

Concurrent to the development of universal education in America, there arose in this country a distinctive European influence movement – manual labor. This movement was short-lived and lasted from about 1830 to 1845. However, its mere recognition as an important part of the educational process was significant at the time and to the subsequent developments in vocational education during the latter part of the nineteenth and early twentieth centuries.

The manual labor movement in the United States was an adaptation of the DeFellenberg schools at Hofwyl, Switzerland. The underlying principles of education of these schools had a strong Pestalozzian influence. In addition, emphasis was placed on the educational value of activities. The schools combined manual labor with subject instruction. It was thought that manual labor would influence health of mind and body. William DeFellenberg believed that manual labor was the cornerstone for the larger social interests of life, politics, economics, and religion.

When the Manual Labor Movement was first introduced in the United States, one of its primary purposes was to fuse the then recognized school subjects with agriculture training. As the movement gained momentum and spread among the various states, manual labor training could be found in seminaries and colleges to provide physical activity with the regular school subjects. In addition, societies were organized to propagandize the features of the manual labor movement. Typical of

these societies was the Society for Promoting Manual Labor in Literary Institutions, organized in New York in 1831. Lull (1914) noted that the society was established for the "purpose of collecting and diffusing information designed to promote the establishment of manual labor schools and seminaries in the United States, and for introducing the system into the institutions already established" (p. 379).

The importance of manual labor schools was further recognized at the third annual meeting of the American Lyceum in 1832:

That no system of education is complete which does not provide for the vigor of the body, as well as the cultivation of the mind, and the purity of the heart.

That the combination of manual labor with study is not only important as the means of promoting health, but is also calculated to invigorate the mind for intellectual labor, and to aid in regulating the feelings and restraining the passions of youth which are so often excited by a sedentary life.

That the acquisition of some mechanical employment in early life is desirable to every individual, as a means of relaxation and health, as a resource in case of difficulty, and especially as a means of rendering labor respectable in the eyes of all, and of promoting mutual regard and sympathy between the different portions of society in a republican government. (The American Lyceum, 1832, p. 34)

As the Manual Labor Movement gained momentum, particularly in the literary institutions, actions were taken by the several literary institutions to promote the movement as well as to gain support from the lay public. Such action is typified in the following resolution:

Resolved, That in view of the tendency of a sedentary life to destroy health, and thereby impair the energies of the mind, it is *indispensable* that a well regulated system of exercise should be introduced into all plans of education.

Resolved, That the wants of our country and of the heathen world, imperiously demand of the friends of religion, the speedy adoption of the most efficient measures to increase the number of well-educated Christian Ministers.

Resolved, That manual labor ought as far as possible to be introduced into literary institutions, as a means of promoting health, diminishing the expenses of an education, and cultivating all those qualities in a minister of the Gospel, which the nature of his office requires, and the exigencies of the present age loudly demand.

Resolved, That the most desirable results may be anticipated from an Institution in which the principles of the Manual Labor system shall be fully tested, and which shall serve as a model to other Institutions.

Resolved, That a Committee be appointed to consider the subject of connecting manual labor with the pursuit of literature in general, and

to take such measures as shall in their judgment, be best adapted to promote the establishment of Institutions of this kind, throughout our country. ("Manual Labor in Literary Institutions," 1831, p. 3)

Typical of the literary institutions to open in the United States was the Oneida Institute at Whitesboro, New York. Gale (1831) described the instructional program:

The peculiarity of this Institution is the system of exercise adopted. This consists of manual labor *three* hours each day, in the garden, on the farm, or in a Mechanic's shop working in wood, and the labor under such supervision and control, as to make it at the same time a *system of exercise* and a *means of support* to the student. (p. 6)

The advantages of manual labor were emphasized by Beecher (1831), President of Illinois College:

We are . . . a republican nation — the tendency of all things is to throw the power into the hands of the people, — hence, a system of education adapted to meet the wants of the whole community is of inestimable value. Such is the system which introduces manual labor as an essential part of every course of study. It diminishes the expenses of an education, and thus brings it within the reach of the great mass of the community. It tends powerfully to exterminate habits of idleness, and to render those kinds of labor honourable, which must of necessity be the employment of the greater part of the community. It also tends to preserve and increase the corporeal and intellectual vigor of the nation, and is a safeguard against those temptations of which our rapid increase of wealth, and means of luxurious indulgence expose us. (p. 12)

In addition to the Oneida Institute, manual labor schools flourished throughout the East and Midwest. For example, there was the Gardiner Lyceum Manual Labor School in Maine; the Fellenberg School at Windsor, Connecticut; the Wesleyan Seminary at Augusta, Maine; the Mechanical Association at Andover Theological Seminary in Massachusetts; the Genessee Manual Labor School and the Yates Polytechnic of New York; and manual labor schools and programs at New Harmony, Indiana; Kenyon College, Ohio; and Waterville College, Maine; to name but just a few.

In spite of the rapid growth of manual labor schools across the United States, they experienced an equally rapid decline. Lull (1914) summarized the reasons for their failure:

In the first place the manual labor schools of the United States did not provide adequate funds to carry on the work, but expected the labor to pay for itself as well as for much of the expense of the other departments of the school; and, second, they did not, in spite of their early claims succeed in making manual labor educative. They formulated a panacea of values, but in practice they forgot the one thing which would have made possible a realization of at least a few of their claims

for the system. They failed to secure the appeal of manual labor to the individual which makes it worthwhile — makes it really educative. Simply to assume that manual labor gives man good physical exercise, that it is adapted to interest the mind, that its moral effects are good, that it would promote habits of industry, independence of character and originality, etc. etc., and then to provide various odd jobs for students to perform who were primarily interested in preparing themselves efficiently for pulpit oratory did not work more effectively in those days than it would in our own.

What was needed then, as now, in all manual labor exercises conducted by the school, was life meanings for the student performing the work. The young men attending the manual labor schools had already passed thru the stage of development when mere disinterested curiosity in manipulation and in manual dexterity were sufficient motives for engaging in the work. Manual labor for them meant something more than play. But the manual labor of these schools, failing to mean something more than play, lost the student the joy of play and inevitably became drudgery. The work was not designed to connect his interests with life, either immediately or remotely. Like many other subjects of the time it was prescribed for him as a discipline, but unlike other disciplinary subjects it did not appeal to him as having even a remote relationship, reputed or real, to his future vocation and interests. (p. 387)

### **Mechanics Institutes**

A second movement, the Mechanics Institute Movement, directly contributed to industrial education of the time. It arose in both Europe and America as part of the effort of the industrial and agricultural populations to improve their social and economic conditions and of the merchant and manufacturing ruling classes to build up a reservoir of educated and efficient workers (Bennett, 1926, p. 317).

Anderson (1926) reported on the support of Lieutenant-Governor Tallmadge of New York for education more directly aligned with commerce and industry. Tallmadge wrote:

It seems very necessary that those sciences essential to the prosperity of manufacturing industry should be especially promoted, and adapted to the comprehension of a meritorious class of citizens, whose situation and circumstances, while they deny them the opportunities of an academic life, devote them more assiduously to mechanical pursuits, and perhaps as certainly prepare them to advance the public good. (p. 129)

The mechanics institute, introduced in the United States in 1824, had been developing in England for nearly thirty years. These institutes were designed to provide adult workmen with an education which contained technical and industrial instruction.

The earliest American institute was the Franklin Institute of Philadelphia which had the following as its several aims:

- (1) Present lectures on the arts and the application of science to them.
- (2) Hold exhibitions of American manufacturers and award medals to worthy workmen.
- (3) Establish schools to teach architecture and mechanical drawing, and chemistry applied to the arts and mechanics (Philadelphia Public Ledger, 1873).

A few of the mechanical institutes developed into technical or trade schools while the vast majority died. Their death may well have been caused by a variety of reasons including the formation of the Land Grant College, the American high school, and private trade schools.

### American Lyceum

The mechanics institutes grew up in the widely separated American city. However, the need for practical education for adults was universal. To serve the rural adults a third movement was started, the Lyceum Movement.

The lyceum was “the happy conception founded on the consciousness of a power for mutual and social improvement. They go back to the original *principle of improvement* in assuming that *men may improve themselves*” (The American Lyceum, 1832, pp. 35-36).

The lyceum was an organization in the towns of the country where speeches were given to increase the knowledge of the common man. “From this humble, but republican and dignified origin grew a system that encompassed local, county, state and finally a national federation known as the American Lyceum” (Bennett, 1926, p. 327).

The object of the lyceum was simple – “to collect the inhabitants of a town, or a village, or a district, and call upon each to contribute something from his own stores of experience, for the benefit of the rest . . .” (The American Lyceum, 1832, p. 36).

The format of the lyceum varied from lectures, to a lecture and an essay, to lecture or essay and a debate. Topics included were education, common schools, political and domestic economy, morals, public improvements, agriculture, manufactures, mechanic arts, trade, architecture, geology, chemistry, meteorology, geography, and mathematics (The American Lyceum, 1832, p. 42).

Bennett (1926) summarized the Lyceum Movement as follows:

Like the Mechanic’s Institute Movement, the Lyceum Movement was a means of building up an American ideal of popular education; it placed emphasis on acquiring “useful knowledge.” . . . While the Lyceum Movement, as such, in America subsided after a few years,



its spirit has continued in various other organizations and has been a powerful force in keeping alive and directing interest in education. (p. 329)

The Manual Labor Movement, the Lyceum Movement and the Mechanics Institute Movement were all the result of a cry for popular education — an education felt by Clark (1856) that “needs to be made more practical, by which I mean that the pupils should be more generally taught how the knowledge they acquire at school is to be used in after life” (p. 386).

This call resulted in a strong movement to introduce manual education in the public schools. This new movement will be chronicled in the next chapter.

## EARLY EDUCATIONAL REFORMERS

The preceding pages summarized some of the important early developments in education with emphasis on the social, political, and economic factors that influenced these developments. This section capsules the accomplishments of three great Americans whose actions were significant in the direction education assumed during its early development in America. The selection of these Americans and the description of their impacts on contemporary education is not done to assign lesser importance to the many other Americans who made significant and noteworthy impacts. The descriptions are merely provided to emphasize the major developments in education, particularly in the sections previously described in this chapter.

### Benjamin Franklin

The educational views of Benjamin Franklin are personified in many of his activities and noteworthy endeavors that demonstrate his ideas were far in advance of the observations and performances of his contemporaries. Franklin, a pre-Revolutionary War utilitarian, believed in self-education, self-initiated activity, and, in the words of Bigelow (1904), “mutual improvement.” Franklin believed that a school curriculum should prepare a person for life in the business and social worlds. The college preparatory curriculum aims of the Boston Latin School were contrary to his beliefs on what the aims of education should be. He believed that education should be practical and recommended a curriculum consisting of studies in such areas as vocational training, English language, current affairs, and professional pursuits.

The Franklin Academy was founded to implant his educational ideas into the curriculum. The Academy was the forerunner of many of

the academies that developed up through the first half of the nineteenth century. It was financed through subscriptions and tuition and founded on secular principles (Woody, 1931). The Franklin Academy and the subsequent development of other privately supported academies in the United States made significant contributions to the development of universal, tax-supported public education.

### Thomas Jefferson

The ideas and concepts of Benjamin Franklin prior to the Revolutionary War were furthered through the efforts of Thomas Jefferson immediately following the war. Like Franklin, Jefferson was influenced by European thought and writings.

Jefferson's professional and educational background provides evidence of his achievements and the resulting respectability afforded him by the leading Americans of the time. His being a graduate of William and Mary, delegate to the Continental Congress, founder of the University of Virginia, and the third President of the United States provided a platform for him to propagandize his ideas on universal education. As previously noted in this chapter, these ideas first received attention in 1779 in his "A Bill for the More General Diffusion of Knowledge." Among many things, the bill proposed a universal form of education as a state responsibility.

While Jefferson's educational ideas received great attention and popularity (particularly among the masses), the method by which education was to be used to assist people in participating in a democratic way of life was questionable. Jefferson's Rousseauistic philosophy of democracy conflicted with Alexander Hamilton's Lockean philosophy of propertied representative democracy. Hamilton's capitalistic propertied representation suggested a return to the pre-Revolutionary War life where property and culture were protected. The agrarian class, however, contested the Hamiltonian ideas and argued for greater democracy based on the natural rights of man.

While Jefferson believed in universal public-supported education, he also believed in a perpetuation of a natural aristocracy. Mason (1960), when discussing Jefferson's eighteenth century concept of a society, indicated that Jefferson would have divided society into two classes: the laboring masses who are to receive a minimum education and the "intellectually superior persons who are to become the social leaders" (p. 28). The seeds had been planted, however, and a change in American attitude following the Revolutionary War toward advancing secular thought and feeling was established. The Rousseauistic liberal philosophy of Jefferson had impacted upon people, educational philosophy, and, perhaps of most importance, the function of government as a protector of all people. Jefferson's plan toward universal

public-supported education had a great impact on early nineteenth century society. While his philosophy worked ever so slowly in permeating the educational thought of the day, it was not until Horace Mann came upon the scene that the next great push for universal education occurred.

### **Horace Mann**

The most prominent educator and the one who made the greatest impact upon contemporary education was Horace Mann. Mann achieved what Franklin had begun and what Jefferson had promoted – universal education as a basic fundamental to a democracy. His confidence in the powers of education were described by Graves (1912):

He may well be judged oversanguine in his faith in knowledge and education as the means of social advancement, and it may be that he underestimated the inertia of custom, habit, and institutions; but just such an enthusiasm and consecration as his were essential for the prodigious reforms that were to be undertaken. (p. 252)

Mann was a firm believer in public support and control of education and felt that only through free, public, popular education could the excesses of a capitalistic democracy be eliminated. Education should be equally available to all classes and should prepare one for a democratic life through non-authoritarian and non-sectarian means. Cremin (1957) noted, when describing Mann's beliefs, that education would extirpate poverty, crime, and fraud.

The secretaryship of the Massachusetts Board of Education provided a platform for promoting many of his ideas. Mann's ideas were published in a series of twelve annual reports, each reflecting a year as secretary of the Board. These reports received worldwide attention and each impacted on the status and progress of education in the United States during the first half of the nineteenth century. While many topics are covered in the annual reports, two topics seem to receive the greatest attention – school curriculum and methodology.

A major concern of Mann's was the disunity and independence of the schools in the state of Massachusetts. Mann championed the concept that schools should be unified under a common state school system that was publicly financed and publicly controlled. Many of his educational ideas on curriculum, methodology, teacher education, discipline, teachers, etc., had roots of European origin, and many of his ideas were obtained from his travels to Prussia, England, Scotland, and Germany.

Hinsdale (1898) described Mann's proposed school curriculum as consisting of emphasis on:

... the word method of teaching reading, oral instruction, real instruction, elementary science in elementary schools, teaching that flows from the pages of a book, object lessons, language exercises,

geography built upon the basis of the child's environment, music and drawing, and teaching arithmetic by analysis rather than by rule. (p. 172)

Mann's (1843) concern for the emphasis of school studies on the practical needs of the individual are further explicated in his *Sixth Annual Report*:

Can any satisfactory ground be assigned why algebra, a branch which not one man in a thousand ever has occasion to use in the business of life, should be studied by more than twenty-three hundred pupils, and bookkeeping, which every man, even the day laborer, should understand, should be attended to by only a little more than half that number? (p. 56)

The methodology by which Mann's school curriculum was to be achieved was described by Morgan (1936):

In the first place, the best methods should be well ascertained; in the second, they should be universally diffused. (p. 55)

Mann's methodology had Pestalozzian roots with its emphasis on the inductive method of teaching the humanities and the sciences and concern for the child as a participatory agent in the learning process. He promoted group instruction and self-discipline and propagated that the chief aim of education was building moral character and social efficiency.

It is readily apparent why Mann's ideas were not well received by the Boston school masters. His ideas, for the most part, struck at the heart of the underlying principles governing the teaching and governance of the Boston schools. His missionary efforts, however, had a profound impact on education – universal, free, public-supported and public-governed education in America.

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# Manual Training: Constructive Activities Enter The Public Schools

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The nineteenth century was a critical period for the young United States. It was a period of expansion and consolidation, of exploring and uniting, of discovering and taming the elements of a soon-to-be-great country. It was a period of genteel life for some and a harsh life for many. But out of the experience of the many came a unifying ideal of freedom for the common man and a sense of nationalism.

The building of a nation as witnessed in the United States in the 1800's involved two types of activities – territorial growth and development and the more important activity of adjusting to the environment. These activities may happen concurrently but generally the adjusting activity happens only after the sparsely settled regions become more densely populated (Redway, 1898, p. 141).

The second half of the nineteenth century will be the focus of this chapter and will cover America's continuing effort to expand and to adjust to its vast and varied environment.

Read (1858) suggested during this period of time, "Man has learned to seize the very power which controls this material universe, and to use it as his servant and the minister of his wants, both in the great and in the small concerns of human life" (p. 66).

It is this seizing of power over life itself that occupied much of the political, economic, and social activity of the late 1800's.

The Civil War was but one example of the nation adjusting. Many saw slavery as the central issue of that time; however, more complex political and economic issues were also at work. The natural environment caused the New England and other Northern states to become



manufacturing-based while the climate and soil conditions encouraged the South to develop an agricultural economy.

This phenomenon created two areas with diverse and almost always opposing political and economic goals. For example, the North wanted high tariffs to limit foreign competition while the South favored low tariffs to provide cheap foreign goods to meet its daily needs. So diverse were the two areas that federal legislative enactments which encouraged one area nearly always hurt the other. The result was constant friction, the friction of adjustment to the national environment.

The Civil War ended slavery but it also shattered the barrier of adjusting to the needs of a united nation (Redway, 1898). It pointed vividly to the need for national goals as opposed to regional objectives. It reinforced the value of communication and transportation systems, of manufacturing capability, of technological expertise.

However, according to Billington (1963), "The most important force reshaping American politics, diplomacy, life, and thought in the late nineteenth century was Industrialization" (p. 15). America, during this period, was transformed from an agricultural country to an industrial nation. This industrialization was more than a proliferation of factories and labor-saving machinery; it changed the whole society. In a few short years, Degler (1967) reported "a nation of small property owners (the majority of whom were self-employed farmers) became a nation in which most men had little or no connection with the land . . ." (p. 2). Most Americans were largely without property and were employed by others. The patterns of their lives were determined by others. No longer was the rising and setting of the sun and the changing of the seasons the determiner of activity. The blast of the factory whistle and the throb of machinery became the metronome which marked time.

America was rapidly becoming an urbanized country. At the beginning of the nineteenth century only 5.6 percent of Americans lived in cities, while 39.7 percent were urban dwellers by 1900 — more than a seven-fold increase (Gill, 1967, p. 63).

America was not alone in this change from farm to factory, from rural to urban-centered. All the industrial nations have made this transition sometime in their history. England took this road in the eighteenth century while other European countries followed the United States (Degler, 1967, p. 3). Each country which travels the road to industrialization must have five essential elements. These foundations are plentiful raw materials, available capital, adequate labor, accessible markets, and technology. Every country has these essentials in a varying mix. Eighteenth century America had the rich natural resources of the East scarcely tapped by earlier generations and great riches in the West awaiting exploitation (Billington, 1863, p. 16).

The capital for the industrialization of America came from Europe, especially England, Holland, and Germany, and from money released from a decline in commercial activity. America's wooden sailing fleet which carried 66 percent of American commerce in 1860 was replaced on the high seas by English steam-driven steel vessels. Hence, according to Billington (1962), "... money formerly invested in commerce flowed into industry" (p. 17). Also, additional domestic capital was created as factories expanded in size and profitability.

Labor for industrialization came like capital, from domestic and foreign sources. Veterans of the Civil War and workers displaced by farm mechanization were joined by over 16 million immigrants who entered the United States in the latter half of the nineteenth century seeking to escape overcrowded conditions, military service, and religious or racial persecution (Billington, 1963, p. 17).

The United States also enjoyed a unique feature as a market unto itself. Billington (1963, pp. 18-19) stated that within the United States was the largest area in the world over which goods could flow without encountering obstacles in the form of differing currencies, custom barriers, or trade regulations. These markets steadily expanded through the country's improving standard of living which accompanied industrialization and through an ambitious program of railroad building. Vast areas of land were made accessible as the railroad system grew more than five-fold to a total of over 160,000 miles by 1890. Degler (1967) reported, "Between 1870 and 1890, over 110,000 miles of railroad track were laid — more than existed in all of Europe" (p. 21). Wheeler (1973) emphasized the importance of the railroad to opening new land and markets by writing "Trans-Mississippi track mileage would leap upward from . . . five miles in 1852 to more than 72,000 miles in 1890" (p. 18).

Technology and ingenuity is the fifth essential of industrialization. Most of the technology used to fire the American industrial revolution was brought or bought from abroad.

However, Billington (1963) reported that "mechanical and managerial skills allowed industrialists to offset their greatest handicaps: competition with cheap-labor areas abroad where living standards were lower" (p. 18).

Industrialization was not without pain or controversy. The lifestyle of large groups was changed. National priorities were redirected. Social institutions were put to critical tests. Even the definition of "freedom" was rewritten by some. The political system was put to one of its severest tests.

America's ablest men were attracted not to political service but to the business world. The individuals who reached fame were not politicians but industrialists and inventors. The names of John D. Rockefeller, Andrew Carnegie, Leland Stanford, Jay Gould, Thomas

Mellon, Cyrus McCormick, George Westinghouse, and Thomas Edison are more familiar than the politicians of the day. Billington (1963) suggested, "The years from 1868 to 1890 were the most drab in the nation's political history" (p. 41). It was a period in which the political parties refused to take stands on vital issues and the true political rulers were the captains of business. Groner (1972) characterized this period as a period of "unbridled freedom" for business (p. 155).

The years of 1865-1890 were a period in which businessmen were left thoroughly to their own devices. They were free to pursue their own goals almost without restraint. The nation's vast resources were waiting to be exploited and business rapidly accumulated the necessary technology for the task. Minerals, forests, and prairie were used for man's interests. Groner (1972) wrote, "Few questioned whether a society dominated by business could or should function well, and fewer still would listen to such questions" (p. 157).

The business leaders had little or no interest in solving the problems facing the country: the relations of capital and labor, the consequences of industrial monopoly, the tariff issue, the farm problem, or the nation's place in the world community. They simply wanted to perpetuate a laissez-faire system which allowed them to amass profits and win special favors from government (Billington, 1963, p. 41).

Groner (1972) suggested, "The men in public office, for the most part were either complacent or amenable or both. Almost all of them believed in business, and a great many saw no harm in swapping . . . favors" (p. 157). In the same light, Degler (1967) wrote that the period from the start of President Hayes' term (1876) to the end of Harrison's presidency was "a low point, both in quality of candidates and presidents and in the level of campaigns and issues" (p. 96).

This condition led Sumner (1876) to conclude that legislation has demoralized the people and perverted their ideas of the function of government. He further stated, "The political machinery also has been refined and perfected until it totally defeats the popular will . . ." (p. 87).

Thus, America of the late eighteenth century may be viewed as a country with ample labor, adequate capital, abundant resources, rapidly enlarging markets, and growing technology. These ingredients in concert with politicians who were either inept or corrupt, or both, ushered in a period of unprecedented industrial growth. However, much of this growth was at the expense of the common man.

Carman, Syrett, and Wishy (1967) described the price paid by the worker as follows:

When the factory forced the craftsman to become a machine tender, he lost a measure of his independence and "identity." In place of his tools, which had been his servants rather than his master, was a

machine that left little scope for individual taste or touches. His job now required him to follow a rigid routine. (p. 132)

Man and his labor became a commodity of the market place. He was forced to give up his sometimes economically uncertain life as a craftsman who controlled his own destiny and take up the unchanging discipline of the relentless motions of the machine. He lost the bargaining powers inherent in his possessing special skills. He moved from a position of power to a role of pawn. Gladden (1886) wrote, "That labor may be considered and treated as a commodity is beyond question. That it is so considered by some economists, and so treated by some employers, is undeniable" (p. 468).

When man lost his freedom to the factory, great poverty and long work days at routine work resulted. Carnegie (1886) admitted, "The trouble is that the men are not paid at any time the compensation proper to that time" (p. 121). He attributed this fact to businesses entering into long term contracts at prevailing prices causing a profit squeeze. Also, he wrote that most companies are not managed by owners but by salaried officers, "who cannot possibly have any permanent interest in the welfare of the workingmen" (p. 120).

Degler (1967) reported, "Work on the farm . . . had been physically demanding, but work in the factory was no less so, and its pace was often faster and more rigorous under the relentless pressure of the clock, the foreman, and the tireless machine" (p. 85). Amenities such as vacations and holidays were virtually nonexistent. The American worker almost universally worked twelve hours a day, six days a week. Sunday was truly a day of rest.

The result of this industrialization and employment of large quantities of hired labor was a giant chasm between the rich and the poor. Many saw this discrepancy as natural and subscribed to what Billington (1963) described as the "Gospel of Wealth" (p. 72). He reported that by 1890 nine percent of the people owned 71 percent of America's wealth (p. 73). This inequality was hotly defended by many individuals including Andrew Carnegie who became a vocal leader.

Arguments presented to justify the rich-poor extremes included:

- (1) Those who led this country into industrialization deserved the extra money as fruits of their labor.
- (2) Wealth eventually filtered down to everyone as subscribed to by Crosby (1887) who wrote, "The wealth of individuals, like the wealth of masses, must be poured out on trades and professions; so that trades and professions will prosper as well when the wealth is in the hands of five hundred as when it is in the hands of fifty thousand" (p. 568).
- (3) The concentration of wealth supports the arts and education.

In summary, the United States during the last fifty years of the nineteenth century may be described as a nation in the throes of urbanization and industrialization. It was a country facing the problems created by unbridled industrial growth and political inactivity. It was a land of opportunity that had enabled a few to grow rich and many to live in poverty, working long hours for little pay. It was a country that spread from shore to shore but one in which the seeds of change were rapidly ripening.

## EDUCATION RESHAPED

Several events of the nineteenth century caused a reshaping of America's educational system. The country entered the century with basically a colonial type education system with most schools being college preparatory institutions for the moneyed class. The majority of free education was provided by pauper schools with their associated stigma. Clearly, as Vassar (1965) reported, "Educational conditions were out of step with the growing equalitarianism" (p. 155). This can be traced to the early 1800's and manifested with the election of Jackson, a common man, to the presidency.

The 1800's were a period of great activity characterized by militancy, intense enthusiasm, strong dedication to causes, and a belief in the equality of all men. Individual states underwent a second revolution by revising and rewriting their constitutions to more closely fulfill the democratic promises of our founding fathers. Reformers and reform groups gave of themselves and of their wealth to cure society of its ills and to achieve for man equal opportunities and fair and humane treatment (Vassar, 1965, pp. 153-154).

However, this task of making man "equal" was not easy. Bayliss (1909) suggested that the Industrial Revolution with its flood of labor saving machinery allowed man to provide himself with necessities without constant toil. However, she indicated that a great mistake was made — the mistake "of exempting one half of mankind from labor during all the time, instead of exempting all of mankind from labor one half of the time" (p. 562).

This mistake divided the population into two classes: "a toiling, unschooled class, and a non-working class, part of which attended school" (Bayliss, 1909, p. 562). As time passed, the gulf between the classes continued to widen. The workers fell behind intellectually. Their children, instead of attending school, toiled beside their parents in the nerve-racking din of the factories. Meanwhile, confinement in the classroom caused the physical condition of the non-working children to deteriorate. New diseases plagued the bodies and minds of

these children. Some children of the non-working class were intellectually ill-fitted for school and soon became “vagabonds and villains” (Bayliss, 1909, p. 562).

This division between working and non-working, educated and illiterate, constructive and destructive action plagued the country. The illiteracy rate soon became a major problem. One popular magazine reported that a nation founded by a population almost universally educated found itself 100 years later with  $\frac{1}{4}$  of the adult population unable to read or write. A wide variance in illiteracy was found as the nation was viewed. The rate varied from two to three percent in Utah and some eastern states, to 84 percent in New Mexico where by 1860 not a single school had been built for 25 years. Also, the New Mexican population voted against establishing free schools 5016 to 37 (Our Educational Outlook, 1872, pp. 100-101).

However, not all the illiteracy could be directly attributed to the school systems of the various states and territories. Lawrence (1875) wrote, “When we look over the returns of our illiterate population, of the great mass of ignorance that has grown up at the side of the common schools, we might at first conclude that our popular system of education had wholly failed. Few civilized countries present a more lamentable scene of intense and almost savage dullness” (p. 853). But he continued his expose by pointing out that of the 5,600,000 illiterate individuals over ten years of age, slavery, which forbade by law learning to read and write, produced 4,000,000, and of the 1,300,000 illiterate in the northern and western sections of the United States, 665,000 were foreign born, chiefly from Great Britain (Lawrence, 1875, p. 853).

Crime was a second major problem of the 1800’s. Lawrence (1875) reported, “Some recent statistics taken in Massachusetts show that 80 percent of its crime is committed by persons who have no education, or a very imperfect one . . .” (p. 853). He concluded “Whenever it (education) extends, crime diminishes, the morals of the community improve and taste and culture flourish even in the wilderness” (p. 853).

Out of these conditions of ignorance, delinquency, and human suffering came the “free school movement” — a movement which its advocates were convinced would elevate the working man to an equal level with others in the society. The movement charted a new role for knowledge. Schools, for the most part up to this time, taught knowledge for its own sake. Knowledge was seen as intrinsically valuable. Butts (1947, pp. 464-465) suggested that with this view:

- (1) Knowledge had no value beyond its own cultivation.
- (2) Knowledge was derived from the genteel tradition.
- (3) Literature, language, science, history, art, and music were the hallmarks of culture and scholarship.

However, many reformers of the nineteenth century placed a social function on knowledge. Not all of them agreed on which social function knowledge was to serve, but their views took on one or more of the following forms:

- (1) Knowledge was to be used to glorify the republic – its deeds, people, and their settling on a new continent. It was to develop a national spirit.
- (2) Knowledge would enable the individual to function in practical life. Inspiration was to come from business enterprise and technology and would develop a desire to use technology to improve methods of production and to enable the individuals to climb the social ladder in an industrial state.
- (3) Knowledge should improve the welfare of the great majority in a democracy. Investigation should aim to improve the workings of democracy (Butts, 1947, pp. 464-465).

Therefore, knowledge was to become more practical in its application, impacting and shaping the lives of all those it touched.

## COMMON SCHOOL MOVEMENT

The first serious attempt to reshape education came with the common school movement. The seeds of the movement were sown in the early 1800's and took well over a century to fully mature into free compulsory education for all. The American Journal of Education (Common Schools, 1873) described the common school as:

. . . that class of educational institutions which the State provides or secures for all its children, in the rural districts as well as the crowded city, wherever a human being is to be found on its territory capable of receiving that formal instruction, which it is the avowed purpose of these schools to impart, as essential to the healthy, physical, moral, and intellectual growth of each individual, and to the performance of everyday business and the universal duties of citizenship. (p. 225)

During the early 1800's several associations were formed to encourage change, and according to Graves (1913), "A number of educational journals published articles on school books; the methods of Lancaster, Pestalozzi, Neef, Fellenberg; the infant and Sunday schools; physical education; European school systems; and a variety of other topics and reforms" (p. 168). These movements indicate a period of educational ferment existed.

Out of this ferment came the common school whose most conspicuous advocate was Horace Mann. However, he was not alone in his work. Several men preceded him including James G. Carter about

whom Barnard declared, "More than to any other one person belongs the credit of having first attracted the attention of the leading minds of Massachusetts to the necessity of immediate and thorough improvement in the system of free or public schools" (Graves, 1913, p. 169).

Cubberly (1909) reported, however, "Popular education was the dream of the reformer (Mann) rather than the conviction of the people, and popular and free education at public expense was still further removed from the realms of the necessary or the possible" (pp. 27-28).

Mann and others waged a consistent, determined battle to develop public opinion for the common school. On their side was the strong workingman's movement. This movement was made up of trade union associations and workingman's political parties designed, as Cohen (1974) reported, "to agitate for legislation that would extend the rights of labor" (Vol. 2, p. IV). Labor feared the solidification of social class divisions and saw free public education as the great equalizer. Many persuasive arguments were given. May (1843) wrote, "Valuable as are many of the plans benevolence has devised for the melioration of the human condition, no one is comparable in importance to that which proposes the education of the whole people. This goes to the foundation of individual and social well being" (p. 225).

Mann (1848) in discussing the evils of all the capital in the hands of one class and all the labor on the back of another wrote, "Now, surely, nothing but Universal Education can counterwork this tendency to the domination of capital and the servility of labor" (p. 59). Lawrence (1875) supported the common school by writing that it "penetrates through our social system, teaches equality and republican principles, offers elements of commercial knowledge, and creates the reading public" (p. 853).

In short, as Edwards and Richey (1963) wrote, "The educational needs of the emerging democratic state could not be satisfied merely by providing the barest elements for more children that had not formerly received an education" (p. 345). The common school with its enlarged and enriched program offered extended opportunities to greater numbers. It became as Cohen (1974) described, "... the panacea for every social ill and the highway to utopia. The common school was to bring about equality in the conditions of men, ensure social harmony, advance social progress, provide common foundation of values in which diversity could thrive" (Vol. 2, p. XII).

However, the common school did not bask in universal approval. Among the several arguments given in opposition to the movement were:

- (1) Free education creates a lazy attitude. Dickey, President of the Boston Institute, reacting to Wickersham's (1881) NEA speech said that "he who is educated in the public schools



learns to accept favor without returning value received, and will in all probability be a seeker of easy position . . .” (p. 104).

- (2) It is unfair to tax one individual or group to educate other people’s children. An editorial in the *National Gazette* (1830), a leading source of opposition to the common school, contained the following argument: “It (free public education) would be a compulsory application of the means of the richer, for the direct use of the poorer classes; and so far an arbitrary division of property among them.”
- (3) Free education would break down class distinction and promote an undesirable growth of the democratic spirit.
- (4) Free schools would destroy the system of church supported private schools.
- (5) Free schools would undermine the Latin Grammar School.

The opposition to the common school, however, was slowly overpowered by Mann, who was described by French (1964) as the “evangelist of the common school revival” (p. 111); by Henry Barnard, whom Cubberly (1919) characterized as “its scholar” (p. 170); and by other strong leaders including Thaddeus Stevens, Calvin Stowe, Archibald Murphy, Calvin Wiley and Robert Breckinridge.

They achieved their educational change through an orchestrated four-step system which may be summarized as follows:

- (1) A few far-sighted individuals recognize a need, and they seek to enlighten the general public through constant agitation and propaganda.
- (2) These individuals convince a majority in a few communities. The state is then asked for special legislation to allow these communities to follow the new path.
- (3) When several communities are won to the new proposal, permissive legislation is sought which enables any community, who so chooses, to follow the new path.
- (4) When sufficient success is shown, mandatory legislation is sought to force all communities to adopt the new proposal (French, 1964, p. 120).

The completion of these steps resulted in a common school system which emerged from a public consensus. The common school as described by Cohen (1974, Vol. I) was to be public, be controlled by elected or appointed officials, be financed by the public treasury, be free to all pupils, teach the 3 R’s, promote non-sectarian Christian morality, and promote non-partisan republicanism.

## EXTENDING THE COMMON SCHOOL UPWARD

Most people saw the common school as an elementary school. By 1850 many states had established and were supporting them to educate the children of the masses. The next struggle to face education according to Cubberly (1919) was "to extend the system upward so as to provide pupils, free of charge, a more complete education than the common school afforded" (p. 184).

The secondary education of the early 1700's was dominated by the Latin Grammar School with its limited curriculum and exclusively college preparatory ends. This school, transplanted from Europe with its emphasis on classical languages, grammar, classical authors, and mathematics, served well its purposes of preparing boys for college. However, as an institution, it seemed unwilling or unable to adjust to the new emerging America. Vassar (1965, p. 13) reported that as differentiation in kinds, purposes, and objectives of education became apparent, the traditional Latin Grammar education did not meet the requirements of society. The commercial and business classes needed a more practical education in accounting, mathematics, geography, and modern language.

The call was for a more practical secondary education for the youth of the new, rising middle class. In the forefront of practical America stood Benjamin Franklin, one of the nation's best known self-made men. He proposed new forms of education to meet the times (French, 1964, p. 88).

This movement from classical to practical education resulted, according to Cubberly (1919), "in a gradual dying out of the Latin school and the evolution of the tuition Academy" (p. 184). The first of these academies was Franklin's Academy which opened in Philadelphia in 1751.

Franklin's Academy, because of internal conflicts between the classical department and the practical-oriented English department, failed to realize the founder's dream. However, the idea of the academy as a secondary school to teach physical development, handwriting, drawing, arithmetic, accounting, geometry, astronomy, English, history, geography, oratory, logic, morality, natural history (including gardening and agriculture), and ancient and modern languages to both boys and girls fared much better (French, 1964, pp. 89-91). By 1850 there were more than 6,000 incorporated and unincorporated academies in the United States with over 12,000 teachers and 260,000 students.

The academy's characteristic features were quite different from those of the Latin Grammar School, which was essentially an aristocratic free school for boys who planned to enter higher education. The academy was a private school which often had semi-public control

through governing boards. Many received state aid to assist in meeting their financial obligations.

One of the main purposes for establishing most academies was to offer subjects having value aside from preparation for college. Cubberly (1919) summarized the mission of the academy by writing, "The academies became primarily independent institutions taking pupils who had completed the English education of the common school and giving them an advanced education . . . with a view to 'rounding out' their studies and preparing them for business life and the rising professions" (p. 187). The academies clearly marked the transition from the aristocratic Latin Grammar School of colonial times to the more democratic American high school which followed it.

The academy reached its peak at about the same time as the issue of tax-supported, publicly-controlled, free, public common (elementary) schools was settled. The settlement of this issue tended to bring the semi-private tuition academy into question. Cubberly (1919) suggested, "Many asked why not extend the public school system upward to provide the necessary higher education for all in one common state-supported school" (p. 189).

Boston appeared to be the first city to face this question. Being a center of commercial activity, Boston produced a large middle class that wanted a better education for their children than the common school offered. They did not want to send their children to the Latin school and on to Harvard. Nor did they want to send them out of Boston to attend the academies. They, therefore, organized a special committee that developed a report prompting the foundation of an institution first known as the English Classical School that opened in 1821 (French, 1964, pp. 143-144).

The founders of the school saw a need for a school for boys intending to become merchants and mechanics. It was designed to be an alternative to the Boston Latin Grammar School. However, the Boston experiment quickened the demise of the Latin schools by providing a free school that incorporated the best features of the academies of the time. The curriculum was built solely upon the English language and, therefore, was clearly American in nature. "The free public high school," according to Cubberly (1919), "thus arose to provide at public expense what the public (common) schools had failed to provide and had been provided privately" (p. 193).

The idea of the American high school spread and Massachusetts led the way with its law of 1827 which required a high school in every town of 500 families or over. These high schools were required to teach United States history, bookkeeping, algebra, geometry, and surveying. Larger towns were required to also teach Latin, Greek, history, rhetoric, and logic.

The development of the high school, however, was not rapid. Cumberly (1919) reported, "Up to 1840 not much more than a dozen high schools had been established in Massachusetts, and not more than an equal number in the other states" (p. 196). Factors attributing to this slow growth included dominance of the academies, cost, opposition to additional taxation needed to support the schools, permissive rather than mandatory legislation, and the district system for common schools.

Many legal questions were also raised concerning the high school. French (1964) reported, "Since the early high schools were in effect upper and middle class institutions, not designed for all the children in the school district, there were many people who questioned their legality" (p. 149).

The viability of the high school was soon put to legal tests. A number of lawsuits established the legality of the high school including an 1851 Pennsylvania ruling that local districts could offer more extensive programs than required by law, an 1859 Iowa decision requiring a high school to be regarded as a part of the common school system, an Indiana decision which upheld taxation to support public high schools, and the historic 1872 Kalamazoo Case verdict which interpreted the Michigan State Constitution to include a provision to provide a complete system of public education (French, 1964, pp. 149-150). The Kalamazoo decision provided precedent for many other decisions regarding the legality of public-supported high schools and is, therefore, considered by many as the key decision with national significance. It marked the final major step in legalizing the high school, but "decades would still pass before it attracted a large proportion of youth of high school age" (French, 1964, p. 152).

## CHANGING THE SYSTEM

Horace Mann, Henry Barnard, and the common school founders aspired to create a system out of what they saw as chaos. They wanted uniform textbooks, standardized curricula, graded classes, professional teachers, improved school regulations, and supervision. Great importance was placed on punctuality, regularity, attention, and silence. These traits were seen as necessary to prepare youth for the commercial tone of the city.

Military and industrial models were used for school organizations. The purposes and practices of the common school movement soon fell into a fixed pattern and produced an unwieldy system (Cohen, 1974, Vol. II, XXXV, XXXVI). In short, the common school became, as French (1964) described it, "A book-centered, a curriculum-centered, a teacher-dominated school" (p. 127).

This condition invited criticism and reform. While most Americans were satisfied with the school as it existed, some individuals looked for better methods. Through European visits and correspondence, new methods of teaching were revealed.

## OSWEGO MOVEMENT

The first major reform which affected the common school was Pestalozzian in influence. Pestalozzi, under the influence of Rousseau's *Emile*, developed what French (1964) described as the "child-centered approach. He sought to have all education center on the child, his needs, his interests, his abilities. He rejected memorization and sought understandings" (p. 129). The foundation of Pestalozzian theory was the belief that sense-impression was the basis for all knowledge. Under his system the educational process was developed to coincide with the natural development of the learner. Cubberly (1919) suggested the importance of this achievement by stating, "The great contribution of Pestalozzi lay in that . . . he rejected the teaching of mere words and facts, which had characterized all elementary education up to near the close of the eighteenth century . . ." (p. 264). In its place he substituted a study of real objects that were brought into the school and organized and correlated by the teacher. He rejected the verbalisms about things and relied on the child's self activity and intuition and development of the senses as the keys to education.

Educators from all over the world came to view the work of Pestalozzi. Particularly influenced were the Prussians of whom Diersterwey, a German educator, said that applications of Pestalozzian principles were responsible for much of the German Common School's success (French, 1964, p. 130).

However, as French (1964) pointed out, "Not all who visited Pestalozzi warmed themselves at his heart. Some took isolated ideas home and formalized them. This was particularly the case with the Reverend Charles Mayo and his sister Elizabeth, who developed formal lessons on objects rather than lessons from objects" (p. 130). This educational fact distorted Pestalozzian ideas toward verbalism without understanding. Cubberly (1919) described the variance between Prussian and English object teaching by writing, "Where German lands received both the method and the spirit, the English obtained only the form" (p. 269).

The English system became structured and formalized and was introduced to the Home and Colonial Infant Society, which the Mayos helped establish. According to Cubberly (1919) "This society adopted the English interpretation of Pestalozzian methods, established a model Infant School and a Training College for teachers" (p. 270). The

society was instrumental in the introduction of the English type of formalized Pestalozzian education to the United States.

Cubberly (1919) reported, "Up to 1860 there had been no general adoption in the United States of Pestalozzian ideas as to instruction, aside from primary arithmetic . . ." (p. 244). The actual introduction of Pestalozzian ideas and methods was left to Edward Austin Sheldon, superintendent of Oswego (N.Y.) Public Schools and President of the Oswego State Normal School. "He adopted a form of Pestalozzian object lessons in which the curriculum was minutely divided into lessons involving numbers, magnitudes, form, color, weight, sounds, places, animals, plants, minerals, and liquids . . ." (Cohen, 1974, Vol. II, p. XXXIV). This approach was essentially the Mayos' English adaptation and was described by French (1964) as formalized perversions of Pestalozzianism.

The new Oswego system, said Sheldon (1863), "should embrace the united, harmonious development of the whole being, the moral, the physical, and the intellectual; and that no one of these should be urged forward to the neglect or at the expense of the other" (p. 357).

Sheldon formally introduced the object teaching system into the Oswego Schools in 1861 when he hired Miss M.E.M. Jones, an experienced English Pestalozzian. She provided the Oswego teachers with necessary training in English-style Pestalozzian methods.

The Oswego Method was pronounced a general success in 1865 by a committee of distinguished educators from the National Education Association (Cubberly, 1919, p. 296).

The English formalized Pestalozzian methods were soon firmly established, and their implementation attracted a large number of visitors. Also, Cubberly (1919) reported, "For a decade and a half Oswego was distinctively the training school for normal school instructors and city supervisors . . . and the enthusiasm for the new work which his (Sheldon's) teachers imparted to others gave his school a deserved national reputation" (p. 297).

With its strengths and faults the Oswego Movement caused significant changes in the schools. Among them were the following:

| <i>Change from</i>          | <i>to</i>                         |
|-----------------------------|-----------------------------------|
| memory and recitation       | reasoning and individual judgment |
| book centeredness           | object centeredness               |
| dependence on words in text | oral instruction using objects    |
| teacher keeping school      | teacher teaching with skill       |
| textbook lessons            | oral language lessons             |
| text dictated lessons       | teacher planned lessons           |
| recite what was read        | expression of ideas               |

(Cubberly, 1919, pp. 297-299)

The formalized techniques developed in England and honed to perfection at Oswego, while drawing praises, also drew criticism. One of Charles Dickens' goals in *Hard Times* was to criticize the English Pestalozzian system's reliance on verbalism without understanding. Wilbur (1865) in discussing the Oswego system referred to a passage in which a daughter of a strolling circus actor, "whose knowledge of horse, generic and specific, extends back as far as memory reaches," was unable to define horse in exact textbook terms and, therefore, shrinks in silence. Of this he wrote, "The features of a school system thus graphically described . . . I regret to say . . . is known in this country as the Oswego system . . ." (p. 198). He further wrote "This peculiar adaptation of Pestalozzianism . . . (described in Oswego's manual, *Elementary Instruction*) though fresh from an American press, yet had its origin in what may be called the dark ages of educational history in England; that is, some thirty years ago" (p. 207). He described and criticized sections of the manual then concluded, "The time allotted will not permit me to pass in review other features of the so-called Oswego system, equally objectionable" (p. 207).

Harris (1870) in addition to criticizing object teaching defined the practice of the textbook-centered common school. He wrote:

The evils of the text-book system, great as they are, are not to be compared to those of the oral method. Even by the *memorizing* plan the pupil is obliged to concentrate his attention and arouse himself to have work, while the oral (object) method does not require the habit of *regular* systematic study, even though he may foster brilliant, flashy habits of mind. The true mode of teaching does not rely upon memory nearly so much as the object lesson system. (p. 893).

The Oswego system also became one of its own enemies. It, like the common school, fell into an orthodoxy. Soon the system was rigid and unbending. Cohen (1974) wrote, "From the traditional notion that everything can be learned by reading a textbook, many teachers moved to the extreme that everything could be taught by the object method" (Vol. II, p. XXXVI). The basic principles of Pestalozzi soon were hidden by a mechanical education with strict adherence to formula and sequence of steps. Much of the later industrial arts' emphases on the project (object), carefully structured lessons, and absence of well-used textbooks is strikingly similar to the Oswego brand of object teaching. Butler (1900) described the trap into which the Oswego Plan fell as follows, "It is a tendency of teaching to harden into routine, the routine in turn becomes mechanical, and intellectual and moral anemia follows of necessity" (p. 81).

## QUINCY PLAN

An answer to a rising cry against this mechanical, lock-step type of education by the numbers was given in 1875 by Francis W. Parker, the new superintendent of schools at Quincy, Massachusetts.

Of Parker, Cubberly (1919) wrote, "In the great reorganization and redirection of elementary education that took place between 1860 and 1900, probably no American was more influential than Colonel Francis W. Parker" (p. 328).

Parker's early teaching career was marked with success in dealing with children and with presenting content using traditional rote-learning techniques. After a distinguished Civil War military career, Colonel Parker returned to education first to Manchester, New Hampshire, then to Dayton, Ohio. Marler (1965) reported that in Dayton, "Having observed the unhappiness of little children in Manchester who had been subjected to this mournful process (of education), . . . this mournful plan, Parker was determined to study how they might experience that happiness in school which he felt was in accord with God's will" (p. 58).

In Dayton, Parker began to question traditional practices of education in order to develop a system of education which called upon the teacher to change from being a "merchant dealing in information . . . to become a builder of human souls" (Butler, 1900, p. 81). This new experiment would be built on an activity-centered program based on student experiences, but these would be experience intelligent *not* experience unintelligent, experience reflective *not* experience unreflecting, experience open-eyed *not* experience blind. Describing these experiences Butler (1900) said, "The former is a teacher, the latter a slave driver" (p. 82).

While in Dayton, Parker was elected principal of the city's new normal school. He introduced many experimental ideas to the school, including practice teaching, reading taught through the phonetic plan followed by the word method, altered arithmetic and geography instruction, and the dropping of technical grammar. These changes were not accepted by the local teachers without near revolt. "The tradition, the old, the customary were not being respected: treason, high treason! . . . Parker was accused of being a poor educator, of being illiterate (after all, he hadn't gone to college)" (Marler, 1965, p. 60). Griffin (1906) reported, "There was very little they did not accuse (him) of" (p. 129).

In 1872 resigning his position in Dayton and using an inheritance from an aunt, Parker traveled to Germany to study. He remained there until 1875 gaining insight into the teachings of Rousseau, Pestalozzi, Froebel, and Herbert.



Returning to the United States in 1875, Parker “re-oriented the Quincy (Mass.) system to an activity-oriented curriculum based on the needs and interests of children” (Cohen, Vol. II, p. XXXVI). French (1964) reported that the Quincy system was one of the first noteworthy attempts to give America better elementary schools. Parker, he stated, “brought the spirit of reform into schools which had been conducted in a spiritless memoriter fashion” (p. 137).

The central focus of the Quincy movement was spirit of study and one of everlasting change (Parker, 1903, p. 240). Parker felt that education could not be permanently bolstered up by artificial supports. No patent methods or devices would suffice; not even the power force of legislation could make the educational stream run uphill forever (Butler, 1903, p. 243).

Parker put into practice at Quincy a few fundamental principles of education and a psychology including:

- (1) Education is not devising methods or concocting ingenious devices.
- (2) Methods and devices are small things and change with every individual who uses them.
- (3) A principle is eternal and the parent of a hundred methods.
- (4) A cast-iron method is a principle's worst enemy.
- (5) The teacher with set methods has lost touch with human nature (Butler, 1903, p. 244).

Out of these principles came a program which centered on the child and correlated the subjects in the curriculum in ways to make them meaningful to the learner. Children started:

reading simple words in place of drilling the alphabet by rote. Arithmetic was developed inductively with a plentiful use of actual objects to manipulate. Geography started with field trips rather than with the universe. Supplementary books and texts replaced stodgy textbooks. (French, 1964, p. 137)

In short, Parker accomplished many of the Pestalozzian ideals that the mechanical education of the Oswego Plan only aspired to. Elementary education was truly changed to a child-centered school, and at Parker's death G. Stanley Hall (1903), the great child study proponent, wrote, “Elementary education in this country owes more to (Parker) during the last twenty years than to any other man . . . Few have ever been more devoted lovers of children and of the teacher's work . . . ” (p. 273).

## KINDERGARTEN MOVEMENT

During the reform period of elementary education characterized by the Oswego system and the Quincy Movement, another important educational phenomenon was taking shape. This phenomenon was the kindergarten and produced the "child-centered school *par excellence*" (Cohen, 1974, Vol. II, p. XXXVIII).

The kindergarten was of German extraction and was based on the work of Freidrich Froebel (1887) who wrote, "The essential business of the school is not so much to teach and to communicate a variety and multiplicity of things as it is to give prominence to the everliving unity that is in all things" (pp. 134-135). The dominant idea in the kindergarten, according to Cubberly (1919), was "natural but directed self-activity, focused upon educational, social, and moral ends" (p. 320). This direct experience furnished the material for human insight and conduct.

Froebel, said Cubberly (1919), "saw more clearly than any one before him had done. The unutilized wealth of the child's world, that the child's chief characteristic is self activity . . . and that the work of the school during those early years was to supplement the family by drawing out the child and awakening the ideal side of his nature" (p. 320). The school was to take on a social purpose; hence the schoolroom was to become a miniature society — a place where people were courteous and helpful and where the predominant feature was social cooperation.

To these ends, doing, self activity, and expression became fundamental to the kindergarten, and movement, gesture, directed play, song, color, the story, and the human activities a part of kindergarten technique. Nature study, gardening, and motor activity were commonly emphasized. The passive learning of object lessons was replaced by active learning stressing motor activity and learning by doing.

In summary, the kindergarten was a school for young children that had individual development as its aim, motor expression as its method, and social cooperation as its means (Cubberly, 1919, pp. 320-321).

## INSTRUCTION IN MANUAL ACTIVITIES

During the latter quarter of the nineteenth century, conditions were ripe for a full-fledged attempt to introduce manual activities into the American schools. The Civil War was over and the union stood, industrialized with a growing national spirit.

Educational change had reshaped the common school, and the new type of secondary school, the American high school, was growing in popularity. In many schools teaching methods were vastly improved

with the old rote learning techniques either replaced or supplemented by objects, nature study, supplementary books, and a variety of other innovations. Teachers were becoming better trained through a growing system of normal schools. Supervision and curriculum development were at an all time high. In short, education was on the move.

However, the constant cry for more practical education was, in many minds, only being partly addressed. Vast numbers of students who failed to embrace even the modified types of traditional education still dropped out of school at an early age. Change to a more contemporary curriculum was slowly taking shape. Through the work of men of commerce and industry, drawing as advocated by Henry Barnard in the 1830's was introduced to the schools during the 1860's and 1870's. Massachusetts led the way, as it did in many educational reforms, by requiring cities and towns of ten thousand citizens to provide free instruction in industrial or mechanical drawing to persons over the age of fifteen in either day or evening schools (Anderson, 1926, pp. 129-131). Other states, including New York in 1875, followed Massachusetts by requiring industrial and free hand drawing instruction in city public schools and normal schools.

However, drawing was only part of the answer sought. It was only the tip of the iceberg of manual instruction. The new middle class cried for additional practical instruction. Froebel had introduced constructive activities into the Kindergarten, but he also proposed to extend and develop similar activities into the upper years of schooling. He, however, did not outline the form for such upper grade manual activities. This task was left to others, initially Europeans.

The first country to organize such activities as an integral part of school instruction was Finland. Under the educational leadership of Uno Cygnaeus, Finland in 1866 made some form of manual work compulsory for all boys in its rural schools and in its training colleges for male teachers. Sweden followed suit in 1872 by introducing sloyd work into schools to partly counteract adverse physical and moral effects of the city and to revive a declining cottage industry (Cubberly, 1919, p. 323).

These and other similar European programs did not immediately answer America's growing concern with handwork or manual education marked by the growing popularity of the Kindergarten and the Quincy methods. American educational leaders were presented with an answer by Victor Della Vos, Director of the Imperial Technical School of Moscow.

The Russians had developed an exhibit of their instructional system for the Philadelphia (Centennial) Exposition held in 1876. This exhibit displayed a systematic approach for developing skills in the use of tools and materials for engineers. Della Vos (1876) in support of this

approach wrote, "No one will deny that a close acquaintance with hand labour, and, in general, practical experience in mechanical works, are matters of the utmost importance to every engineer (we speak of mechanical engineers and constructors)" (p. VIII).

His program of instruction had several distinct features. The instruction shops were separated from the mechanical works in which orders from private individuals were completed. A system of teaching was developed for the instruction shop through careful analysis of the "arts" of the trades. This method as described by Della Vos (1876, p. XIX) was based on four principles. The method:

- (1) should demand the least possible length of time for the acquirement of the elementary principles of mechanical art.
- (2) should increase the ability to supervise the gradationary employment of the pupils.
- (3) should impart the character of sound systematical acquirement of knowledge.
- (4) should facilitate the demonstration of the progress of every pupil at every stated time.

In developing this method Della Vos and his colleagues identified what Runkle (1882, p. 133) later described as the "arts" or general elements that underlie all industrial pursuits. They then placed the arts or practices into a carefully articulated system progressing from the simple to the complex. This was done, as Della Vos (1976) wrote, because "everybody is well aware that the successful study of any art whatsoever, free hand or linear drawing, music, singing, painting, etc., is only attainable when the first attempts at any of them are strictly subject to the laws gradation and successiveness, when every student adheres to a definite method or school, surmounting, little by little, and by certain degrees, the difficulties to be encountered" (p. XIX).

The result was a method emphasizing instruction rather than construction, that analyzed workshop operations into their elementary processes, arranged them in a graduated series of exercises and made them the systematic drill of the students (Anderson, 1926, p. 156).

The essence of the Russian system as exhibited at Philadelphia was witnessed by John D. Runkle, President of the Massachusetts Institute of Technology. Runkle went to the Exposition searching for an efficient system for cultivating skill in the use of tools to be introduced into mechanical engineering programs. He found that system in the Russian approach but he also had the insight to see greater implications. He saw a system which was in his eyes not only engineering education but general education (Woodward, 1887, pp. 4-5). This insight, according to Anderson (1926) "marks the beginning of the manual training movement" (p. 161).

Runkle soon became a vocal advocate for introducing the Russian system into public schools. His arguments were based on the concept that the broad underlying principles and practices of the industrial occupations that he called the arts were general education for students living in an industrial society. He wrote, "The arts are few but the trades are many" (Runkle, 1882, p. 133). He argued that the province of a fundamental general education is to deal with generals, leaving the students the task of applying general knowledge to specific tasks. He, therefore, reasoned the instruction in the arts of industrial pursuits were in the purview of the public schools while the techniques of the trades were to be learned after the student left school and entered his chosen specialty.

Runkle (1882) concluded, "It is quite another thing to leave out of his general education all those elements which underlie all industrial pursuits, and particularly if it can be seen that the introduction of these general elements is not only educationally feasible, but desirable for the roundness and unity of the general education, and valuable, no matter what the future of those so educated may be" (p. 133). But Runkle's eloquent pleas for instruction in manual activities as part of a student's general education fell on conservative New England ears. In fact, the center of the movement soon shifted to the middle west, particularly Washington University of St. Louis (Anderson, 1926, pp. 161-162).

In this bustling city on the Mississippi was a man of considerable insight and almost unmatched eloquence — Calvin M. Woodward. Woodward was Professor of Mathematics and Mechanics and Dean of the Polytechnic School at Washington University. He had received a classical education, graduating from Harvard in 1860 and later serving with distinction as an officer for the North in the Civil War (Dye, 1971).

Coming to the infant Washington University in 1865 as assistant principal and professor of mathematics, he soon became principal of the O'Fallon Polytechnic Institute which was part of the department of Engineering (Hargitt, 1938, pp. 148-149).

Woodward, like many engineering educators, found that his students had difficulty visualizing the abstract and when asked to build models to help in their understanding, were almost without manual skill. This led Woodward to establish a workshop in which his students could develop "some dexterity in the use of tools which, though slight, will be of great value to them in the subsequent work in their profession" (Coates, 1923, p. 10).

His experiences with the early workshops at Washington University led Woodward to make the first public announcement of his "new departure" in education at a public lecture on October 24, 1873, which was later printed in his book *The Manual Training School*. According to

Coates (1923) this presentation “judged by modern standards of educational theory . . . had no clearly thought-out program; nor does he at first base his case on any principles of educational psychology” (p. 11). This lack of definition is understandable in light of the absence of experience by Woodward and the entire educational community in school-based manual education. To this point Woodward (1905b) wrote, “When the Manual Training School in St. Louis was established, there was no guide to follow; it was a pioneer school . . . there was not on the face of the earth a manual training school properly so called” (p. 927).

However, a single significant statement made by Woodward in this first presentation surely earned him the title, Father of Manual Training. He asserted that training in the manual arts was desirable and advantageous for all pupils, regardless of their educational aim (Coates, 1913, p. 11). Woodward (1887) further stressed this point in a footnote to his 1873 speech in which he wrote, “It presents very clearly the necessity for manual training on the part of all children, outside as well as inside the Polytechnic School” (p. 240).

This first tentative step changed the course of Woodward’s life. He soon moved from an engineering educator looking for a form of education to improve polytechnic education to the leading advocate for adding manual education as a general subject for all boys in the schools of America.

This role change was at least partly facilitated by a view of education of the day which Woodward (1889a) saw as inadequate. He stated that the traditional school’s great fault:

. . . is their haziness. The students look at multitudes of things, but do not perceive them. Having eyes they see not, and having ears they hear not. There is too much that is dim and muddy and feeble. Substance eludes the grasp; shadows, uncertain and flitting, are too often the result. The method which reason and experience both approve is reversed, and pupils are put to committing to memory matters which they are not prepared to understand; they are expected to profit by the recorded experience of others before they have been properly trained in the school of experience themselves. (p. 100)

Woodward saw great value in manual activity in schools as a way to improve the basic education of youth but could find little evidence of its use. Ham (1885) also saw this void and wrote, “The neglect of the governments of the world to provide for education in and through the arts shows how far-reaching has been the baleful influence of Plato, who said: ‘all the useful arts, I believe, we thought degrading’” (p. 259).

Ham further suggested that the hand is an essential element in the education of youth. He (1885) wrote, “The hand is the organ of wisdom, and the training of it reacts upon the mind” and “the hand is the organ of truth. It tests the speculations of the mind” (p. 259).

So with a general feeling that traditional education was missing an essential element — manual education — Woodward was motivated to establish the Manual Training High School which Bennett (1937) suggested was the “earliest and also most distinctive feature of the manual training movement in America . . .” (p. 347).

The school was established through the philanthropic efforts of several leading St. Louis businessmen. Their motives were, in varying degrees, to support a more efficient training to industrial life while Woodward’s goals were basically general education. He was advocating a new education which enlarged and enhanced the old. To this point he (1885) spoke the following in Boston:

. . . The “new” education includes the “old.” We tear down no essential parts of the old temple, but we have added at least two wings which were needed to make a symmetrical whole. The natural science wing brings in a whole world of new materials, and a totally new method of developing ideas. The other wing is that of manual training including a variety of drawing and intelligent use of a large range of typical tools and materials.

Woodward’s financial supporters found common ground in the elaborately organized instruction in the use of tools patterned after the Russian system which Woodward proposed for the new school. They saw these experiences as valuable preparation for all manual trades (Anderson, 1926, p. 162).

Woodward’s (1905b) desire to “enlarge the school by the introduction of a symmetrical course in tool-work which should be strictly educational did, however, have economic value which he recognized as a secondary outcome. To this point Woodward (1889b) wrote:

. . . in nearly every paper I have written during the past two years, I have urged only its educational value. Not that I have lost any faith in its value as a source of practical value; its value in enabling a man to make a good living; to earn money; to rise in the world; to meet as a citizen his obligation to his family and to the State; to command the means whereby life-long culture may be gained, science be cultivated and art be encouraged.

Because I believe more and more in the intellectual, moral and physical value of manual training, I believe in its economic value none the less. On the contrary, I have within the past year seen the “most unmistakable evidence of its high industrial value.” (p. 76)

He continued:

The economic argument is a perfectly valid one, if it were admitted that results were no better, and no worse, than those produced by the old system, we should still have in the economic results an unanswerable argument in favor of manual training. (p. 77)

With his financial backers having one goal in mind and Woodward having another, the St. Louis Manual Training School was established. It soon became a model for many that followed and provided a basic view of the new phenomenon on the American education scene.

The school, which was separate from the local high school, opened on September 6, 1880, and provided a two school option for local students. This concept of a separate manual training school was advocated by Woodward and remained until the comprehensive high school evolved.

The St. Louis School provided its students with five fundamental lines of study: mathematics, science, language, drawing, and shopwork.

The boys went to school for six hours that contained four one-hour periods devoted to the first four areas of study and one two-hour period in which shop work in either woodworking, forging, or machine shop was taught. At the end of three years the successful student graduated from the school (Woodward, 1883, pp. 149-151).

The founding of the manual training high school, which was an "over-night" success, encouraged others to establish similar schools. It also brought to education a period of controversy by arousing, as Bennett (1937) observed, "the active and sometimes highly emotional opposition of some of the more conservative educators who did not recognize the value of manual training in general education" (p. 360).

This controversy was fueled by a fear in opponents of the new education — a fear based on usefulness. They felt that useful "practical" studies were the province of trade schools. Woodward (1883) in response criticized the reverence for the classics and the past by writing:

Let us lay aside superstition and a morbid devotion to what is dead and gone, and consecrate ourselves anew to the salvation of the present and the future. To draw a figure from George Eliot: "Do not suppose that the sun will go backward because you insist upon turning back the hand of your clock." (p. 99)

This controversy which raged for nearly ten years with the NEA Conventions being a primary rostrum may be viewed by first presenting the basic arguments for manual training articulated by Woodward and others, then by reviewing the criticisms presented by those not in support of manual training.

## MANUAL TRAINING SUPPORTED

The foundation for the case for manual training was based on the precept that the schools of the day were incomplete in their effort to develop the student's many abilities. Woodward (1897a) summarized this view by writing:



I put my educational creed into six words: "Put the whole boy to school," and another adds, "and you will have a whole man by and by." (p. 6)

Woodward (1882) further elaborated on this view with the following analogy given at his first of several NEA Convention presentations:

We treat our children too much as the unskilled gardener treats his plants. He puts them by a window and pours over them a flood of light and life-giving rays. Instinctively they turn out towards the source of their strength. They put forth their leaves and budding promises, and, as we look at them from the outside, we mark their flourishing aspect and rejoice. But if we look at the other side, we shall find them neglected, deficient, and deformed. What they want is more light — light on the other side. Were the sun always in the east, our trees would all grow like those on the edge of the forest, one-sided.

So in education, we must open new windows, or, rather, we must level with the ground all artificial barriers, and let every luminous characteristic of modern life shine in upon our school-rooms. We must pay less heed to what the world was two or three hundred years ago, and regard with greater respect what the world is today. (p. 142)

Woodward (1896) later acknowledged that manual training as an educational factor "owed its existence to a widespread conviction that the education of the schools had been dealing too exclusively with the abstract and the remote and not enough with concrete and the present" (p. 879).

He suggested that with the great changes that society had witnessed a "new education" was needed. Conditions of society had changed in the 1800's so "the ordinary parent," according to Woodward (1896), "can do little directly toward teaching his child the arts and accomplishments of life," likewise, "the boy can learn from his father neither the fundamentals of science nor their application in the arts of practical life" (p. 877).

Traditional education was lacking. Speaking of an educated man who was forced to beg for his basic needs because no one wanted a linguist who spoke several languages, Woodward (1882) attacked the traditional educators when he wrote:

Now when a man's education has been misdirected, and he is thrown upon the world shackled by outgrown theories, bewildered by false lights, and altogether unprepared for the work which perhaps he was born to do, and when in his extremity he resorts to knavery and violence and fraud to secure what he knows not how to get by fair means, those who directed, or should have directed, his education cannot be held blameless. (p. 141)

Woodward (1882) further wrote, "There is a lack of harmony between the school house and the busy world which surrounds it" (p. 141). Old

education may be good but it could be made better and the addition of manual training was the key.

Over the years Woodward developed a definite view of the value of manual training. In the early years his arguments were basically those of aiding in the *training of the mind*. He stated:

The mind has been nourished through the fingers' ends; in *developing mechanical interests* – the parents testify to an increased interest in practical affairs, in shops and machinery, and such books and periodicals as the *Scientific American*; and in *providing a basis for later occupation activity* – ; there is scarcely a calling in society that is not edified by manual training. (Woodward, 1882, p. 153)

Woodward (1896) later dealt with the need for manual training to aid in intellectual and moral judgments by writing:

The average good citizen is called upon to exercise his judgment in regard to a hundred material problems where a knowledge of mechanics and industrial methods is as essential as that of reading and writing; and he is called upon to discriminate between right and wrong, between thrift and waste, between fitness and unfitness, in a reference to countless matters of everyday concern, but which are wholly remote from the concern of the old-time school. (p. 878)

Woodward never advocated manual training as trade training. In fact, he (1887) tried to make a clear distinction between the two by stating:

Here is the point where the best manual training schools differ from the ordinary system of apprenticeship. In the latter the learning acquires the “arts” involved in a piece of work incidentally, and generally without a conscious analysis; in the former the “arts” are made the direct object of his study and attention. (p. 278)

The systematic study of the arts of the trades then provided the basis of manual training and gave the study its definition and value. These were presented by Woodward (1884) when he wrote “The Fruits of Manual Training.” In this treatise he wrote:

By manual training I do not mean merely the training of the hand and arm. If a school should attempt the very narrow task of teaching only the manual details of a particular trade or trades, it would, as Felix Adler says, “violate the rights of children.” (p. 347)

Woodward further wrote that the European trade school concept had “no place in our American system of education” then he defined the manual training concept as follows:

The word “manual” must, for the present, be the best word to distinguish that peculiar system of liberal education which recognized the manual as well as the intellectual. I advocate manual training for all children as an element of general education. I care little what tools are

used, or how they are used, so long as proper habits (morals) are formed, and provided the windows of the mind are kept open toward the world of *things* and forces, physical as well as spiritual. (p. 347)

He (1884) concluded his article by listing the following eight fruits of manual training “when combined as it always should be, with generous mental and moral training”:

- (1) Boys will stay in school longer than they do now.
- (2) Better intellectual development.
- (3) A more wholesome moral education.
- (4) Sounder judgment of men and things.
- (5) Better choice of occupations.
- (6) Material success for the individual and for the community.
- (7) The elevation of manual occupations from the real brute, unintelligent labor to work requiring and rewarding cultivation and skill.
- (8) The solution of labor problems (pp. 348-357).

Late in life Woodward (1905a) succinctly described manual training as the study which “opens the door, and lifts the shades which hide or obscure the activities of the world in which we live” (p. 263).

He (1910) also, using the perspective of advanced years, listed four basic goals manual training had when he founded it thirty years earlier. They were:

- (1) To educate the whole boy, to develop the entire area of his brain.
- (2) To lay a broad and appropriate foundation for higher education.
- (3) To enable boys to discover their innate mental and physical aptitudes.
- (4) To furnish a broad basis for an industrial career should one’s aptitudes be in the direction of the mechanic arts (p. 7).

However, even though Woodward was the founder and chief spokesman for the movement, others modified his ideas. Some placed high vocational emphasis on manual training such as in Omaha, Nebraska, where the superintendent reported that it was “to prepare the students for greater proficiency in a trade should they conclude to become mechanics” and in Minneapolis where one of the practical benefits expected from introducing manual training into the schools was to be that of “furnishing of superior foremen and superintendents for our various industries.” Others following Woodward’s intent were in Portland, Maine, where it was suggested, “Youth should be educated in the use of the tools of industry as well as in books,” and in New Haven, Connecticut, where the introduction of manual training was described, “. . . as a protest against teaching mere words . . . It supplies an ele-

ment in education that has been almost entirely lacking” (U.S. Bureau of Education, 1888, pp. 782-783).

These differences in program goals, however, did not split the group because their common dissatisfaction with the curriculum of the public schools provided the needed bond. It did, unfortunately, leave manual training open to several interpretations that its critics quickly pounced upon and that led Woodward (1889a) to write:

. . . I plainly see that the trade tendency is to be guarded against. There is plenty of bad advice, foolish schemes, and indiscrete haste for putting manual training where it does not belong, and where no adequate preparations are made for it . . . I beg of you not to hold manual training responsible for all that is said and done in its name. (p. 93)

This plea did not satisfy the critics of manual training. They, in fact, were vocal, articulate, and powerful.

## MANUAL TRAINING CRITICIZED

In 1888 the Commissioner of Education summarized five prevailing points of view about manual training. These were:

- (1) Manual training is essential general education and is an addition to but not a replacement for other subjects.
- (2) Manual training is vocational education.
- (3) A good science program is equal in value to manual training.
- (4) Education has its faults but manual training is not the answer.
- (5) Manual training doesn't do what it is advocated to do.

Each of these points of view were either attacked or used as an argument against manual training by selected leading educators of the time including William T. Harris, later to become United States Commissioner of Education; John Dickinson; Thomas Bicknell, editor of *Education*; and A.P. Marble.

Their chief forums were the early issues of *Education* magazine and the National Education Association Conventions of the 1880's with the 1887 and 1888 meetings' culmination of the discussion (Cubberly, 1919, p. 326).

A survey of the typical views developed to support and refute each of these cases is as follows:

### 1. Manual Training Is Essential General Education

The central thread of Woodward's many discussions of manual training revolved around its ability to provide a new dimension to general education. He felt that a complete education should develop the mental, moral, and manual facilities of the child. He and others often discussed the use of the manual or the hand to develop the faculties of the mind.

Representative of these discussions was Woodward's (1889a) discussion of manual training's contribution to the development of sense-perception in which he quoted William T. Harris, a staunch foe of manual training, concerning his belief that in true perception all figures of logic and, consequently, all faculties of the mind are called into service. He then wrote, "Knowledge and experience and memory and generalizations are necessary to the operations of logic, and manual training is particularly strong in furnishing the knowledge and experience, in establishing the major premises essential to logical reasoning" (p. 98). He further defended manual training by writing, "Tool instruction and tool practice is full of meaning and it should always be strictly logical" (p. 98).

On another occasion Woodward (1885) built a case for manual training as a type of general education which was attractive to students whose strong mental powers did not lie in the common method of education of the day — memory. He wrote, as did Colonel Parker earlier, "There is now no place, or only a most uncomfortable one, for those boys who are strong in perception, apt in manipulation, and correct in the interpretation of phenomena." He wrote later in the same article that manual training proposes to cultivate and harvest both kinds of boys — those who memorize well and those strong in perception, interpretation, and manipulation.

In the same vein the Industrial Education Association promoted manual training because its members saw that nowhere in the schools of the day was any provision made for training the judgment and executive faculty (U.S. Bureau of Education, 1889, p. 834).

However, many saw manual training in a different light. E.E. White, president of Purdue University, rejected "the doctrine that the public school should cover the whole domain of education" (Woodward, 1896, p. 887). He felt that this doctrine sapped the very foundation of the public school system and, therefore, rejected manual training as a necessary addition to the curriculum.

A.P. Marble supported White's position by writing:

Now, the schools we have to conduct are to train boys and girls in those directions that are common to everybody, and one of the things that the boys and girls ought to learn in those schools is how to get information out of books. (Woodward, 1896, p. 887)

Marble (1888) also wrote that manual training could not be general education because no one kind of work with tools is of general utility. "The hammer, the saw, and the plane are of no use to the weaver . . . special aptitudes should be taught in special schools" (p. 102).

Marble finally resorted to ridicule to attack manual training's contribution to general education by stating, "There is no information

stored up in the plow, hoe handle, steam engine, but there is information stored up in books" (Bennett, 1937, p. 361).

A further argument against manual training as general education was made in terms of its effect on other subjects. Dickinson wrote, "It does not appear that manual dexterity holds any necessary relation to general intelligence or to virtue. To cultivate it in schools must distract the mind from its legitimate disciplinary work and lead it to pursue other and inferior ends" (U.S. Bureau of Education, 1889, p. 834).

Other educators were simply repulsed by the very notion that anything manual could be elevated to the same plane as the classical studies. Harris (1891) reacted to manual training in this light by writing, "It was at first defended on the preposterous ground that it is educative in the sense that arithmetic, geography, grammar, and natural science are educative" (p. 202). He (1891, p. 201) also contended that intellectual discipline is superior to "practical education" for all students, even those entering the world of business. Harris (1891) further rejected any thought of manual training as general education because he saw, "The special work of the school in the great process of education is that of giving the youth letters and civil manners" (p. 195). This was a task he felt manual training could never do.

To these and other arguments, Ham (1886a) responded, "The error in prevailing methods of education is striving to reach the concrete by way of the abstract, whereas we should pursue a diametrically opposite course" (p. 6). All of the strongest answers of Ham, Woodward, and other supporters of manual training were not in books. They were to be found in a program utilizing books, objects, tools, materials and a host of other means to produce, as Ham (1890) wrote, a "union of thought and action" (p. 9). He (1886a), like Woodward, contended:

Exclusively mental training does not produce a symmetrical character, because it merely teaches the student how to think, and the essential complement of thought is action, and the character that is not symmetrical is false. To produce a symmetrical character, the mind and the hand must be in alliance. (p. 412)

The Industrial Education Association of New York (1887) summarized many thoughts about the importance of manual training in the first of a series of Education Leaflets, "The Argument for Manual Training." The author wrote:

Speaking of substituting manual training for mental work is incorrect. "Manual Training" in the sense in which it is used here, is mental training. It is the training of the mind to accuracy of perception and truthfulness and readiness of expression. If manual training were non-mental and non-disciplinary it could have no proper place in the public school course.

So the battle lines were drawn over the general educative value of manual training. Was it mental training through manual work? Did it produce a more completely educated student? Or did it detract from the pure education provided by the schools?

## 2. Manual Training as Vocational Education

However, the battle wasn't restricted to whether manual training was general education or not. Additional controversy arose out of individual interpretations of manual training as vocational education — interpretations that Woodward and other early developers rejected. In fact, Woodward (1889) wrote, "The manual training is not a school for the training of carpenters and blacksmiths, of machinists and mechanical engineers . . ." (p. 93). He constantly stressed that no attempt was made to cultivate dexterity at the expense of thought. The instruction was designed so that the stage of mechanical habit was never a goal. The only habit Woodward cared to develop was the habit of thinking.

Woodward (1905b) did desire mastery, not the mastery of a trade, but ". . . mastery of the external world, mastery of tools, mastery of materials, mastery of processes" (p. 928). He saw manual training separate from vocational training and factory production. To support this idea, he wrote, "We did not wish to organize a school in a factory, neither do we wish to attach a factory to a school, but we wished to enlarge the school by the introduction of a symmetrical course in tool-work which should be strictly educational (p. 927).

The most likely reasons for Woodward's stance were that he truly believed in manual activity as a way to enhance general education, and that there was an overwhelming sentiment by educators that vocational education had no place in the public schools — a view not altogether supported by business leaders and the lay public.

The Industrial Education Association (1887) also rejected manual training as trade training by writing, "The schools are not established for the purpose of teaching pupils how to make a living, but to teach them how to live. They are not to teach trades, but to educate."

However, these assurances about the general education motive of manual training did not satisfy two distinct groups — leaders of organized labor and the traditional educators.

The leaders of labor and others concerned with the numbers and quality of tradesmen usually saw manual training as vocational education and opposed it on two grounds. They either saw manual training as a program that would flood the market with skilled workers or as a program that would produce poorly trained workers, inferior to the apprentice-trained craftsman.

Typical of the first concern were comments made during the discussion which followed Runkle's (1877) initial presentation of the

Russian system at the NEA convention. During this discussion H.W. Grube from Louisville questioned the advisability of establishing Russian-type instruction shops from which he saw 500 mechanics a year graduating. He concluded that if each city of 10,000 established an Industrial School “very soon there would be such an amount of young men able to practice these trades as to overcrowd the market” (p. 235).

A diametrically opposite concern was that manual training would not overcrowd the market with skilled workers, but would add to an already abundant supply of poorly-trained craftsmen. The remarks of O’Donaghue (1895) in *The American Federationist* were representative of this view. He wrote:

These schools do not turn out trained mechanics . . . . The world’s labor market is always but too well supplied with incapable mechanics — manual training schools are not required to still further augment the glut. (p. 83)

The other group addressing themselves to manual training as *trade training* were the traditional educators. Their views of the question were varied. Many of them who rejected manual training as general education accepted it as vocational education. Brown (1889) presented a typical view by writing, “It (the school workshop) is only as a special school that its right to a place in the public school system can be maintained. (Such a school) is to take the place of the apprentice system now happily obsolete” (p. 672). Similarly, Bicknell (1885, p. 300) advocated the establishment of free manual training schools as a solution to the difficulties of securing an increase of skilled labor.

Harris (1891) arguing against manual training as part of the public school conceded, “There remains a permanently valid place for the manual training school, side by side with the apprentice school . . .” and “Above all, we must never yield to the economic spirit that proposes to curtail the humanizing studies in our schools, for the sake of adding special training for industries” (p. 206).

In these last statements lies a major problem faced by the early proponents of the “new education.” That is, the intentional or naive misunderstanding and interpretation of manual training. The problem caused the editor of *Teacher* magazine to pen an article “Tilting Against Straw Men.” In that article he depicted the opponents of manual training who developed their own descriptions of the field as those participating in an “. . . interesting spectacle of full-armed and doughty knights carefully setting up men of straw in the educational arena and then furiously overthrowing them with the points of their lances” (p. 66). He specifically singled out R.K. Buehrle for his 1888 NEA paper by writing, “Mr. Buehrle’s straw man is a peculiar sort of manual training — none that we ever saw, or ever heard of actually existing, or seriously proposed” (p. 66).



This type of action — defining manual training in a new light then criticizing the new definition — led Woodward (1889a) to write, “I confess I am beginning to lose patience with such misconceptions, which seem little less than misrepresentations” (p. 92). However, many critics continued to interpret manual training as equivalent to trade training then build strong cases for not including “commercial courses” in public schools.

Ham (1888c) quoted such a tactic as it appeared in the *National Normal Exponent* of 1888 as follows:

Our readers well know we are opposed to manual training in the public schools. We are not opposed to manual training. Let the friends of the trades as do friends of religious demonstrations, generously endow and support institutions the promulgation of the specialties. It is a needed beneficence. But our public schools should not be converted into shops. The children of the masses become *mechanics* easily enough. The public schools should struggle their utmost to make *men* of them.

Ham, then, made the following caustic assessment of the quote:

But the declaration of Mr. Holbrook (editor of the *Exponent*) that manual training is the equivalent of trade teaching is not to be suffered to pass. On the contrary it is to be treated as it deserves, as either a manifestation of deplorable ignorance or as wilful perversion of fact. (p. 2)

Ham continued his attack by writing that he had no intentions of making a voluminous explanation “that manual training is not the teaching of trades, but that *it is education, and education of the highest character*” (p. 2). Furthermore, Ham reacted to converting the public schools into shops by writing, “For the nine hundred and ninety-ninth time, I mildly observe that no acknowledged exponent of manual training has ever proposed to convert our public schools into shops for the manufacture of things” (p. 3). Finally, he called contemptuous Holbrook’s remark that the children of the masses become mechanics easily enough because:

1. It is vicious to suggest it is easy to become a great mechanic — or great in anything.
2. It is a sinister fling at the principle of equality on which the American political system is founded.
3. It is a sneering attempt to belittle an occupation which is the foundation of America’s prosperity. (p. 4)

These rebuttals to the constant arguments that manual training and trade training were synonymous did not satisfy the critics. They continued their writing. Peabody’s (1889) comments probably best summarized the traditional educator’s view. He wrote:

Tool instruction is essentially specific in character, and its valuable service must be sought in the specific rather than in general discipline . . . I add the opinion that instead of saying "we will not teach trades" we should aim to provide a . . . series of trade schools. (p. 102)

### 3. A Good Science Program Is Equal in Value to Manual Training

Some traditional educators trying to answer the criticism that schools were ineffective and removed from everyday needs and still attempting to refute manual training turned to the teaching of science as the answer. Science, they contended, would do all that manual training contended it could do and more. Dickinson suggested, "If the children . . . could be trained to study in a philosophical way the elements of the sciences, they would not only prepare themselves for the future pursuit of the sciences themselves but also train the mind through a skillful use of hand and eye" (*U.S. Bureau of Education*, 1889, p. 835).

Dickinson's statement almost mirrored the argument for manual training with its implied ability to help one enter a later occupation and the training of the hand and eye. Von Taube, however, suggested a study of science was superior to manual training. He wrote ". . . object teaching in the elements of natural science, aided by collections, etc., would do quite as well, and, more over, would produce as a beneficial result certain general knowledge not attainable from simple manipulation of tools" (*U.S. Bureau of Education*, 1889, p. 835).

Harris (1889b) used the study of science as an alternative in his continuing attack on manual training by writing ". . . the study of the application of science is more educative than the labor of making a machine" (p. 421).

These arguments seemed to stir little reply from the advocates of manual training and probably did more to aid the inclusion of laboratory science classes to the school than they did to resist the manual training movement.

### 4. Education Has Its Faults but Manual Training Is Not the Answer

Another ploy of the anti-manual training group was to grudgingly admit what the public and manual training advocates had been saying — education is not as effective as it should be. However, these educators saw the answer in improving the teaching of the existing subjects. Typical of the reasoning of this group was that of John Dickinson, secretary of the Massachusetts Board of Education. He (1887) acknowledged common criticism that children leave school to take their place in active life without being prepared for anything. The critics, he found, suggested that the rote memory methods of the school produced students with neither the ability nor the inclination to produce anything by their own independent activity. "Their capacities

have been trained but their faculties have been neglected," he reported hearing. These arguments, according to Dickinson were being used to support the introduction of school exercises in the use of mechanical tools. He, however, suggested that they were only partly true and partly made by those "dwelling on products of their imaginations" (p. 671).

Dickinson, however did not see manual training as the answer. He wrote, "Admitting that the defects in our present school-work actually exist, it does not follow that they are due to defective courses of study nor that they may be removed by adding the operations of the workshop to the list" (p. 671). He further wrote, "If the defect is found in a failure to cultivate practical power, then the change we need is not so much in the courses of study as in the methods employed in presenting these courses . . ." (p. 673).

To Dickinson, then, manual training as general or special education was a moot point. The way to improve the school was to teach better those subjects already in the curriculum: the content was good but the methods could be improved.

Brown (1889) seemingly agreed when he wrote, "An analysis of our present curriculum of study, including drawing in all grades, will reveal the fact that all these (desired educational) results naturally flow from it when it is properly taught. I believe that our endeavor should be directed toward better teaching of this curriculum until its possibilities have been realized" (p. 666).

Likewise, Bicknell (1885) stated, "Reforms in methods of teaching the common branches of knowledge in the common school should be urged most strenuously. This is the thing to do rather than lunge off into manual training" (p. 300).

These answers to the manual training advocates seemed to make little impact because education had been slow to change; in fact, it had resisted change over the years. People were skeptical of promises to improve when manual training presented what many saw as an improvement.

## **5. Manual Training Doesn't Do What It Is Advocated To Do**

The final view of the opposition was that manual training made many grand but hollow claims. Some overzealous advocates were guilty of overstating the advantages of manual training and being over-critical of the public school. Bennett (1937, p. 369) suggested that Charles H. Ham was particularly guilty of this.

Another factor which led to the criticism of not delivering what was promised was the evolving philosophical statements supporting manual training. Woodward's earliest statements suggested that manual training provided better secondary school experiences for those boys planning to enter a variety of occupations. He later played down the

pre-vocational aspect of manual training to emphasize the intellectual and moral values (Bennett, 1937, pp. 360-372).

Dickinson indicated that there was no evidence that manual training did in fact produce a better student. He wrote:

Suppose, then, it is admitted by those best able to judge, that the proper function of the public schools is to furnish the occasion of symmetrical human development, it still remains to determine what are the occasions of this development. (*U.S. Bureau of Education*, 1889, p. 833)

To Dickinson, manual training certainly wasn't the vehicle for the desired development.

So the battle raged: one side supporting manual training as general education, the other side criticizing it for not being the proper way to improve education or for not delivering what it promised. However, Cohen (1974, Vol. II) concluded, "By 1890, Woodward seemed to have the last word. Public as well as private manual training schools opened throughout the Midwest and the East" (p. XL).

Woodward (1910) proclaimed victory at the dedication of a new high school in 1902 when he wrote, "The battle for manual training has been fought and won. As a recognized feature in education of the average boy, it has proved to be a better thing than was claimed for it in the beginning" (p. 123).

After listing a number of supporters who helped win the battle, Woodward (1910) commented on his opponents by writing, "I could also read a list of our opponents, but I will not mention them, some of them have gone to their last account, and I hope they now know better. All those who have not died, have lived to see and know better" (p. 127).

Henderson (1898) probably best described the fruits of the battle — the introduction of manual training, which was not practically or theoretically a scheme to merely train the hands, to make boys useful about the house, to supply the world with artisans, to take the place of a dead apprentice system or to meet in education the demands of an industrial age. It had no such special or technical end. Its true end is the major end, the attainment of a complete life, the unfolding and the perfecting of human spirit.

So manual training entered the schools as the bright-eyed youngster eager to make education more complete, more symmetrical. It was strongly resisted by select elements of the educational establishment, modified by some who saw vocational use in it, and fiercely and successfully defended by a loyal following. However, as times further changed, manual training failed to adapt and became a rigid structure in need of renovation. The next two chapters will explore the evolution of manual training into two distinct entities: industrial vocational education and industrial arts.

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# The Vocational Education Movement: Its Impact On The Development Of Industrial Arts

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It is difficult to tell where manual training should end and vocational training begin. It is probably far better to say that there is no such ending and beginning, for the two are knit together as one fabric.

Charles R. Bennett (1914, p. 10)

This quote by an early leader associated with industrial arts reveals the most discouraging aspect of this educational field. That is, too many teachers of industrial arts, both past and present, did not and do not have a firm grasp of the major purpose of their work. As a result, programs have focused on prevocational and vocational goals, handyman skills, and/or the promotion of avocational interests. These responses to identifying primary program goals should not be unexpected by students of industrial arts. The fact is that the thread of consistency which has characterized the evolution and development of industrial arts has been the confusion and misinterpretation concerning its dominant purpose in the American school.

The causes of this morass in industrial arts can be traced back to the manual training movement which spawned industrial arts and which also paved the way for the subsequent vocational education movement.

The history of industrial arts, however, would be incomplete without an analysis of the rise of vocational education in the public secondary schools. Since Chapter 4 focused on manual training, this chapter will attempt to reveal the tremendous influence that the vocational education movement at the turn of this century had on the development of industrial arts. And although much has been written about the voca-

tional education movement, few attempts have been made to examine it in terms of its impact on industrial arts. Thus, it will be shown that the movement to usher vocational education into the American public school system created much of the confusion which haunts industrial arts to this day.

Writing about the vocational education movement Cohen (1968) stated, "Few movements in the history of American education have taken so sudden and so powerful a hold on the minds of school reformers" (p. 95). The impact of the vocational education movement, however, can scarcely be understood unless viewed against the broad background of societal changes in America prior to 1900.

## A TRANSFORMED SOCIETY

The central fact of American life during the late nineteenth century is that in slightly less than a generation, the country was transformed from a chiefly agrarian society to an industrial power. In 1849, for example, the total value of American manufactured products was about \$1 billion, but by 1899 the figure was close to \$13 billion. Furthermore, in 1860 approximately 1,300,000 wage earners worked in manufacturing, while in 1890 the number mushroomed to about 4,250,000. In 1860 the United States ranked fourth among the nations of the world in industrial production, but in 1900 it ranked first (Shannon, 1963, p. 4).

The change from a relatively simple rural economy to a complex industrial economy was amazingly swift. Seldom, if ever, in American history had society experienced so many profound economic, political, social, and educational changes in such a short period of time. Because of this, many historians including Hays (1957) have indicated that, "The history of modern America is, above all, a story of the impact of industrialism on every phase of human life" (p. 1). Gilpin (1975) has noted, too, that no other nation in the world has achieved such technological prominence as the United States.

## THE AMERICAN NATIONAL CHARACTER

In describing America at the threshold of the twentieth century, a question must be raised about the rapid growth of America; namely, what were the basic reasons for the swift rise of industrialization and the resulting changes that transformed society? First, we must look at the people. The American people, after all, have been the great strength of the nation's growth and prosperity. The attributes of the American people, by and large, have been unique and distinctive. For at least 200 years there has been a remarkable degree of continuity in the American

national character (Inkeles, 1977, p. 26). Americans have been known for their firm and unyielding brand of patriotism. Citizens of our nation have always had a strong, intense national pride in the special qualities of the American system and the virtues of the American life. Americans, too, have also possessed virtues of independence, self-reliance, optimism, persistence, hard work, and initiative. Beyond these qualities can be listed innovativeness, antiauthoritarianism, and pragmatism. Inkeles (1977) probably summed up the American character best when he wrote:

There is a sense of efficacy that convinces Americans that they can transform the physical and social world, and even human nature itself if necessary, to make things over to their own satisfaction. (p. 28)

The attributes of the American people thus set the tone for the type of society America was and would become. And out of the American national character sprang two motives that caused a myriad of technological innovations and, in turn, the development of large-scale industry. These motives were the *quest for wealth* and the *urge to satisfy curiosity*.

It is true that many of our forefathers became wealthy as a result of money invested by European investors. This was the case with many large southern plantation owners as well as eastern businessmen and industrialists. Also, we cannot overlook the fact that many Americans accumulated huge fortunes through corruption and fraud. Yet the often-heard statement, "America, the land of opportunity," spoke more truth than fiction during the mid and late nineteenth century. The American stage furnished by nature was literally a goldmine for enterprising men. Men of modest means but endowed with hard, practical, economic sense amassed fortunes from farming, timber, cattle, mining, and manufacturing, for example. The Beards (1927) stressed that the pioneers who settled the far West were "directly and frankly interested in improving their economic lot — in making money" (p. 126). Hays (1957) related too that, in general, "The American people subordinated religion, education, and politics to the process of creating wealth. Increasing production, employment, and income became the measures of community success, and personal riches the work of individual achievement" (p. 2).

Of the many who amassed fortunes, there were a few figures who towered above the multitude in the areas of business and industry. Among these were Jay Gould (railroads), Collis P. Huntington (railroads), James R. Hill (railroads), Edward H. Harriman (railroads), John D. Rockefeller (oil), Andrew Carnegie (steel), Jay Cook (finance), William A. Clark (mining), and Phillip D. Armour (meat packing). Others, of course, could be mentioned, but these men who were dominant figures in molding the American scene between 1865 and the end of

the century all started from modest beginnings, and none had the advantage of a college education.

The second motive, curiosity, took many forms – from the explorers who located westward trails to those who collected and catalogued the flora and fauna of the expansive frontier country. But the curiosity of many Americans, such as Edison, directly resulted in discoveries and inventions that raised technology and industry, in turn. The number of patents is indicative of the curiosity of Americans and was often combined with the search for wealth. During the 1850's the number of patents issued exceeded 2,500 annually while in 1870 there were 80,000 patents issued. By comparison, in 1900 the number of patents issued in the United States was 221,000 (Edwards and Richey, 1963, p. 395; Robertson, 1964, p. 198).

These basic reasons – the American national character and the motives of wealth and curiosity – in large measure stimulated vast changes in American society prior to and after 1900. But there were other reasons. The inadequate supply of skilled labor and necessity literally forced people to fashion devices, techniques, processes, and equipment that would perform tasks more efficiently. These and the reasons mentioned earlier caused industrialization to make great strides during the decades prior to the Civil War. By 1860 numerous advances including interchangeable parts manufacture, continuous-process manufacture, the introduction of machine tools, and the increase in the use of steam power had emerged. These, with a myriad of industrial technologies were woven closely together, resulting in the advent of a large number of factories in all regions of the country. These factories were manufacturing a wide array of products from firearms to textiles to all kinds of machinery. Yet by modern standards, the size of the pre-war industrial firms was still small. Clearly, farming still remained the primary means of earning a living. In fact, in spite of the technological progress that was made during and after the Civil War, agriculture continued as the chief generator of income in the United States until after the 1880's.

It must be noted, however, that the Civil War did stimulate the development of technological innovations and improvements which helped to create the impetus for high-powered and widespread industrial development. Necessity, in fact, made technological changes play a major role during the Civil War.

Neither the North nor the South was prepared for a prolonged war. Both sides were woefully short of equipment and supplies that were essential to a war effort. Therefore, artisans, farmers, and mechanics assumed roles equal in importance to those of military men. During the war many inventions and improvements were introduced. Some of these included gunpowder, using sodium nitrate instead of saltpeter,

improved rifles and artillery guns, the rifled cannon, steam powered warships, iron-clad warships, machine guns, armored cars, torpedo boats, submarines, field telegraphs and communications balloons, canned foods, condensed milk, and the sewing machine, which resulted in a greater output (especially in the North) of military, as well as non-military clothing.

These and other technological advances that occurred during the Civil War brought with them a greater use of labor saving machinery, precision tooling, and the wider use of mass production techniques. This was particularly true in the North where technological achievements and superior industrial strength caused the downfall of the South (Oliver, 1956).

## THE COALITION OF BIG BUSINESS AND POLITICS

By its outcome, the Civil War served to further stimulate industrial development that had already been underway. The real significance of the war is that the federal government, in essence, had been captured by eastern financial and industrial interests. Not only did the victory by the North destroy the economic foundation of the South, but it also removed political power from southern leaders. The eastern capitalists who seized political control of the government used it aggressively to exploit natural resources and promote policies that led to the most spectacular industrial development the world had ever witnessed.

It should be pointed out that, to a large extent, industrialization expanded rapidly due to the dominant ideology shaping the socio-psychological climate of the period. Most men firmly believed that the individual had the right to regulate his own economic affairs without government interference. Therefore, unrestrained freedom abounded, resulting in a laissez-faire economy. And because of this ideology, a close alliance was formed between big business and politics. Capitalists were extremely influential in promoting favorable government policies. With the new masters in power of the national government, tariff rates that were raised during the Civil War, advanced even higher in later years, protecting industry from foreign competition and providing freedom of interstate commerce within the country (Beard and Beard, 1927, p. 106; Faulkner, 1928, p. 166).

During the Civil War the federal government established a national banking system that created a standard national currency, thus permitting business to be conducted on a national scale. The national banking system, although containing many flaws, did provide for the accumulation of capital (Shannon, 1963, p. 4). Furthermore, the income tax in operation during the war was repealed, thus allowing more money to enhance the coffers of capitalists. At the same time, the danger of employers paying higher wages to labor was squelched, in part, by the



Immigration Act enacted in 1864. This law was unique since it gave federal authorization to the importation of working people under terms of contract analagous to the indentured servitude of colonial times. And although this feature of the law was quickly repealed, the corresponding practice was long continued. Eastern capitalists brought in laborers from Europe under contract, and western railway builders drew upon the inexhaustible supply of workers from the Orient (Beard and Beard, 1927, pp. 106-110).

The Fourteenth Amendment, intended at first to protect the civil rights of former slaves, was finally framed and passed in such a way so as to apply not only to freed slaves, but to all persons, rich and poor, individuals and corporations as well (Beard and Beard, 1927, pp. 111-114). In effect, the amendment served to protect the business and industrial community from attacks on the part of state legislators.

These policies and laws favoring the business and industrial community meshed nicely with others that were adopted prior to and during the Civil War. For example, the government policy for disposing of the vast national domain was also instrumental in spurring rapid industrialization.

Between 1850 and 1873 the government granted 158 million acres of land to the railroads. The total acreage equalled that of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, and a large portion of Pennsylvania (Beard and Beard, 1927, p. 199; Edwards and Richey, 1963, p. 392).

In 1862 the Homestead Act was passed making it possible for persons twenty-one years of age and older to acquire 160 acres of land by living on it and making improvements (Edwards and Richey, 1963, p. 392). What followed, of course, was what the capitalists and politicians wanted — the settling of the last frontier (Faulkner, 1928, p. 210).

By 1890 the western frontier was reshaped by the streams of settlers who took advantage of the "land grab" to build farms and communities, usually close to railroads. By this time, the network of railroads made all nooks and crannies of the nation accessible.

The land policy of the government, however, was wasteful since it opened the way to fraud and made it easy for business and industrial interests to gain possession of rich mineral, forest, and grazing lands (Faulkner, 1928, p. 209). Yet at the same time, it increased the rapidity of the westward movement and of industrialization. Furthermore, the increased population, the proliferation of farms, and the improved transportation system opened the way for new markets for consumer goods, while also providing inspiration for new inventions and technological innovations. It was a time when the forces of machine industry began to overshadow the agricultural order. Yet while farming remained important and farms numerous, the agrarian population decreased with the advent and wide use of more efficient materials and machinery. American inventors and manufacturers furnished the

farmer with barbed wire, tractors, reapers, binders, harvesters, threshers, combines, and a host of other improvements which drastically reduced time and arduous labor.

But American science and invention translated into technology didn't stop with agriculture. Indeed, the fruits of technology took their place in all segments of society — in the home, in the office, in mining, in manufacturing, in construction, in communications, in transportation, and in power. Once industry discovered science and invention, it brought it into full bloom.

With new inventions came new industries and not just in the industrial Northeast, but in other regions of the country, including the South which lay dormant for fifteen years after the Civil War. Most industrial plants were built in strategic locations, close to raw materials and to railway lines. Labor naturally moved close to the plants, with the result that cities grew where factories located. By 1900 most large industrial plants were located in large cities. By the time of the outbreak of World War I, one-half of the population of the United States lived in urban rather than rural areas (Gabriel, 1964, p. 215).

As industry expanded after the Civil War, more and more money was needed to construct large factories, equip them with machines, purchase raw materials, and employ a work force. Individual capitalists and even partnerships found it increasingly difficult to supply the necessary funds. Therefore, greater use was made of the corporation as a form of business organization. The corporate form of organization led nicely to consolidations in the form of pools, trusts, and holding companies. The result was the creation of numerous large monopolies. Corporations and primarily consolidated corporations have dominated business and industry from the last generation of the nineteenth century to the present (Shannon, 1963, p. 68).

Not only did the early industrial corporations saturate domestic markets with their products, but with much vigor they expanded their foreign trade as well. The drive toward bigness in industry was relentless. The corporation with huge capital resources could buy machinery and create technological innovations that enabled it to mass produce items quickly and in great quantities. High speed production methods cut the cost of each unit produced, and the savings that could have been passed on to consumers typically wound up as profits in the pockets of manufacturers. The rule rather than the exception was that consumers paid monopoly prices.

Many reasons have been given by historians for the rise of giant industrial combinations. Perhaps of greatest import, however, was the desire of businessmen and industrialists to escape the severe losses that were brought on by periods of depression, as well as their desire to secure greater profits (Faulkner, 1928, p. 233; Shannon, 1963, p. 69).

The utter disregard of the public welfare displayed by the early conglomerates aroused an army of critics. A common criticism by anti-trust voices was that the resources of the nation had fallen into fewer and fewer hands. The antagonisms toward monopoly were exhibited for some time in the platforms of minor political parties, but it was not until 1890 that sufficient strength had accumulated to pass the Sherman Anti-Trust Act. This act made contracts and combinations that would form trusts or conspiracies that would restrain trade illegal (Faulkner, 1928, pp. 236-237). But the close alliance of capitalists and politicians prevailed. The Sherman Act and the Interstate Commerce Act passed in 1887 did little to curtail monopolistic abuses. It was left to Presidents Roosevelt, Taft, and Wilson to work toward enforcing these and later laws that would curb, at least to some extent, the unfair practices of big business. In time the enforcement of these laws caused the gradual demise of a laissez-faire economy (Faulkner, 1928; Shannon, 1963).

## EFFECTS OF INDUSTRY AND TECHNOLOGY ON SOCIETY

As we have seen, the coalition between capitalism and government created by the socio-psychological climate of the times brought about the swift triumph of the industrial enterprise. The invasion of industry and technology after the Civil War and into the new century brought remarkable progress to the nation. Our nation, however, paid a heavy price for industrial and technological advance.

The transformation of society ushered in a bewildering array of economic, political, social and educational changes. As societal conditions changed, however, they ignited a hostility which aroused people to action. We look now at the major changes that industrial and technological growth stamped upon society and the conflicts that occurred as a result of these changes.

### **The Workingman Struggles for Justice**

The growth of large scale industrialization resulted in continual strife between capitalism and government on the one side, and labor and farmers on the other.

As industry increasingly expanded, labor became more and more frustrated by the mounting abuses thrown at it by employers. The laborers were insecure since unemployment was frequent due to seasonal and cyclical slumps and depressions. They also felt increasingly exploited by unsafe working conditions, low wages and long hours and dehumanized since machines constantly replaced handwork, making the worker less important in the productive process. But the laborers had other concerns too. They spoke out against the exploitation of

children and women, the use of cheap immigrant labor, the lack of control of apprenticeships, and, perhaps of greatest import, the loss of their bargaining power.

Attempts through the years by labor to form unions were regularly thwarted by employers and even government authorities. Union leaders were often blacklisted and unable to secure employment. Companies frequently fired anyone who joined a union, and many even insisted that prospective employees sign "yellow dog contracts" which were agreements not to join a union. Thus when strikes occurred, it was considered a legitimate use of police power to break them up. Such actions were condoned by state and federal courts, all of which proved to be invaluable allies of management in the struggle to suppress collective action on the part of labor (Robertson, 1964).

Management of most companies was violently opposed to any collective action of labor. Because of the prevailing attitude toward individualism, employers were firm in their belief that they could manage as they saw fit.

Due to this attitude, attempts to unionize labor on a large scale in the form of the National Labor Union (1866-1882) and the Knights of Labor (1869-1900) were basically unsuccessful since only modest gains were achieved. Yet these two unions did serve to pave the way for the successful American Federation of Labor which was organized in 1886. Made up strictly of craftsmen such as printers, carpenters, and iron and steelworkers, the AFL dominated the labor movement for half a century under its competent president Samuel Gompers. The AFL's principal goal was to elevate and improve the conditions of its members within the existing enterprise system. They sought concrete gains and pushed for legislative action that could be achieved without entering politics as a political party.

Faced with stiff opposition by anti-labor forces including employer organizations (especially the National Association of Manufacturers), public opinion, government officials, and a hostile judiciary, the AFL was still able to mount some impressive victories, particularly in the area of collective bargaining, by the turn of the century. Union affiliates obtained written agreements that often contained essential conditions of employment, procedures for the settlement of disputes, and provisions for enforcement and contract renewal (Shannon, 1963, pp. 80-82; Robertson, 1964, pp. 399-401). These early collective bargain agreements were enough to assure some federal legislation by World War I.

By 1920 labor could look back on sixty years of slow improvement. Wages were higher and hours shorter. Children, and to some extent women, were protected by law. Laws were passed restricting the flow of immigrants and also requiring immigrants to successfully complete

literacy tests. In spite of these laws, however, labor did not gain strong federal laws until the 1930's (Shannon, 1963; Adams, 1966).

It should be noted that through the years the gains made by labor were not obtained without a long and violent struggle. Strikes laced with riots, beatings, bombings, and even murder were common occurrences. Both labor and management used violence. In their 1915 final report the United States Commission on Industrial Relations wrote that the labor-management feud "... has frequently resulted in Civil War . . ." (Adams, 1966, p. 218).

### **The Farmer Fights Back**

Like urban labor the farm community experienced numerous problems stemming from post-Civil War government policies and from growing industrialization. Two principal issues led to early agrarian agitation. The first was brought about after the war when the government adopted a monetary policy that deflated the currency. Because farmers had borrowed heavily to purchase machinery and improve the land they acquired through the Homestead Act, they were now compelled to pay interest at the much higher pre-war rates. To compound the problem, farm prices declined drastically after the war. The result was financial ruin for a large number of farmers (Beard, 1920, p. 148; Robertson, 1964, p. 268).

A second major issue that riled farmers was the high railroad and processing rates they had to pay and the high prices manufacturers demanded for farm machinery and equipment. Farmers concluded that the federal financial policy was discriminatory because it favored capitalists and financiers. Furthermore, they believed that the major political parties were against the people and were merely the tools of the corporate monopoly.

These issues provided the impetus for an agrarian protest that, unlike labor's, was relatively free of violence and bloodshed. The gains of farmers were achieved through the efforts of numerous organizations that engaged in persistent political activities, at first seeking economic and later social reforms.

The National Grange founded in the late 1800's was successful in obtaining regulatory legislation in several western states. Laws were enacted that established rates for railroads and of warehouse and elevator companies.

Alliances organized at the same time Granges were growing, not only advocated government regulation and monetary reforms, but favored actual government ownership of transportation and communication facilities. These and similar goals were considered radical and, as a result, alliances received meager voter support.

The first attempt by farmers to act politically on a national scale took the form of the Greenback Movement. An Independent National

Party entered candidates in the election of 1876 with little success, but it influenced the Greenback Labor Party which made strides in the election of 1878. This party placed prime emphasis on inflationary action and, more specifically, called for the circulation of more paper money similar to that issued to finance the Civil War. The Greenback Agitators, on the whole, met with indifferent success, but the central tenets were adopted by the Populists who appealed to the electorate in the 1890's.

Populism not only embraced the principles of the Greenbacks, but also many of those advanced by the Grange and the Alliances. Although their chief plank was currency inflation, they also sought greater regulation of monopolies by government ownership of banks, railroads, and communications companies. The Populists were deemed radical, however, since most of their reforms had extreme social, rather than economic, overtones.

Farmers continued to organize and engage in politics after Populism died out in the late 1890's. The primary purpose of the various farm organizations was to lobby for their interests at the state and national levels. This they did very effectively. The long struggle by farmers to improve their conditions eventually led to federal legislation that not only aided them, but also other working classes and society in general. The farmers' long fight brought about a strengthened agricultural program that included the Department of Agriculture with cabinet rank, land grant colleges for agriculture and mechanic arts, experiment stations, extension programs, and secondary school vocational agriculture programs with the passage of the Smith-Hughes Act in 1917.

### **The Problems of Urbanization**

The advance of industry and technology brought with it the rise of the modern American city. Observers of American society considered the growing cities, just prior to and at the turn of the century, emblematic of the country's dynamic material progress. Yet if they symbolized the material growth of the nation, the cities, which spawned like rabbits, created problems of the first magnitude.

During the fifty year period from 1860 to 1910 the total population of the United States increased from over 31 million to over 91 million, and the number of people living in cities increased from more than 6 million to in excess of 44 million, a percentage change in urban population from roughly 19 percent to 45 percent of the total (Glaab and Brown 1967, p. 107). This enormous rise in urban population was the result of millions of foreign immigrants bursting upon America's shores in search of a better life than their homelands offered. Furthermore, thousands of rural Americans, primarily youths, were lured by the opportunities of the city and also because technological advances increased farm production, creating a surplus of farm labor (Edwards and Richey, 1963, pp. 405-408; Cooke, 1973, p. 274). Southern Blacks, too,

flocked to urban centers, seeking better opportunities and less degradation, but typically finding neither.

To be sure, some immigrants, farm youths, and Blacks were fortunate and became living proof that not all Horatio Alger stories were fiction. But for the vast majority, particularly the Blacks and the new wave of immigrants, it meant hardships, poverty, and even death.

Regarded by whites as the lower order of humanity, Blacks experienced as much oppression under freedom as they did under the grip of slavery. The Blacks of the cities were denied adequate education and justice in courts. They were barred from political activity, given the least desirable jobs, and became the victims of numerous violent lynchings. As the rejected man, the Black man lived in dire poverty and took up residence in the slums of the great cities (Douglass, 1963).

The new influx of foreign immigrants fared little better than the Blacks. These people were drastically different than those who came to America earlier. The new immigrants were primarily poor, illiterate, and clannish (Cooke, 1973). They rushed to the cities in droves, huddled together in ethnic groups, and established poor immigrant neighborhoods and ethnic ghettos. As a consequence, the cities experienced a tremendous increase in poor districts with an attendant increase in population density. The overcrowded conditions caused the poor laboring people to live in cheaply built tenement houses with many living in tenement basements and cellars. Inadequate sewage disposal and water contamination created enormous health problems. Diseases such as typhoid fever and cholera were common and frequently decimated poverty stricken urban dwellers (Glaab and Brown, 1967, p. 164).

The new immigrants of the cities caused other problems as well. Tensions, animosities, and violence reigned supreme between immigrant and resident Americans. The resident Americans viewed immigrants with much suspicion. They looked down on the newcomers with their strange customs, peculiar languages, alien religions, and their reluctance to become "Americanized." Added to this was the fact that immigrants, mostly unskilled, frequently worked for low wages, incurring the wrath of labor unions that constantly fought for higher pay from employers.

The cities also experienced other monumental problems including high unemployment, crime and juvenile delinquency, and the spectacle of thousands of destitute children roaming the streets and alleys. Also increasingly acute were the problems of inadequate fire and police protection, recreational and educational facilities, heat, light, communications, and transportation.

These problems were compounded by the problem of corrupt city governments. This was an era when city governments were regularly taken over by unscrupulous professional politicians. Machine politics was the order of the day, and notorious ward bosses ran the cities,

feasting on a steady diet of personal influence, patronage, and special favors (Hays, 1957; Cooke, 1973).

The wretched conditions of the cities, however, did not go unnoticed for long. As we have seen, throughout the period of rapid industrialization great changes affected all aspects of society. Many of the changes brought tremendous progress and wealth to the nation and to its people. But at the same time, changes wreaked havoc with people's lives and with societal institutions. Thus a common theme of the times was the loud call for reforms by various classes and groups of people. Just as labor and farm interests fought for justice, so did urban reformers.

During the late 1800's Americans in great numbers began to examine their cities with hope of improving the urban environment. Numerous books and articles in popular magazines exposed the seamy side of city life. Scores of reforms were advocated that urged, not the abandoning of the cities, but rather the reshaping of them.

Social reformers and humanitarians established agencies to aid and educate poor city children and adult immigrants. While helping immigrants adjust to a harsh and alien society, settlement houses, for example, sought also to reduce the cleavage between Americans and immigrant peoples. Settlement house workers were tireless agitators and through political activities brought social welfare agencies to state and federal governments.

Other social reformers promoted schemes of juvenile reform. The result was that social workers began to grow in numbers and importance. With the eventual establishment of municipal welfare departments by city governments, social workers began to perform services vital to the nation's cities.

Religious leaders, too, attempted to confront some of the consequences of urbanization. They used various methods including the "institutional church" concept to bring not only spiritual, but educational and recreational opportunities to the wage earners of the slums.

The vigorous work of public health reformers influenced the growing movement for housing legislation. Strict housing legislation adopted in New York City during the 1890's set the standard for laws that were enacted by other cities throughout the country. These laws paved the way for more systematic research of urban social problems (Glaab and Brown, 1967).

Numerous comprehensive surveys of cities were conducted after 1900, and city after city made progress in reorganizing local governments, reconstructing decayed neighborhoods, and providing more and better educational and recreational facilities and programs.

Attention was also given to urban planning. This gave rise to the growth of city parks that attempted to capture rural nature in the city environment. This movement led to the emphasis on landscape archi-



ture and city planning, as people came to believe that cities could indeed be made beautiful. In the early 1900's planning agencies began to appear in city governments across the nation.

The city was also transformed in other ways. Technological developments abounded and drastically improved the American urban environment. New building construction inventions and methods were adopted for residential and commercial structures; electric powered elevators were widely used in multi-level buildings; trolley systems and suspension bridges accommodated mass transportation; the electric light illuminated the city; and water works and sewage systems alleviated health problems. The telephone and typewriter were a boon to communication while the radio and motion picture entertained the masses. Probably more than any other technological achievement, the automobile, in wide use by World War I, brought greater enjoyment and mobility to urban residents.

Perhaps the least progress during this period of urban reform was made by Black Americans. This was not only true for Blacks who inhabited cities but for all Blacks nationwide. Discrimination was deep seated among Whites and attempts by the National Association for the Advancement of Colored People, formed in 1909, and the National Urban League, formed a year later, to alleviate discriminatory practices, were modest at best. It has only been in recent years that Blacks have achieved success in their quest for civil rights (Oliver, 1956; Glaab and Brown, 1967; Cooke, 1973).

By the time of the First World War Americans had not only examined their cities closely, but through collective action had brought about ambitious reforms. Even with work yet to be done, people accepted their urban environment for better or worse. There was no serious doubt that the city dominated the economic, political, social, educational, and cultural life of Americans.

## EDUCATION IN TRANSITION

Previous chapters have shown that the nation's educational system has improved ever so slowly through the years. In the decades preceding the Civil War considerable progress had been made in the development of state school systems, even though only the principle of free public education had triumphed. And although the war itself checked for a time the further development of state school systems, it should be noted that school attendance in all sections of the country was higher after the war than before it began (Edwards and Richey, 1963, p. 492). This was true in spite of the fact that most states had woefully inadequate systems of education. For the most part, financial support was meager, teachers were ill prepared, and facilities were crude (Gross

and Chandler, 1964; Edwards and Richey, 1963; Judd, 1934). Yet all this and more was to change because of the swift emergence of industrialization after the Civil War. As Judd (1934) so aptly put it, "The industrial system created a demand for institutional education" (p. 43).

As we have seen, the emergence of large scale industry led to the concentration of people in urban centers. Most of these people were educated in rural areas and, of course, a large percentage of the new wave of immigrants were virtually uneducated. This meant that a large number of the nation's people, including children, were unprepared to meet the demands and problems of urban life. Concerning this situation Gross and Chandler (1964) wrote:

If the cities were to realize their great potential for the enrichment of life, it would be necessary for people living in cities to develop sophistication concerning economic, social, and political problems, (p. 209)

Numerous observers of the era discussed agreed with Gross and Chandler (1964) when they stated further that:

An education consisting of reading, writing, arithmetic, spelling, and morality was clearly inadequate for prospective citizens of an industrial urban society. (p. 209)

However, as industrial and technological advances brought great changes to the nation, education continued to lag behind. Part of the reason was that, on the whole, American educators supported the dominant economic, social, and political interests of the society. The virtues of the capitalistic, free enterprise economic system were extolled while its shortcomings and resultant social evils were generally ignored. Educators rarely permitted students opportunities to become aware of and to explore the social realities of the times. Because of this, society viewed education chiefly as a conservative institution. In addition, educators throughout history have been regarded as followers rather than leaders. Teachers concerned themselves with transmitting knowledge to youngsters and instilling within them the prevailing values of the dominant classes.

During the latter half of the nineteenth century the philosophy of Social Darwinism was embraced by conservative educators. In essence this philosophy supported the survival of the fittest and the elimination of the weakest members of society in the name of progress. An influential American educator who espoused this philosophy was E.E. White. In 1878, White spoke the following words in an address before the American Institute of Instruction:

Aristocracy has always opposed the education of the people. The aristocracy of Caste asserts that the great majority of mankind are born to serve, and, since the less intelligent the servant, the more docile the service, it declares that education unfits the children of toil for their lot in life. (p. 107)

White added that capitalists did not want laborers educated because this increased their desire for higher wages and improved working conditions. Such a philosophy explains why schooling was highly selective, favoring the bright and the rich over other socio-economic classes who were deemed inferior and not worthy of extended educational opportunities.

Another important factor which inhibited change in education was the dominant theory of learning, which emphasized training of the intellect or mental discipline. Faculty psychology viewed the mind as consisting of separate, independent entities or faculties such as memory, imagination, reason, observation, and taste. These so-called faculties were looked upon as distinct powers of the mind that were considered to be only potential until brought into action by practice. Furthermore, the exercise of one faculty was believed to transfer to other faculties (Ruediger, 1910, p. 93; Butts, 1947, p. 93). The result was that most educators believed students should study the classics or mathematics since they were the best means of developing the intellectual powers. When these traditional school subjects were attacked because they were not practical or useful, their supporters defended them with the doctrines of faculty psychology. The advocates of faculty psychology insisted that the formal subjects should retain the highest position in the school curriculum because their form was more valuable for mental discipline than any of the proposed practical subjects. It was believed that once the mind was well trained by complex mental tasks, students would be well prepared to solve any of life's problems (Atkinson and Maleska, 1965, p. 278).

The quickening pace of industrial and technological progress just prior to 1900 served to break down the factors just discussed that hindered educational advancement. However, because education was slow to change, it wasn't until after 1900 that new ideas and philosophies were accepted.

As industry continued to expand, research and experimentation became more prevalent and sophisticated. This meant that great masses of new information were added to the established bodies of knowledge, and the specialization of new knowledge brought about an increased application of the scientific method to all fields, including education. Prior to 1900, for example, G. Stanley Hall began the study of the mental development of children; J.M. Rice initiated the testing movement; and experimental psychologists such as Francis Galton, James M. Cattell, and Edward L. Thorndike brought forth the concept of individual differences (Butts, 1947, pp. 461-462; Edwards and Richey, 1963, p. 531).

The explosion of new knowledge and the complex changes that ridled society, however, thrust great problems on education and created

much confusion of purpose. Citizens more than ever before began to demand more from their schools. Humanitarians, labor, management, and selected educational reformers spoke out in favor of more and better educational opportunities for all children and youth.

As mentioned in the previous chapter, educators reacted by adding new subjects to the elementary school. Geography, science, history, drawing, and manual training were a few of the subjects added to enrich the elementary school curriculum prior to the turn of the century (Cubberley, 1919, p. 358; Edwards and Richey, 1963, pp. 535-537).

The public high school gradually replaced the academy as the principal type of secondary school because the necessity for more education for more youths continued to grow. To meet the needs of an increasingly diverse high school population, a wide range of new subjects were offered, including practical ones such as art, homemaking, and manual training. But these useful subjects did not enter the high schools without vehement opposition by conservative educators who supported the traditional college preparatory function of the secondary school. Indeed, one of the most important topics discussed by educators during this period was whether the schools should become more practical and less abstract. Harris (1891) found that of the types and numbers of papers delivered at NEA conventions from 1858 to 1890, manual training and industrial education (which typically meant vocational industrial education) ranked fourth behind theory and psychology, high schools and colleges, and normal schools.

An analysis of these papers revealed that most general educators were unable or unwilling to face up to the realities of a new economic order. They guarded the status quo with such zeal that they were blind to the fact that the needs of the majority of students were left unmet by the dominant academic diet available in public secondary schools. Several reasons for the reluctance of educators to change were explored earlier. Another reason was that, traditionally, the secondary school was designed primarily to prepare relatively few youths for entrance into colleges where they were expected to pursue studies leading to one of the well established professions. These respected professions were the ministry, law, medicine, teaching, or engineering. Therefore, it was no simple task for educators to sever the bonds that had for centuries bound them to the college. Conservative educators saw nothing wrong with prescribing the predominant literary curriculum to their increasingly diverse clientele. Many agreed with Sears (1880) who believed that children of the working classes should be given a “. . . higher degree of culture” (p. 114). By receiving more cultural education, lower class youngsters were expected to somehow become more efficient citizens and craftsmen. Yet even though educators had such deep faith in cultural education, most eventually agreed that schools should provide some type of practical education. White (1878) agreed that in an expand-

ing industrial society the “. . . elements of technical knowledge which are of general application and ability (should) be taught in the public school . . .” (p. 107).

Like many other educators of the time, White supported specialized vocational education, but vigorously opposed its introduction into the public schools. It was the widespread belief among general educators that vocational education should be left to parents, separate trade schools, or industry. But *principles* of various occupations seemed more palatable especially if they stressed the *essential principles underlying all trades*. The emphasis on general application and utility was the wedge that opened the door for manual training in 1880. The essence of manual training was generally in concert with the prevailing educational concept of the function of the common school. The rigid and systematic course of tool instruction did not call for the teaching of specific trades, but rather the essential mechanical principles underlying all skilled trades. In spite of numerous attacks questioning its value in general education, manual training, along with several other practical but not vocational subjects including art and homemaking, expanded to secondary schools after 1880.

Throughout the 1880's the bewildering array of new subjects added to the high schools caused much confusion and chaos. By the mid 1880's it was becoming increasingly clear that no one student could expect to study even a small proportion of the subjects offered in a fairly large-size high school. This was true even though the elective system was developed to give students the opportunity to select the subjects they desired to study. Adding fuel to the fire, colleges became increasingly vocal about the lack of a uniform high school program. Colleges were quite satisfied when most high school graduates came to them well prepared in the classics and mathematics. However, they became disturbed when secondary school students began studying science, English, and the social studies. But the colleges became downright outraged when high school youths elected to study manual training and home economics. It was the strong feeling among college educators that these and other practical subjects were not worthy as college entrance subjects (Butts, 1947, p. 512; Wesley, 1957, pp. 70-71).

Thus, the colleges set out deliberately and systematically to mold the high schools to their own purposes, to make them preparatory schools. The result was the establishment in 1892 of the Committee of Ten on Secondary School Studies. The committee was chaired by President Charles W. Eliot of Harvard, but its members were selected largely by Nicholas Murray Butler, President of Columbia University (Wesley, 1957, p. 72). Butler has always been heralded as an ardent supporter of manual training. His numerous writings and speeches always placed manual training in a lofty position. In an 1888 address he stated:

We will all admit, indeed I will distinctly claim, that the boy who has passed through the curriculum which includes manual training will make a better carpenter, a better draughtsman, or a better metal worker than he who has not had the benefit of that training. *But it is also true that he will make a better lawyer, a better physician, a better clergyman, a better teacher, a better merchant should he elect to follow any one of these honorable callings . . .* (p. 223)\*

It seems clear from this statement that Butler thought manual training was worthy of college entrance status. Yet when he selected the Committee of Ten members, clearly  $\frac{3}{4}$  were affiliated with colleges and private schools. None of these or the remaining members were in any way connected with manual training or any other practical school subject (Wesley, 1957, p. 72; Knight, 1952, p. 91; Butts, 1947, p. 513). It seems contradictory for Butler to speak so glowingly of manual training on the one hand and then on the other to select a committee that would assure its lack of recognition as a college based subject. At any rate, Butler must share much of the responsibility for the final report of the committee, which predictably omitted any consideration of manual training, home economics, art, music, or other practical courses on the basis that such subjects had no disciplinary value (Baker, 1894).

The Committee of Ten recommended nine high school courses for college admission. These included Latin, Greek, English, modern foreign languages, mathematics, physical science, natural history, history, and geography. High school students were, therefore, encouraged to pursue programs based on some combination of these nine subjects if they desired to be admitted to college (Wirth 1972, p. 121).

The reports of the Committee of Ten and later committees that developed quantitative measures of high school work were a severe blow for the American education of all youth. The Committee of Ten report also had another effect. By omitting practical subjects it caused such subjects to be further denigrated in the eyes of educators, students, and parents alike.

In spite of these setbacks, however, manual training continued to expand in the nation's schools even though it still faced much opposition. As the century ended, manual training was caught in a bind between general educators who belittled it and vocational advocates who repeatedly discredited it in order to promote what Snedden later called "real vocational education."

## VOCATIONALISM OVERWHELMS INDUSTRIAL ARTS

A new mood struck the country at the turn of the century. Americans were becoming more aware of the fact that their country

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\*Author's italics.

had become the world's foremost industrial nation. Competition in world trade began to accelerate and business and industrial leaders were making it known that skilled workers were desperately needed. Thus, the cries for secondary school vocational education that fell on deaf ears prior to 1900 began to intensify and be heard as the new century began. No longer were educators able to ignore the issue of preparing students for industrial occupations. Typical of the sentiment of the time was the following written by Dean (1901):

It is surely the day of specialization, the day of special training for everyone engaged in professional life; and why not training for what are called the humbler callings of life. (p. 146)

Dean added:

There is a growing demand on the part of people that the public schools should fit pupils more effectively for life than they are now doing. Although this demand by the people is not recognized in many educational theories, it remains true that there is an ever increasing feeling among many of our successful business and professional men that an educational system that sends its graduates into the world without the means of earning a living is lacking in a most vital way. (p. 147)

Some form of vocational education for secondary school youth was inevitable. However, it did not come about without much debate and political maneuvering. No attempt, however, will be made here to recount the vocational education movement in all its details. The movement has been superbly described in other sources. The intent here is to show how the vocational education movement, and specifically how individuals and groups supporting vocational education, fought vigorously to discredit manual training while it was still in its early stages of growth.

Aggressive and persuasive vocational leaders overwhelmed school administrators, supervisors, and manual training teachers with their single-minded skill training philosophy. As Mays (1918) viewed it, the vocational extremists (as he termed some leaders) were “. . . making it most difficult for the teachers of manual training to bridge over this period of unusual stress and rapid development” (p. 37).

Mays added that because vocational leaders considered manual training a failure, many excellent manual training teachers:

. . . are becoming discouraged and are wondering if after all they are not engaged in a form of education work that is all wrong. (p. 37)

The result was that many teachers succumbed to the pressures and began to adopt vocational practices in their manual training programs. Serious damage was done. Numerous manual training programs became vocationalized while others reflected a confusion of purpose. To be sure, manual training did eventually evolve into industrial arts, and strong programs became more evident. Attempts through the years, however, to develop and to promote logically sound industrial arts pro-

grams have met with only modest success. The harsh stamp of vocationalism has been most difficult to erase.

Before describing the vocational movement in terms of its impact on the growth of industrial arts, let us briefly review the progress manual training was making before the drive for vocational education fully emerged.

Despite the abuse manual training took from educators, it did not stand still. Although the abstract exercises typical of the Russian system and espoused by Woodward continued to dominate, enterprising manual trainers did strive to improve their programs. Mechanical drawing, which entered the schools before manual training, eventually became established as an integral part of most all manual training programs by the mid 1890's (*U.S. Report of the Commissioner, 1893-94*). From the mid 1880's many manual training teachers began to incorporate the making of useful articles primarily to increase the interests of students (Kilbon, 1890; Clark, 1892). Field trips, too, became more prevalent as students were provided the opportunity to gain an awareness of industrial processes and organization (Stombaugh, 1936, p. 82).

Manual training educators were also influenced by and incorporated methods from the Swedish system of manual training, commonly referred to as sloyd. The sloyd system was considered by many to be a distinct improvement over the rigid Russian system. The construction by students of the useful objects characteristic of sloyd created much interest. Students were also afforded opportunities to experiment and engage in problem solving activities with a wide variety of tools and processes. Finally, more than the Russian system, sloyd stressed the importance of trained teachers and skillful teaching methods. This resulted in more individualized instruction and the assignment of work to students on the basis of their abilities and interests (Larsson, 1893, pp. 600-601; Bennett, 1937, pp. 63-69).

Sloyd, on the other hand, had its critics. Much criticism was aimed at the unchanging models that students constructed (Anderson, 1926, pp. 187-188). But this in time was corrected. Through experimentation there evolved from both the sloyd and Russian systems an American system that focused on the project method of construction. This system is still the heart and soul of most present day industrial arts programs.

The arts and crafts movement, which started in England in protest to the poorly designed manufactured products, contributed to the growth of industrial arts in America. Many manual training teachers began to learn about and to teach good design in their programs while, at the same time, attempting to foster the creative capacities of their students. Thus, aesthetics became an integral part of many programs and tended to bring a sense of balance between the design of objects and skill development, which was the sole emphasis of the Russian system of manual training (Bennett, 1896; Peyser, 1902). *Manual arts* was the



term used by those teachers who embraced the artistic tendency, and it carried over into the twentieth century (Haney, 1903).

Another stage in the development of industrial arts was initiated by Charles R. Richards (1904). Richards not only espoused a change in name for manual training to *industrial arts* but also suggested developing program content that would be more relevant. It was Richards' belief that manual training teachers were "... beginning to perceive the immense content meaning..." (p. 32) of their field. He added "... we are beginning to see the scope of (our) work is nothing short of the elements of the industries fundamental to modern civilization..." (p. 32) and instead of devoting attention to

... miscellaneous and more or less meaningless projects... we shall seek in an orderly way to develop an insight into the basic industries of our time and a knowledge of some of the steps through which they have reached their present form. (pp. 32-33)

The words written by Richards echo closely those uttered by many modern day leaders of industrial arts. The new term, industrial arts, advanced by Richards, was favorably received and used by many manual trainers. However, it was not used on a nationwide basis for a number of years. More important perhaps, was the lack of programs, as Richards proposed, developed to help students gain an insight into industry. The reason for this seems clear. As an evolving new field, manual training was developing almost simultaneously along three paths. First came manual training that overlapped with manual arts and then industrial arts. This lack of direction is not uncommon when a new field of study or educational practice is emerging. Its full development, however, was retarded due to unfortunate timing. As the term, industrial arts, was brought forth, and the concept of its new subject matter, as Richards viewed it, was being explored, the drive for vocational education had begun and almost instantly put industrial arts in a defensive position.

One of the harshest blows directed at manual training was delivered in the *Report of the Commission on Industrial and Technical Education* published in Massachusetts in 1906. This report, often referred to as the Douglas Report, named after Governor William L. Douglas who appointed the commission, was instrumental in starting the definite movement for vocational education in secondary schools. Through its numerous public hearings, the Douglas Commission discovered a widespread interest in and a need for specific vocational training. Yet like many vocational advocates of the day, the Commission was not satisfied to promote public school vocational programs. The Commission found it necessary to first attack manual training on the grounds that it was inadequate as a means of vocational education. Although the Douglas Commission devoted little attention to manual training, its report disposed of it in the following manner:

It (manual training) has been urged as a cultural subject mainly useful as a stimulus to other forms of intellectual effort, — a sort of mustard relish, an appetizer — to be conducted without reference to any industrial end. It has been severed from real life as completely as have the other school activities. Thus, it has come about that the overmastering influences of school traditions have brought into subjection both the drawing and the manual work. (p. 14)

In one section of the Douglas Report, Charles F. Warner, principal of the Mechanic Arts High School in Springfield, Massachusetts, described his evening trade school program and offered suggestions for expanding trade training in the state.

In the early part of Warner's report he suggested that perhaps the facilities and equipment of manual training high schools could be used for the teaching of mechanical trades. But he cautioned that this would not be a proper solution because manual training teachers:

. . . must not lose sight of the elements of culture, which, in the modern view, are the inspiration of their work. They should not be too much influenced by the traditions of the older school systems; nor on the other hand, should they yield everything to the demands of a practical age. (p. 188)

But *yield everything for trade training* is what Warner really had in mind when later in his report he wrote:

The first steps thus taken in trades training under the patronage of the State might find support in the general and growing popularity of the manual training high schools . . . (p. 193)

Warner added that this plan “. . . cannot furnish large numbers of recruits for the industrial army until the manual training schools are multiplied and enlarged . . .” (p. 193).

The Douglas Report generated considerable interest. It brought to the nation's attention the desperate need for secondary school programs of vocational training to prepare skilled workers for America's growing and diverse industries. At the same time, however, the report stimulated much negative reaction to manual training. It is apparent from the Douglas Report, and specifically from the remarks of Warner, that vocational advocates were out to get manual training. In the years following the publication of the report, the benefits of vocational education and the failures of manual training were presented in scores of speeches, articles, and books. In attempting to build a case for vocational education, many vocational proponents proceeded to attack manual training with the apparent hope that they could either cause its demise or transform it to some form of vocational training.

Typical of the attacks directed at manual training were those written by Leavitt (1907) who accused it of being too largely influenced by the “. . . academic spirit of the schools” (p. 785). The author sug-

gested that manual training could maintain its cultural value while simultaneously adding a vocational purpose. Morse (1908) indicated that in an industrial age the "cultural motive" inherent in manual training was no longer needed. He further wrote that boys were asking to be excused from manual training classes because they had no interest in a ". . . purely cultural subject . . ." (p. 784). Likewise, Hanus (1908) described manual training as being ". . . pretty thoroughly academized" (p. 60). His suggestion was that if it were properly implemented, it could serve well as a pre-vocational program. Andrew S. Draper (1908), Commissioner of Education in the state of New York, indicated that manual training created a danger because it did not help students to learn a trade. He suggested that it was time to advance from cultural manual training to trade training. Woodley (1909), too, felt that manual training would be ". . . richer in information . . ." (p. 314) if it included the ". . . distinctive vocational element" (p. 314).

Numerous other examples could be cited to show how the Douglas Commission Report influenced individual educators to take up the cause for vocational education by downgrading and/or proposing that manual training be retooled for vocational purposes. But the Douglas Report also played a leading role in bringing about the formation in 1906 of the National Society for the Promotion of Industrial Education. The NSPIE was, by far, the most powerful driving and organizing force behind the movement for vocational education. Ironically, the NSPIE was initiated by two manual training educators, Charles R. Richards, Professor of Manual Training at Teachers College, Columbia University; and James P. Haney, Director of Manual Training in New York City.

The chief purpose of the NSPIE was to bring to public attention the growing need for preparing youth for industrial pursuits (Dopp, 1908, p. 393; Wright, 1909, p. 13). The Society sought to do this by uniting a variety of groups who supported industrial training. Because of dedicated and aggressive leadership, the National Society was able to influence the thinking and actions of groups affiliated with manufacturing, labor, education, business, and government.

Throughout its vigorous campaign to promote first industrial training and later other areas of vocational education, the Society prepared numerous bulletins and pamphlets, conducted annual conventions, formed state committees, conducted studies and state surveys, and drafted laws for a number of states (NSPIE, 1915). The various activities of the Society finally culminated in its most important work, securing passage of the Smith-Hughes Act in 1917.

Throughout its propaganda work the Society followed very closely the lead of the Douglas Commission Report with regard to manual training. According to Bennett (1916) the Society ". . . often affirmed that manual training failed to fulfill its original mission and was

without value in the field of industrial education” (p. 553). Because of this, woefully little attention was given manual training in the publications of the Society.

At the Society’s Second Annual Meeting, Balliet remarked that if manual training concentrated on student-made projects then it would form a “. . . national transition to strictly vocational training” (Cushman, 1909, p. 247).

In 1910 the National Society published a report by a Committee of Ten on the *Relation of Industrial Training to the General System of Education in the United States*. This report defined manual training as general education but also indicated that every school subject, beginning at the elementary level, should be taught so as to focus on skilled vocations. The Committee of Ten felt that manual training in elementary schools would serve best as prevocational training.

While in its early years, the Society devoted little attention to manual training; many of its members according to Mays (n.d.) “. . . seemed to think that it was necessary first to thoroughly discredit industrial arts in the eyes of the American public” (p. 10).

David Snedden (1910), one of the most influential proponents of vocational education and a member of the Society, believed that manual training was of little service to vocational education because of its “. . . remoteness from the conditions of genuine productive work” (p. 34). He added that:

In its contributions to vocational education, (manual training) is more nearly comparable with the development which results from play and other forms of spontaneous experience-getting. (p. 43)

Snedden was also critical of manual training as a part of general education. He wrote:

The spirit of approach has been that of the amateur, or dilettante, rather than of the person interested in attaining vocational fitness. Only slowly has the work been removed from the field of amateurish effort. (p. 43)

James P. Haney (1911, p. 441) a former secretary of the National Society, viewed manual training as prevocational training for youngsters in grades six through eight of the elementary school and for students in the first two years of high school. It was Haney’s feeling that such training would keep more students in school as well as to help them choose a specific trade. Haney, like many others, believed that manual training was useful only if it was geared toward trade training.

The foremost leader in the development and promotion of vocational education in America during the early 1900’s was Charles A. Prosser. Prosser served as Executive Secretary of the National Society and was intensely dedicated to the vocational cause. He was, however, vehemently opposed to manual training and was suspicious of all general education.

During many of his speaking engagements he continually used the term *manual training* even while many of his audiences preferred the new term *industrial arts*. He described manual training as “fossilized” or “wooden” and, like Snedden, reminded his listeners that manual training should not be confused with “real” vocational education. According to Bawden (1952), Prosser believed that manual training should be eliminated from the schools so that full attention could be given to the development of vocational programs. It was also Prosser’s (1913) belief that all shop work should be organized on a productive basis in order to simulate as closely as possible the work carried out in factories. This, as we shall see later, had a direct influence on the organization of manual training programs.

During the mid and late 1900’s, Prosser changed his views somewhat on manual training. This was evident when he directed the Minneapolis Survey for the NSPIE. This study attempted to gather information that would aid in planning a program of vocational education and to make recommendations for a vocational program best suited to the Minneapolis public schools (NSPIE, 1916).

A major difference of the Minneapolis Survey and others conducted by the Society was the considerable attention given to manual training. It was during this time that Prosser expressed interest in promoting manual training as a prevocational program. Therefore, the Minneapolis Survey reflected Prosser’s new niche for manual training. The report recommended prevocational manual training courses, beginning in the upper grades of the elementary school and in junior high schools. At the high school level the Survey included the recommendation that manual training courses should be short courses “. . . meeting the vocational needs of different groups (of students)” (NSPIE, p. 49).

The ironic part of the Survey is that it was found that Minnesota high school principals unanimously felt that manual training should be “. . . general and cultural education and not vocational” (p. 41). Nevertheless, this feeling was not shared by Prosser and his committee members who urged that the general education aim be abandoned in favor of a strong vocational one.

The Minneapolis Survey brought out the uncompromising nature of Prosser. Further, it clearly revealed the bold and questionable tactics Prosser and the National Society for the Promotion of Industrial Education employed to get vocational programs implemented in the public schools.

Charles R. Richards, a founding father and secretary of the NSPIE, was also critical of manual training. Richards became secretary of the National Education Association’s Subcommittee on the Place of Industries in Public Education, which was formed in 1907. The “Report of the Subcommittee” was published by the NEA in 1910

and Chairman, Jesse Burks, in his "Introduction" set the tone for the attack on manual training when he stated that manual training is still "... in the main abstract, isolated, impractical, and unsocial in character" (p. 658).

As secretary, however, Richards was according to Bawden (1950) "... directly responsible for planning the study and for much of the work in interpreting the data and writing the report" (p. 20). In his "Introductory Address", Richards lashed out at manual training saying that it was merely "... busy work with tools or the making of knick-knacks" (p. 776). He advocated more exciting manual training experiences for the elementary grades, but a greater vocational emphasis for manual training at the secondary school level.

The "Report of the Subcommittee on the Place of Industries in the Elementary School" detailed Richards' progressive philosophy of what manual training should be. It emphasized a study of the history and development of various industries, an insight into the organization, operation, processes, and occupations of industries. The aim was to help youngsters in "... developing a comprehensive view of the industry as a whole" (p. 691).

The Subcommittee Report on Intermediate Industrial Schools, however, recommended that manual training or industrial arts (both terms were used in the report) serve as *general vocational studies* for boys fourteen to seventeen years of age. But Richards and his subcommittee also wrote that:

Present tendencies indicate that manual training will become richer and assume perhaps a more vocational form, occupying a place in the program. It is also probable that manual training, as specialized for boys, will be so administered as to reach boys of from twelve to fourteen, without reference to grade. (p. 724)

How can Richards' views on manual training be interpreted? Perhaps he was frustrated by the slow progress being made toward developing broad-based industrial arts programs as he envisioned they should be. Also, it was not unusual at the time for manual training educators to support the advancement of vocational education. Manual trainers, including Richards, were, after all, practical men who understood the need for more efficient workers. They were also cognizant of the fact that while the school population was expanding, the dropout rate was increasing. Children were leaving school in large numbers and as soon as they could. It was estimated that only 40 to 50 percent of the children completed the eighth grade while only 8 to 10 percent completed high school requirements. Between the ages of thirteen and fifteen more than 50 percent of the children dropped out of school, most of them in the sixth and seventh grades (Ayres, 1913; Thorndike, 1908).

Moreover, manual training personnel were acutely aware of the fact that approximately 90 percent of the people of the nation made

their living through industrial pursuits. It was also known that scarcely 5 percent of the population ever reached the college or university levels (Joyner, 1910, p. 80). Thus, manual training educators sought to assist in developing programs that would help meet the demand for skilled workers and help to keep youngsters in school for a longer period of time.

Nevertheless, for such an influential leader as Richards, who was usually associated with industrial arts, to advocate the vocationalizing of manual training was damaging to the development of industrial arts. Richards, it should be remembered, was affiliated with two groups, the NSPIE and the NEA, both of which had taken positions strongly urging the advancement of vocational education and the vocationalizing, in one form or another, of manual training.

The views of the two organizations just mentioned were also shared by the American Federation of Labor and the National Association of Manufacturers. Of course, these two organizations were largely influenced by the NSPIE.

Winslow (1911) spoke for the AFL when he stated that:

The trade unions have been waiting in vain for twenty-five years for the manual training schools to furnish recruits to the depleted ranks of skilled labor. (p. 113)

Duffy (1912, p. 394), another union leader, also believed that manual training was a failure since it did not prepare boys with trade skills.

Like the AFL, the NAM downgraded manual training because it did not train boys for industrial trades (Alexander, 1907, p. 797; Robinson, 1910, p. 371). The NAM Committee on Industrial Education published a report in 1910 in which it harshly attacked manual training as inadequate as a means of vocational education.

The NAM's position on manual training was probably best expressed by DuBrul (1910) who wrote:

It is safe to say that much so-called manual training as now conducted is merely a schoolmaster's fad, culturized to a point of folly. Manual training teachers have wasted thousands of dollars in ridiculous equipment in the manual training departments of the public school without interesting boys in industrial work. (p. 271)

The attacks directed at manual training eventually took their toll. Administrators often put pressure on manual trainers to put greater emphasis on job training. Even before the vocational movement reached full momentum, school administrators urged modifying "educational" manual training for vocational purposes. In 1901, George H. Bryant, principal of a manual training high school, wrote that the chief function of manual training was to prepare boys and girls for industrial trades (pp. 201-206).

Lorenzo D. Harvey (1909), an influential industrial educator, administrator, and President of the NEA, indicated that:

There is a distinct tendency today in manual training circles to modify and enlarge the traditional course in manual training in such way as to make it distinctively industrial in character. (p. 63)

Harvey approved of changing manual training. In the same article he attempted to describe how it could be modified to prepare students for skilled trades.

While still recognizing its general education aim, two leaders in the manual training camp, Larsson (1911, 1912) and Bennett (1907) urged that manual training be geared to solving the problem of vocational efficiency. Bennett (1907) went so far as to state that:

. . . manual training courses should be broadened and enriched, and that the advanced or technical courses should be more highly specialized and made to harmonize better with trade practice. (p. 194)

George Buxton (1912), Director of Manual Training at the Stout Institute, prepared a document in which he briefly described how various high school manual training teachers across the country were adjusting their programs to prepare students for industrial occupations. In such cities as Gary, Indiana; Columbus, Ohio; Menomonie, Wisconsin; and Cleveland, Ohio emphasis was placed on skill development by means of the factory method of production, exercises, repetition of operations, and sequences of processes.

Influenced by Prosser and other vocational educators, many manual training teachers organized programs on a commercial factory basis in which students did production work for schools and community organizations. The emphasis in this factory method of instruction was on duplicating industrial operations and processes and developing skills that would lead students into industrial trades (Armstrong, 1913; Prosser, 1913; Roberts, 1919).

Perhaps the greatest harm incurred by manual training and done to industrial arts was the adoption of the trade and job analysis techniques which were based on the efficiency methods developed for business and industry by Frederick Taylor in 1911. Briefly, trade and job analysis was a systematic approach to organizing instruction by analyzing what industrial workers needed to know and be able to do. Although varying somewhat in their approaches, Charles R. Allen, Robert W. Selvidge, and Verne C. Fryklund respectively have been the chief developers and promoters of trade and job analysis techniques. Even though trade and job analysis was developed for organizing vocational instruction, it was advocated as a means of organizing instruction for manual training and industrial arts courses (Bennett, 1914, pp. 10-11; Mays, 1950, p. 6). Since much pressure was put on manual training teachers to use vocational practices, trade and job analysis became



and has continued to be the prime means of organizing instructional programs in industrial arts (See Ch. 6 and 7). This is evidenced by the continued emphasis on selected trade skills in the still dominant courses of woods, metals, and drafting.

Vocational education practices not only influenced high school manual training programs but also had an impact at the junior high school level. Vocational "try-out" or "finding" courses were especially popular after the passage of the Smith-Hughes Act (Edgerton, 1924, p. 206). These junior high prevocational courses were designed to help students to intelligently select a trade training program at the high school level.

Some high schools openly admitted that their main goal was to recruit students from elementary and junior high schools for their trade training programs (Patty, 1924, p. 320). Others required that students complete the junior high prevocational courses before they could enter high school trade training programs (Briggs, 1924, p. 234). These practices have continued through the years. Even today junior high industrial arts courses are often used and misused as "feeder" courses for vocational industrial programs.

Finally, despite the restrictions of the Smith-Hughes law, school officials often changed the name of general education manual training courses to include the term *vocational* without changing their content and methods. This was done because administrators and even teachers felt it was "more popular" in their communities (Edgerton, 1924, p. 212).

This chapter has attempted to show how the accelerated development of industry and technology dramatically changed American society just prior to and after 1900. Changing societal conditions eventually forced education to sever its bonds with traditional practices. Practical subjects including manual training were added to school curricula in order to break down the strictly academic diet that was fed to all students. But technological innovations created new industries and improved older ones, causing a demand for skilled workers. Thus it was only a matter of time before vocational education would enter the public schools to prepare students for industrial occupations.

The push for vocational education, however, had a lasting impact on the development of industrial arts. Highly demanding and organized vocational forces constantly bombarded manual training, the forerunner of industrial arts, with critical comments concerning its failure in the public schools. Extensive pressure was applied to first eliminate manual training, and when that failed, to convert it to some type of vocational training. As a consequence, manual training adopted many vocational practices that subsequently were embraced by industrial arts educators. To this day industrial arts has not nearly reached its full potential as an important part of general education for all students.

The reason? It has been extremely difficult to break the spell of vocational influence and practices; many of which emanated from the early vocational education movement.

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# Industrial Arts Founded

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Men are quick to adopt and use mechanical inventions once they are made known; yet they are slow to change their social institutions and their modes of thought and feeling to conform to the changes in the physical environment.

Edwards and Richey (1963, p. 412)

The above quote by Edwards and Richey seems most appropriate as an introduction to this chapter that will deal with the founding of what many refer to as “traditional” industrial arts. As we review events at the turn of this century, we see that monumental growth was occurring in American industry, and, as would be expected, societal institutions had much difficulty responding and adapting appropriately. This chapter will review these major industrial developments because of their tremendous impact on the society of the time. Even today in our contemporary society it is difficult to conceive of the remarkable advancement that occurred in industry, transportation, and communication at the beginning of the twentieth century.

## UNITED STATES SOCIETY AT THE BEGINNING OF THE TWENTIETH CENTURY

The Civil War has been considered a struggle between two lifestyles. These were the decentralized agricultural lifestyle of the South and the centralized industrial lifestyle of the North. Industrial capitalism grew rapidly and flourished in the years following the Civil War. Several aspects of this rapidly changing society, which are of special significance, will be discussed in the following sections.

### **Agriculture**

Before the Civil War, farming was accomplished by crude techniques and simple implements. Much fertile land was available and

very little scientific knowledge was applied to the raising of crops. Following the Civil War tremendous strides were made in mechanizing agricultural production. Many new field machines were developed, such as binders, harvesters, and planters. New transportation equipment and refrigeration also had made long distance marketing possible. Another less obvious effect of high volume production and better transportation systems was the movement of some processes *away* from the farm, such as butter and cheese making (Robertson, 1964, p. 257).

Many of these advances in agriculture were not advantageous to the farmer. Even with the huge increases in population due to immigration, food supplies rose much faster than demand. In the last quarter of the nineteenth century the prices of some farm products were nearly cut in half. Because of this and additional problems due to weather, many farmers were forced to sell out, mortgage their farms, or leave their farms and seek employment elsewhere.

### **Railroads**

In the late 1800's the railroads were considered by many to be the most significant factor in American economic development. This was true not only because of the tremendous improvements being provided in transportation, but also because of the huge volume of railroad construction work and the manufacturing of rail equipment. Main lines and feeder lines were being built at a very rapid rate.

Many inventions and improvements relating to the railroads helped fuel this expansion and continuous modernization. Not only were the lines and rolling stock being built rapidly, but they were becoming obsolete as rapidly as they were being built. The invention of the air brake in 1869 allowed for longer and faster trains. Larger locomotives were then needed to pull the heavier loads. The development of the Bessemer converter and open hearth methods of making steel lowered the price of steel to a level where steel rails were affordable. Since they were desperately needed to support the heavier loads of the larger trains, they were quickly purchased by the railroads. So great was the demand that Garraty (1971, p. 88) reported that 94 percent of all rolled steel manufactured in 1881 went into railroad rails.

In order to provide business for their lines, many railroads did much to encourage land development. They offered land cheaply and on easy terms. They often had recruiters at East Coast immigration centers and often sent recruiters to Europe to encourage land buyers to seek a new life in America.

### **Communication**

The rapid development of electrical communication was closely related to that of the railroads. The railroads allowed Western Union to build telegraph lines on their right-of-ways. They also transported tele-

graphers and equipment free in exchange for free telegraphic service. When the railroad was built through a community, those residents were almost assured of having rapid communication to other population centers through the telegraph.

After Bell's invention of the telephone in 1876, its use soared. By 1900 about 800,000 telephones were in service in the United States. This was twice the total for all of Europe (Garraty, 1971, p. 93).

New technology caused another revolution in communication. The invention of the web printing press in 1871 allowed paper fed from a roll at high speed to be printed on both sides simultaneously. The web press and the linotype, invented in 1886, were of particular significance to newspaper publishing. New machines for making newsprint from wood pulp had reduced its cost by 75 percent. With these advances in printing, much more information was available to the general public.

## **Manufacturing**

The manufacture of steel was mentioned earlier in relation to railroad rails, but its importance to United States' industrial development at the end of the nineteenth century deserves further attention. Between 1880 and 1900 steel production increased nearly tenfold. With this increase came the rapid development of iron and coal mining. These products were, for the most part, transported by the railroads.

The petroleum industry was non-existent before the Civil War. But by 1890 fifty million barrels of crude oil were being produced annually.

Tremendous strides were also being made in the textile industries in the mid 1890's. The new high-speed, automatic looms revolutionized cloth production. Standardized clothing sizes, power shears and high-speed, power-driven sewing machines also began to move much more of the clothing manufacture from the home into factories.

The same type of movement from home to factories was occurring in the food industry. Improved methods of grinding wheat made large quantities of flour available for the high-volume production of bread. Likewise, at the turn of the century, tremendous strides were being made in the canned food industry. With this came a diminished role for the home garden and the kitchen as a processing center to provide the family's food supply. The application of refrigeration in meat processing, during the same general time period, led to the development of huge meat packing companies. With this new industry came a more dependable and cheaper source of meat for the masses.

Another phenomenon that had great influence on society was occurring during this rapid growth period in American industry. Not only were new products being produced at ever-increasing rates but there was a movement in many industries to achieve monopoly power. Many of these attempts were successful. At the beginning of the twentieth



century, American society was controlled economically and politically by a relatively small number of persons.

The mass production of foods, clothing, and many other products coupled with the efficient distribution system of the railroads helped to promote a new sense of nationalism. The same kinds of products could be purchased throughout the country. The rapidly advancing communications systems – telegraph, telephone, radio, and newspapers – further contributed to a nationalism in the thoughts, values, and attitudes of the American people (Butts and Cremin, 1953, p. 310).

### **Immigration**

Throughout the latter part of the nineteenth century the number of European immigrants continued to increase. Companies looking for a source of cheap labor encouraged steamship lines to import large numbers of persons. In the larger cities foreign-born persons represented up to 50 percent of the population (Butts, 1947, p. 448). This influx of cheap labor was a serious threat to organized labor which was seeking higher pay for its members.

### **Urbanization**

Increased agricultural mechanization and production decreased prices of farm products. The result was a decrease in the earnings of farm workers, which caused a mass movement of the rural population to the cities. A majority of the immigrants entering this country were also settling in the cities where rapidly expanding industry had a continuous need for more and more cheap labor. The cities were in no way prepared to handle the needs of this tremendous influx of people. The result was a disgraceful contrast of “grossly overdone mansions” of the rich and slum tenements of the poor where families lived in “unspeakable conditions” (Butts and Cremin, 1953, pp. 302-303). Edwards and Richey (1963) summed up the deplorable conditions in the cities when they said:

Intemperance, poverty, sickness, disease, crime and moral decay thrived in the new urban communities. Illiterate and unruly children roamed the city streets uncared for and considered only as potential workers in factories which took them at a tender age. (p. 296)

### **Political and Social Reform**

At the time of our country’s founding, the purpose of politics was to protect the people from government. By the latter part of the nineteenth century Butts and Cremin (1953) reported that, “Politics became not the effort to maintain freedom from government but rather to secure with the support of government this or that view of society” (p. 312). This evolutionary change in the role of government caused many practices that were the target of political and social reformers.

As various segments of society saw the power and control that big business wielded with the federal, state and local governments, they also began to organize for the purpose of applying pressure on government for their own interests. Other groups were formed to make government responsive to a majority of the people rather than to special interests.

Workers in industry soon realized that they needed national labor organizations to promote their needs and desires with management and government. The farmers, through the Grange movement, were organized to fight the unfair practices of the railroads. Churches, veterans, and professional groups organized nationally to gain power.

On a more local and regional level, reform groups were forming to fight the corruption and inefficiency in government. Many large cities were plagued by the corrupt practices of local politicians.

Many cities had settlement house workers and other reformers who were working toward the improvement of conditions in the slums. Child labor practices and industrial safety were of particular concern to reformers. Concerning these factors Garraty (1971) reported:

In 1900 about 1.7 million children under the age of sixteen were working full time — more than the total membership of the American Federation of Labor. Laws regulating the hours and conditions of women in industry were also far from adequate, and almost nothing had been done, despite the increased use of dangerous machinery in the factories, to enforce safety rules . . . As the number of social workers grew and as they became increasingly competent professionally, the movement for social-welfare legislation gained momentum. (p. 244)

With the return of prosperity at the turn of the century, tolerance and support for reform groups increased. Progress was being made toward curing some of the social ills caused by big business and industry, immigration, the influx of farm people to the cities, and other rapid changes in society at this time.

## EDUCATION AT THE BEGINNING OF THE TWENTIETH CENTURY

The latter part of the nineteenth century was the beginning of phenomenal growth in American education. The population growth outlined previously was, of course, one factor but Edwards and Richey (1963) outlined three other factors which were of special significance: “the growth of an industrial economy, the increase in the nation’s ability to finance education, and the growing sensitivity on the part of society to the needs of children and youth” (p. 485). In fact, this growing sensitivity to children’s needs has been considered by some to be one of the

most significant changes in our society in recent times. This section will focus on several of the important forces that directed and influenced the changes and growth of American education around the beginning of the twentieth century.

### **Fulfilling New Needs and Demands of Society**

It has been said that early American schools were never suited to the American philosophy and way of life. Society was changing at a fast pace which made the schools even more out of step and especially vulnerable to criticism.

Many needs and demands for change in the schools were coming from the cities. Reformers, settlement house workers, and writers all had a hand in exposing conditions in the cities' slums. The solutions proposed by most had school reform as one, if not the most, important component.

The reformers saw that industrialism and the rise of the big city slums had dissolved the sense of community that had existed in the smaller towns and in the cities before the tremendous influx of people. They were concerned about re-establishing the neighborhood but ultimately they were concerned with humanizing the new industrial society (Cremin, 1964, p. 60).

Jane Addams, founder of the famous Hull House in Chicago, fought bitterly against a restricted view of the school that stressed only reading and writing. Addams (1902) accused educators of:

the assumption that all knowledge and interest must be brought to the children through the medium of books. Such an assumption fails to give the child any clue to the life about him, or any power to usefully or intelligently connect himself with it. (pp. 180-181)

Addams believed the school should be a force for social improvement and should get involved as the settlement houses were doing. She concluded that industry needed to be reckoned with by educators. Writing about Addams, Cremin (1964) reported that:

in addition to manual training and domestic science, she wanted the factory bound child to study the history of industry and the relation of each facet of labor to all others, so that sensing "the historic significance of the part he is taking in the life of the community" he might be spared the dehumanizing meaninglessness of industrial labor. (p. 62)

Miss Addams believed that her ideas went beyond the "sentimental impracticalism" of Woodward. Understanding the significance of teamwork in the factory, she felt, could make the work more rewarding than that experienced by the skilled craftsman who made an entire product. She compared it to the excitement experienced by members of a baseball team as opposed to an individual playing hand ball on the side of a barn (Cremin, 1964, p. 63).

It is no coincidence that Miss Addams' ideas and philosophy sounded similar to those of John Dewey (who will be discussed later in this chapter) because they were closely associated while both were in Chicago. Further, Miss Addams was not content to make suggestions as a social reformer for school improvement. She served for four years on the Chicago Board of Education.

Other notable non-educators who criticized education were Joseph Rice and Jacob Riis. Rice, after visiting schools in thirty-six cities in 1892 and talking to several hundred persons, published a series of scathing reports in *The Forum*, a popular journal. Rice exposed widespread corruption, political meddling in school affairs, and the incompetence of teachers and administrators. His reports repeatedly found "political hacks hiring untrained teachers who blindly led their innocent charges in singsong drill, rote repetition, and meaningless verbiage" (Cremin, 1964, p. 5).

Rice did find some examples of what he considered encouraging steps forward. In Minneapolis, teachers were broadening the program and "dealing sympathetically" with children of the poor immigrants. Politics played no part in the management of Indianapolis schools and progressive teachers there were combining several subjects to give them more meaning and to show relationships between them. In LaPorte, Indiana, Rice saw exciting activities in drawing, painting, and clay modeling and students being encouraged to be helpful to each other. In Chicago, at Francis Parker's Cook County Normal School, he found progressive "all-side" education of children through nature study, art, social activities, plus the three R's taught by an enthusiastic staff.

In his final article in the series that had run for a year in *The Forum*, Rice called on the public to demand progressive education for their children. The first step, he believed, was to get politics out of education. Then scientific supervision needed to be introduced, and teachers needed to constantly upgrade their intellectual and professional competence. Rice's series of articles created much discussion and editorializing in newspapers throughout the country, most agreeing with his points of view.

Jacob Riis wrote numerous articles and three popular books, *The Children of the Poor*, *The Battle with the Slum*, and *How the Other Half Lives*, using photographs that shockingly illustrated how terrible conditions really were in the slums. He saw the early experiments with kindergarten, manual training, and the cooking school as bringing common sense to education and a major step toward the battle with the slums.

If one compares the out-of-school experiences of the rural youth with those of the city youth at the end of the nineteenth century, the urgency of educational change promoted by social reformers can be better understood.

In rural America a child was usually a member of a close-knit family which operated as a social and economic unit. Nearly all meals were eaten together as a family, and church and community activities were often the center of the rural way of life. Each child usually had tasks to perform which were important, if not essential, to the livelihood of the family. These responsibilities grew in importance as the child progressed toward adulthood. Thus, the advance toward being a responsible adult was a living and learning process that began at a very young age.

The children and youth were receiving a firsthand education in the functioning of their society. It could be argued that what they learned *out* of school was more important to their success in adult life than what they learned *in* school. The basic reading, writing, and arithmetic rural children learned in school was but a very small part of the broad education they were receiving in the way of life of their society. One is reminded of the secondary role of formal education when it is recalled that rural school schedules were, for many years, planned around the planting and harvesting of crops. In summary, it is important to note, when contrasting rural and urban settings, that most influences outside the school in both rural areas and small towns were *positive, constructive influences*.

Children and youth of the urban slums faced an entirely different environment outside the school. Poverty, poor living conditions, gangs, idleness, gambling, and language barriers were but a few of the educating influences on youth of the cities. There was a lack of meaningful group activities and fewer ties to the church. Adults and parents were gone for long hours, toiling in the factories. Children did not have roles as team members in earning the family living. Those who did work were often in a child labor setting that proved to be another demoralizing influence on the wholesome development of children.

All in all, the child's life outside the school in urban America was often a series of *negative, destructive influences*. This required a very different and expanded role for the school and other social agencies.

Reading was more important in the city because much communication was dispersed through newspapers. More products were purchased, making math skills of more importance. Available jobs, too, often required more formal education. Recordkeeping and bookkeeping required reading, writing, and math skills. Some factory jobs demanded trade skills. All of these influences gave formal education in the cities a new level of importance (Butts and Cremin, 1953, pp. 405-407).

Many teachers of this era, particularly in the cities, were aware of a need for a change in the curriculum. To those educators who were sympathetic to humanistic and social needs, the teaching of reading and writing were not top priority under the circumstances that they

faced in their classrooms. Many times a class contained children speaking several different languages, none of which were English. Cleanliness, manners, and getting along with peers often had to take precedence over the more traditional subjects. Often-times, baths were a necessity when children came to school infested with lice. Thus, many times the school curriculum, whether written in curriculum guides or not, was expanding by necessity.

As the differences between having children work on the family farm and hiring them to work in factories became known, child labor reform gained momentum. Social and educational reformers encouraged child labor laws for humanitarian purposes and so that more children could attend school. Organized labor supported the passage of child labor laws partially because children competed for jobs sought by union members (Edwards and Richey, 1963, pp. 488-489).

Educators as a profession, however, were not among the leaders in supporting child labor reform. In 1905 Jane Addams admonished the National Education Association for their lack of support in this regard. When child labor was mentioned in NEA speeches, it was most often considered a problem of parent greed rather than wrongdoing on the part of industry (Curti, 1959, pp. 234-235).

A force began within education in the 1890's that was to have a profound influence on its future. An increasing number of educators led by Colonel Francis Parker were beginning to speak of the social responsibility of education. Schools, they argued, had only taught the child to promote his own selfish interests rather than equipping him to function cooperatively in an interdependent society. They believed that the school needed to change its entire program and spirit to meet the social needs of community living.

This view was not contrary to the views concerning the role of schools advocated by many special interest reformers. Businessmen wanted schools to assume the role of apprentice training. City social reformers encouraged instruction in hygiene, domestic science, manual work, and child care. Americanization of the immigrants was also being demanded. The common implication of these demands was that the educational functions traditionally acquired from the family, neighborhood, and shop were no longer being performed. It remained for John Dewey to begin to bring direction and meaning to this new social emphasis in schooling. He blamed industrialization. *Society educates*, he said, and youth were no longer exposed to and a part of that society, as they once were. The school would need to assume the various educative aspects of traditional rural society. In speaking of the new industrial society, Dewey (1899) stated:

If our education is to have any meaning for life, it must pass through an equally complete transformation. It remains but to organize all

these factors, to appreciate them in their fullness of meaning, and to put the ideas and ideals involved into complete, uncompromising possession of our school system. To do this means to make each of our schools an embryonic community life, active with types of occupations that reflect the life of the larger society. (pp. 43-44)

Dewey's progressive education was more than just a broadening of the school program. His "embryonic community" was to reflect life in society, which removed the school's isolation from reality. It was further to improve the larger society by making it more "worthy, lovely, and harmonious" (Cremin, 1964, p. 118).

The concept of education acting as a force to change society was foreign to most educators. In fact, the leaders of education in most cases in the past, had unquestionably endorsed industrial capitalism. In struggles between farmers and industrialists they sided with the industrialists. When labor began to try to improve its financial position, education again supported the industrialists. Curti (1959, p. 218) reported that nearly every National Education Association Convention included an appeal by leading educators for teachers to help in discouraging strikes. Educational journal editors and commissioners of education also regularly supported this idea. Curti (1959) identified Commissioner of Education W.T. Harris as one of education's most articulate defenders of capitalism:

In greeting the National Education Association in 1894, when the country was in the throes of labor "disorders," he (Harris) observed that the school provided the people with training in those habits of regularity, silence, and industry which would "preserve and save our civil order." In the public school, the center of discipline, the pupil learned "first of all to respect the rights of organized industry." (p. 330)

W.T. Harris was interested in social values but in quite a different way than Dewey. Harris' concern was with cultivating in youth an appreciation of existing institutions without questioning whether or not they were fulfilling a positive role in society (Curti, 1959, p. 257). Edwards and Richey (1963) reported that such a philosophy causes those charged with operating in such a system to consider it to be desirable and good and to become oblivious to forces that may be changing economic, social, and political aspects of the system. It becomes a "conservative and preservative force" (p. 396).

John Dewey's philosophy, which charged education with altering the society to promote cooperative individualism, was much different from and a threat to that of Harris. However, by the turn of the century Dewey's philosophy was gaining favor in educational and social reform circles. This was significant because it meant that educators had to philosophically take issue with some of the practices of the industrial capitalists. This was a step they had not previously been encouraged to take by those in educational leadership positions.

## New Philosophical and Psychological Views

Education was not omitted from the rapid changes occurring in American society. Many new theories and philosophies were being formulated and expounded in the profession. Excitement, controversy, and spirited debate were commonplace. Most of these new theories, in one way or another, encouraged the breaking down of the formalism of instruction that was prevalent in schools of the 1890's.

The American Herbartian movement, which became popular during the last decade of the nineteenth century, made several contributions to educational change. Herbartian psychology emphasized the interest of the child and de-emphasized memorizing and the textbook. The systematic method of presenting lessons did much to stimulate the study and refinement of teaching methodology in American education and to open the curriculum for the practical subjects.

Another development of the time, championed by G. Stanley Hall, which was to have a profound influence on education, was the child-study movement. Hall believed America's schools traditionally had tried to fit the child to the school and were thus out of place in a republic. He advocated fitting the school to the child. Cremin (1964) related that the child-study movement did much to alter the perspectives of education to the position that "the 'given' of the equation was no longer the school with its well-defined content and purposes, but the children with their particular backgrounds and needs" (p. 104). Clark University, where Hall was President, became the dissemination center for child development data, and many other child-study centers were soon organizing at other universities.

William James also made a tremendous impact on the psychology and education of the time. He drew on Darwin's theory of evolution to explain the functioning of the mind. He theorized that while the mind is molded by the environment, it also interacts with the environment in a creative way. Intelligence, James believed, was not merely the capability to adapt to circumstances, but to also change them. His theories brought a new functional view to psychology. The role of education, according to James, was to awaken and broaden the interests of the child. Further, the child should be trained in productive thought and ethical action and be given the chance to test his ideas whenever possible. James' behaviorist theories were a powerful force in discrediting faculty psychology as a basis for educational method.

It remained for another psychologist-philosopher-educator to further refine and develop some of these new theories into yet another philosophy of education. John Dewey was not content with any one of the previous psychological theories to guide the education of children. Dewey believed that the learning process involved not only the psychological nature of the individual but also the social nature of his



environment. Butts and Cremin (1953) summarized Dewey's thinking on the process of learning as:

essentially social in character because nature, experience, and mind were themselves essentially social in character. Nature is not a settled or immobile thing: nature is made up of movement and interaction of bodies in time and space, and human experience is a part of the transaction of events that goes on in nature. Mind is a natural activity that appears when human beings begin to give new directions to experience by observing events, anticipating consequences, and striving to reconstruct future events. But mind is not the product of an individual behaving in isolation from one another; it is a social affair because interaction included human interaction – the influence of some people upon others. (p. 345)

Dewey believed that children were inherently active beings who wanted to communicate with others, to build things, to investigate and create. He advocated the accommodation of these traits in the school through activities such as language, manual and household arts, nature study, dramatics, art, and music. Dewey advocated scientific and industrial studies as a way to make students more aware of life around them. They were used as points of departure to carry on intellectual studies of the society. Dewey (1916) gave direction to educators on using industrial studies as follows:

The problem of the educator is to engage pupils in these activities in such ways that while manual skill and technical efficiency are gained and immediate satisfaction found in the work, together with preparation for later usefulness, these things shall be subordinated to *education* – that is, to intellectual results and the forming of a socialized disposition. (pp. 196-197)

Following his pragmatic philosophy Dewey also revolutionized the educators' concept of the thinking process. Rather than simply training the mind, he saw thinking as applying the scientific method to all problems. In abbreviated form, the steps in thinking according to Dewey (1916) were:

- (1) Experiencing a problem,
- (2) Obtaining data,
- (3) Formulating ideas or solutions,
- (4) Considering consequences,
- (5) Testing solutions.

Dewey believed that this concept of thinking should be the standard process of education. He advocated that education should be a series of situations in which students are involved in solving problems of interest to them. This is the basis for the "project method" where students are engaged in activities that require thinking as well as doing.

## The Kindergarten Movement

The kindergarten movement gained much momentum during the last two decades of the nineteenth century. By 1900 there were approximately 4,500 kindergartens in the United States. The emphasis on the development of children's capacities, greater freedom of movement, and cooperative social attitudes had some influence in relieving the formal discipline and formal atmosphere of the elementary schools (Butts, 1947, p. 502).

Many of the kindergartens were private rather than part of the public school system. However, following the introduction of an experimental program under Superintendent W.T. Harris in St. Louis, the number of public school kindergartens rapidly increased. The experiment was so successful that a teacher training program was established. Soon public school kindergartens were spreading throughout the country.

Some private kindergartens were part of the settlement houses in the cities while others were founded by kindergarten associations. One such association in New York City, the Kitchen Garden Association organized in 1885, had ties to the social reform movement and had as its basic purpose the improvement of slum conditions through education for household management. Emily Huntington, after visiting a kindergarten and observing the children enjoying their play with blocks, conceived the idea of substituting small-sized household furnishings and let "housework" become the play. Grace Dodge, a rich social reformer, gave this new form of kindergarten the necessary backing and publicity allowing it to spread to many other areas of the country (Bennett, 1937; Cremin, 1964). The universal acceptance of this idea is in evidence throughout the country today with play kitchens and other such equipment in kindergarten classrooms.

By 1884 the organizers of the Kitchen Garden Association broadened their ideas concerning the kinds of experiences they advocated for children. The new concept included all forms of industrial experiences for older children. The Association was dissolved and another, the Industrial Education Association, was formed. It was soon realized that if this concept was going to succeed, special teachers would need to be trained. Nicholas Murray Butler became President of the Association and the New York College for the Training of Teachers was established to prepare the special teachers needed. From this modest beginning, the new college soon became Teachers College of Columbia University.

Another non-public kindergarten was founded in New York by Felix Adler and the Society of Ethical Culture. Adler soon expanded his program by opening the Workingman's School for the elementary grades. Adler was a philosopher and social reform educator who started his schools for underprivileged children. Construction activities were placed at the core of the curriculum. Adler saw in his new program a

step forward from the *studying* of objects to the *production* of objects as a means of acquiring knowledge (Bennett, 1937, pp. 416-418).

The philosophy of this new form of elementary education was eloquently described by Adler in an address at the opening of the school in 1880:

For industrial education has long ago been given in many countries of the world to older children — boys of fifteen or sixteen years of age; but industrial education has never, to our knowledge, been introduced in the lower classes of schools; has never been combined *organically with the whole scheme of education* and been made to support and coalesce with all the other studies of the child. And there are other ways, assuredly, which must occur to everybody, in which industrial education will tend to elevate the workman . . . It becomes a means of teaching mathematics, for instance, more thoroughly, causing the pupils to work out mathematical truths with their very hands . . . We do not propose to give our pupils an aptitude for any particular trade; we do not propose to make them tailors, or shoemakers, or printers. We would consider that a retrograde step, rather than a step in advance, if we were to prevent these young lads and little girls from spending even a few years in gaining knowledge, without any preference to the pitiable necessities of their after-lives; we do not propose to yoke their young souls, before they have had time to expand at all, into the harness of trade, mere for the sake of getting their bread better afterwards. (Bennett, 1937, pp. 457-459)

Both of the programs, which emphasized manual work, had started as private kindergartens and expanded into the elementary school. Likewise, they both influenced public school education in subsequent years.

### The Evolving Elementary School

After the Civil War and until the close of the century, the elementary school curriculum was greatly improved by the revision of old subjects and the addition of new ones. While this was unquestionably an improvement and a broadening of the curriculum, it often led to prescribed courses of study. As the graded school concept was implemented, it required that not only students be classified, but subject matter as well. Course outlines were rigidly prescribed with subject matter to be mastered and skills to be acquired. The quality of teaching had, however, not improved as the curriculum had expanded. Reisner (1930) indicated, "With the business of the school being what it was, any movement, any conversation, any communication, were out of order. The spirit of control was military and repressive, not constructive and cooperative" (pp. 427-428).

Several of the reform movements discussed earlier in this section were making some difference by the end of the century. The changes came slowly.

Compulsory school attendance laws also had a major impact on the elementary school. By 1900 thirty-two states had such laws although they varied greatly in actual provisions, such as length of annual attendance, required ages, and means of enforcement. Many new problems for the schools were caused by the passage of these laws. Many less-than-academically-talented children, who would have formerly dropped out, were not the *responsibility* of the school. Furthermore, the school was now required to enroll students for whom the traditional program was not relevant. Compulsory school attendance was beginning to force differentiation of purposes and programs in order to meet different educational needs (Butts and Cremin, 1953, p. 415).

### The Expanding Secondary School

The public high school did not have a sound legal basis until after the Kalamazoo case in 1874. The complainants challenged the school district's right to tax the citizens for support of a high school that, for the most part, only taught the classics and foreign languages. They argued that this kind of education was not appropriate for the majority and should not receive public financial support. The case was decided in favor of the school district with the court concluding that since the state supported the elementary education and a state university, it would be inconsistent not to support a high school. Other states followed with similar rulings, but the publicly-supported high school with varied programs was slow in being established.

As late at 1890 the high schools were still highly selective with programs mostly for a few young people preparing to become ministers, lawyers, doctors, teachers, or engineers. By 1900 the problem facing the grammar schools after the passage of the compulsory school laws was being felt by secondary education. Youths entering these schools now had diverse social and cultural backgrounds. They had mental capacities from low to high and a wide variety of future job interests. The high school now had to take on the role of a terminal institution for a majority of the students (Edwards and Richey, 1963, pp. 525-527).

Many high schools began to offer at least two programs — a practical one for terminal students and the classical one for college preparatory students. The comprehensive high school which offered several parallel programs soon became the standard secondary school pattern.

Following the European pattern of secondary education, some special-purpose high schools were also opened. The first of these were manual training high schools. By 1900 several commercial and agricultural high schools had also been founded.

Some proponents of manual and industrial education claimed that these forms of education would help to prevent the development of a caste system. Dewey and others, in response to the special purpose

schools, warned that these kind of separate schools would, in fact, “accentuate existing differences” (Curti, 1959, pp. 232-233).

## THE EVOLUTION OF “TRADITIONAL” INDUSTRIAL ARTS

The term *industrial arts* was first used in the literature by Richards in 1904. The term, however, will be used in the generic sense in this chapter. The evolution of what became commonly known as industrial arts was influenced greatly by what many educators were doing with and in reaction to Woodward’s manual training concept. These activities had both positive and negative influences on what was to become industrial arts.

Soon after its inception, the term *manual training* became meaningless as a title of a specific program because the term was used as the name for a wide variety of programs, often quite different from Woodward’s concept. It was used by some to describe the *action* going on in the program — *manual training* as opposed to the *intellectual* training of math, English, etc. In this context, a writer of the time may have said, “The manual training of *sloyd*.” Manual training too, then, was used in the generic sense for many years. In the case of quoted material in the remainder of this chapter the reader should pay particular attention to the context in which a specific term may be used. An attempt has been made to keep the intent of the terminology clarified.

Some other terms which were used to describe what is generically being called industrial arts were *industrial education*, *tool instruction*, *shopwork*, *sloyd*, *manual arts*, *manual training*, *practical arts*, and *industrial arts*. This was probably no more confusing than the wide variety of programs and philosophies of today, most of which use the term *industrial arts*!

To further emphasize the point for considering all of these movements from the past, we have in this country today many thousands of teachers who have degrees in industrial arts, are licensed to teach industrial arts, are teaching industrial arts courses in our public schools, and firmly believe in what they are doing. It is not for anyone to say they are wrong because they do not know or follow the theories of Dewey, Richards, Russell, Bonser, and others. The topic of this chapter is, after all, a history of the field and not a history of the term *industrial arts*. If one wants to understand the development of the field, one must look beyond the term which is commonly used today to identify the field.

## THE MAJOR MOVEMENTS OR INFLUENCES

A brief overview of the major movements or influences for manual work which contributed to the development of industrial arts is essential to understanding the evolution of what is often called "traditional" industrial arts. Also, this part of the chapter will include information related to important institutions, teachers, programs, and selected actions and reactions that attempt to add to this general perspective.

### Manual Training

The manual training movement initiated in the United States by Calvin Woodward is only briefly mentioned here because it is covered in detail in Chapter 4. This movement involved a series of graded exercises taught to groups of students. Based on faculty psychology, one of manual training's primary purposes was the development of "mental discipline," according to Woodward. The Russian system of technical training, upon which the plan for manual training was built, had as its purpose the technical training of engineering students in the use of tools, materials, and processes. Some historians believe that Woodward "oversold" the merits of manual training. Olson (1957) reported that:

Woodward went about the country speaking on behalf of manual training as he visualized it. It is apparent to the reader of his speeches that the more he expounded on its virtues, the more virtues he discovered in it. He came to see it as a "feature in general education." (p. 59)

Cremin (1964), in discussing special interest groups that push their ideas "in the broader public interest," used Woodward as an example by stating: "Calvin Woodward quickly moved from the position that manual training would be good for technical students at Washington University to the position that it would be good for everyone" (pp. 125-126).

In spite of Woodward's insistence that manual training was general education, Bennett (1937) pointed out reasons why it was not:

In the first place, manual training began in the high school with a system organized for specific training in hand skill, not for general education. Secondly, most of the teachers of manual training had not been broadly educated and had not attained a professional outlook beyond the technical phases of the subject they were teaching. (p. 442)

As stated earlier, manual training in its pure form as Woodward envisioned it did not last very many years as a part of public education. It did, however, provide one of several starting points from which industrial arts evolved.

### American Sloyd

Sloyd was a second system of hand tool education from Europe to be introduced in the United States nearly simultaneously with that of manual training. While it had two unsuccessful introductions earlier in Minneapolis and Boston, Gustaf Larsson was able to very successfully establish sloyd in the Boston area in 1888. Larsson had been a student and instructor of sloyd in Sweden under Otto Salomon. Since Swedish sloyd was detailed in Chapter 2 it will only be discussed here in terms of the unique adaptations made to it by Larsson.

Previous to Larsson's arrival in Boston, a group of educational reformers had unsuccessfully attempted to introduce sloyd into the public schools there. Larsson found that the reformers had faithfully transplanted the system of models to be constructed as they were being done in Sweden but had neglected an important detail. The models were to be of interest to the boys participating in the program. The American boys saw no value in the type of models being made in Sweden. Larsson immediately designed many new models that *were* of interest to American boys (Bzowski, 1970, pp. 136-138).

Larsson also found that drafting had become very important in American industry and was increasingly being taught in Massachusetts schools. This realization led to the incorporation of mechanical drawing as a part of the sloyd program. The first activity was to have the boys make their objects from teacher-prepared drawings instead of making them from teacher-prepared models. Larsson later required the students to make their own drawings and then to construct the objects from them (Bzowski, 1970, p. 139).

Even though the students made their own drawings, they were not designing their own objects. Early in the development of sloyd in Boston, Larsson designed the objects, but later he allowed the sloyd teachers to drop, change, or add new models to the prescribed series of models for each grade. The group method of instruction that had proven itself in America was also used to a limited extent to supplant the individual instruction characteristic of Swedish sloyd. This evolution from the Swedish sloyd became known as "American Sloyd" (Bennett, 1937, p. 432-435).

Larsson (1894) commented on the characteristics of sloyd and how it contrasted with the Russian system as follows:

1. The exercises should follow in a progressive order, . . . with such carefully graded demands on the powers of both mind and hand that the development of the two shall be equal and simultaneous . . .
2. The exercises should admit of the greatest possible variety; they must avoid any tendency either to too great *mental* tension, confusion, or *physical* strain . . .

3. The exercises should result in the making of a useful article from the very outset, that is to say, the use of which is appreciated by the child. This arouses and sustains the child's interest in his work, helps him to understand the reason for every step, for he can see to what these steps lead . . .

4. Sloyd seeks also to cultivate the aesthetic sense by combining in the models beauty of form and proportion with utility . . .

5. Every model should be so constructed that it can be drawn by the pupils themselves, not copied or traced . . .

6. For children who are old enough for the regular sloyd, it is believed that the knife should be the first and fundamental tool. (pp. 600-601)

In this report Larsson pointed out a "radical difference" between the Russian system and sloyd. The former was based on teaching the use of specific tools by completing exercises or making incomplete articles without attention being given to the individual needs and capacities of the child. Sloyd, on the other hand, used the Froebelian idea of harmonious development in children. According to Larsson (1893):

The sloyd teacher does not say, "Now I will teach this boy to saw, and he shall continue to saw until he can saw well," regardless of monotony of the too prolonged use of the same muscles. The problem of the sloyd teacher is to find the tool whether knife or saw or plane, and also the series of exercises, best adapted to the present need, not of man, but of the average pupil; and also to vary or alternate the tools and to graduate the exercises with constant reference to the growing capacity, the formative age, and to the various activities of body and mind. (p. 601)

Other strengths of sloyd over the Russian system mentioned by Larsson (1893) were:

1. prominence of form study of the object,
2. greater variety of exercises,
3. importance of using the completed model,
4. importance of the teacher being a trained educator.

Larsson believed it was much more important for a sloyd teacher to be a trained educator than one with great manual skill. He considered the instructor's ability to teach and to understand the capacities and needs of children to be paramount.

In contrasting and comparing sloyd to other systems it is interesting to note that it was advocated and implemented mostly in grades five through eight. This gave support to Larsson's argument that sloyd was general education. He believed, though, that it should be expanded into the lower grades and into high school (Larsson, 1906, p. 169).

Larsson considered Woodward's form of manual training to be vocational education and suggested these improvements for the secondary schools: "Let the present manual training high schools be converted into vocational schools for children over seventeen years of age



and establish a manual training laboratory in every high school building as an organic part of the school curriculum” (1906, p. 173). His strong feelings against vocational education in the regular school program were apparent when he discussed the general education idea of secondary schools. He believed that schools should always adapt “methods to the individual’s need rather than specializing or trying to further the prevailing industries in certain localities through the children in secondary schools” (1906, p. 171).

Larsson’s belief that sloyd teachers should first be trained educators was implemented by the founding of his sloyd training school in Boston in 1890. Candidates for the school had to be experienced and qualified teachers. In addition to their actual sloyd training they received additional instruction in educational theory (Bzowski, 1970, p. 152-154).

It is generally believed that the decline of sloyd as a form of manual training during the first decade of the twentieth century can be attributed to two principal factors. First, much of Larsson’s argument for it as a component of general education was based on a belief in faculty psychology. New theories explored earlier in this chapter were causing educators to change their opinions about what constituted a good learning environment. The rigidity of Larsson and many sloyd teachers in holding to the graded series of models also caused considerable criticism of the system. Larsson was very rigid in his belief in the use of teacher designed models for “mental and moral development secured by exercise of the creative faculty.” To significantly modify his original argument would have been an admission that the theory underlying sloyd and sloyd itself was defective. This has been difficult for most innovators to do.

### Arts and Crafts

The arts and crafts movement found its way to this country from England in the early 1880’s when Charles Leland introduced the idea in the schools of Philadelphia. He considered some of its important features to be the development of an understanding of artistic design, practical skill development for leisure time and profitable purposes, the revival of artistic pursuits being eliminated by industrial machinery, and the suitability of decorative art to the abilities and interests of children as opposed to trade or mechanical studied (Bzowski, 1970, pp. 174-181).

Subjects included in the arts and crafts studies included drawing, wood carving, clay modeling, mosaic work, leather carving, metal embossing, embroidery, carpentry, wood turning, wood inlaying, and fret sawing. A distinct characteristic of this movement was the freedom given to students in the selection and designing of projects.

The arts and crafts movement did not have an important impact on manual education until its leadership was assumed by J. Liberty Tadd

who developed a system based on a combination of faculty and child-centered psychology. Tadd advocated a procedure that took students through designing on paper, followed by clay modeling of the designs, and then carving the student designs in wood (Bzowski, 1970, pp. 181-184).

The movement continued to include many of the crafts mentioned earlier. Its popularity was sustained into the early years of the twentieth century through the efforts of various arts and crafts societies throughout the country. The interest began to wane as the public became more concerned with industrial skill development training (Bzowski, 1970, pp. 187-206).

### Manual Arts

The term *manual arts* is very difficult to isolate and attach to a specific program. Unlike manual training and sloyd, it was not used originally to refer to a specific system of instruction. The term *manual arts* was first used for several different purposes. Later it came to represent a revised form of manual training. Charles A. Bennett, who is considered the "father of manual arts," reported that the first use of the term was by John Clark of Boston in 1881 to refer to manipulative processes in dealing with raw materials. In 1893 Bennett was responsible for naming the new building for the departments of "form study and drawing" and "mechanic arts" at Teachers College, Columbia University, the Macy Manual Arts Building (1914, pp. 308-309).

Bennett (1914, p. 309) further wrote that soon after James Haney became supervisor of manual training for New York City in 1896, he assumed responsibility for the city's drawing courses. At that time he renamed the department, Manual Arts. In 1897 Bennett became Dean of the new Department of Manual Arts at Bradley Polytechnic Institute at Peoria, Illinois, which included instruction in drawing, design, wood, and metal.

Before he left Teachers College, however, Bennett was beginning to articulate a new direction for manual training. At the 1896 annual meeting of the NEA, Bennett (1896) discussed the neglect of the "aesthetic principle" in manual training. He advocated "free as well as mechanical" drawing and "beautiful as well as useful" objects for construction. He aptly stated that "manual training should touch the child's nature on the side of the feelings as well as on the side of the will" (p. 786).

Bennett (1896, p. 789), in his NEA presentation, urged that all colleges preparing manual training teachers should include in their courses of study applied design, both constructive and decorative. He concluded that if teachers were thoroughly schooled in design they could be safely trusted to encourage their students to design. This was

not idle philosophizing on the part of Bennett because the following year he became Dean of just such a program at Bradley.

By 1903 Haney was describing a new kind of unified program for the elementary school in the manual arts. Speaking at the NEA annual meeting on "Manual Training Versus Manual Arts", Haney pointed out that both manual training and drawing had been based on theories of hand and eye training. He related that in the past decade the philosophy of elementary education had been "revised and rewritten." Based on these new philosophies of education, Haney felt the manual arts must be different:

Upon the child's instincts the course must be founded, and about his interests it must revolve. Motor education must clearly become a part of general education, and preparation and realization in school studies be brought close together. This is in measure but a restatement of the philosophy of the kindergarten. The very present, indeed, is witnessing in motor training a reversal of the process of downward development from the kindergarten. Manual-training ideals have necessarily been much affected by these changes. (pp. 659-660)

Haney (1903, pp. 661-662) saw an "intimate relationship" between all forms of drawing, design, and construction which had a definite educational means working toward a common educational end. In contrasting manual arts to manual training and sloyd, Haney stated there was not a "uniform series of models to be repeated in a dozen different cities." Materials of construction mentioned by Haney were string, yarn, clay, raffia, paper, leather, wood, and metal.

Bennett later reported what he considered to be the successful combining of the drawing and manual training in the profession:

They have now become so unified that they are properly designated by the single term Manual Arts. And this development has not been merely the bringing together of the two original fields of work, but rather, the broadening and enriching of both, so that the term Manual Arts stands for more than was meant a few years ago by both drawing and manual training together." (p. 189)

By the following year, 1908, Bennett had outlined a classification system for elementary school manual arts which included five major areas: the graphic arts, the mechanic arts, the plastic arts, the textile arts, and the book-making arts.

The graphic arts included all forms of drawing, both mechanical and freehand. The mechanic arts were limited to wood and metal while plastic arts included brick and tile making, concrete, pottery, terra cotta, and modeling. Textile arts encompassed spinning, weaving, braiding, dying, basketry, knitting, sewing, embroidery, and garment making. Bennett included printing, engraving, lettering, leather tool-

ing, book-binding, and other artwork with paper under book-making (Bennett, 1908, pp. 154-156).

There is no evidence that this particular classification gained a large degree of acceptance in the profession, however, it did appear again in Bennett's book *The Manual Arts* published in 1917. The idea of integrating drawing and design with construction activities made much more of an impact on the profession.

### Industrial Arts

Like manual arts, the term *industrial arts* preceded any meaningful definition or new curricular change with that title by several years. Actually, the term originally proposed by Charles Richards in 1904, was *industrial art* but he has generally been given credit for the term in the plural as it became commonly used. Richards (1904), while serving as an editor of *Manual Training Magazine*, suggested in an editorial that it was time for the profession to rid itself of the name manual training. He stated:

It is no longer merely a question of improving an indefinite title, but of replacing one that is inappropriate and incorrect in its implication . . .

Now that we are beginning to see that the scope of this work is nothing short of the elements of the industries fundamental to modern civilization, such a term becomes at once a stumbling block and a source of weakness . . .

The writer proposes the term . . . industrial art. Such a term indicates a definite field of subject matter. The word Art is inclusive of both the technical and aesthetic elements, and the qualifying word points specifically and comprehensively to the special field of our material. (pp. 32-33)

The cited passages suggest that Richard's editorial gave the profession more than the name, industrial arts. He specifically spoke of the content for the field being drawn from industry. Rapid changes in elementary education at the time, particularly inspired by Dewey's work, brought the term *industrial arts* to life. Richards' superior, Dean James Russell of Columbia, and an elementary teacher educator Gordon Bonser were most influential in interpreting Richards' ideas. There is some indication that the Russell/Bonser theories went further, if not in a different direction, than Richards would have liked. However, he had left Columbia by the time they were made public.

Russell first published his statement on *The School and Industrial Life* in 1909. In it he maintained that, by and large, elementary education had become too "bookish." He suggested that *economic* as well as *humanistic* and *scientific* studies should be included in the general education curriculum of the elementary school. Russell described economic as "the study of industries for the sake of a better perspective on man's achievements in controlling the production, distribution, and con-

sumption of the things which constitute his natural wealth" (1912, p. 6). He further stated that the *facts* about these processes constitute the subject matter of industrial arts. He advocated studies in many subjects to help understand the industries but concluded that "the chief consideration in the course of study is the ordering of the industrial processes by which raw materials are transformed into things of greater value for the satisfaction of human needs" (p. 11).

Russell, following Dewey's philosophy, saw industrial arts as the basis for the elementary school program. He said that manual training, fine arts, domestic art, and domestic science should be dropped in favor of the elements of industries, or industrial arts (1912, p. 17).

Russell's concept of industrial arts was limited to the elementary school where it was to be a part of all children's education. He advocated specialization in the academics for those going to college and vocational education for those who were to become "artisans or farmers or tradesmen," education that was to begin in the seventh grade (1912, p. 5).

Bonser arrived at Teachers College in 1910 and immediately began building upon Russell's treatise of the previous year, calling upon his past practical experience as director of the Training School at Western Illinois State Normal School. At Western Illinois he was responsible for developing an experimental program using the Dewey philosophy and wrote several articles explaining his position on industrial arts for the elementary school (McPherson, 1972, pp. 114-128).

Bonser's ideas were very similar to those of Russell even while Bonser was at Western Illinois. This was not altogether coincidental since Bonser had spent a year at Columbia previous to accepting the position at Western Illinois.

Although developed several years earlier, Bonser's classic definition of industrial arts was stated in 1923 as follows:

The industrial arts are those occupations by which changes are made in the forms of materials to increase their values for human usage. As a subject for educative purposes, industrial arts is a study of the changes made by man in the forms of materials to increase their values and of the problems of life related to these changes. (p. 5)

Russell and Bonser's concept of industrial arts was a new approach in the field. A study of manufacturing industries was a base and the goal was to develop an understanding on the part of *all* children about the functioning of our industrial society. Even to this day it has created much excitement and given much direction to curriculum development in industrial arts. One disadvantage or drawback has been its nearly exclusive references to the elementary school. Russell and Bonser advocated vocational education in the secondary school and confined their discussions of industrial arts to the elementary school. Many

practitioners have found it difficult to make the transition and apply Russell's and Bonser's philosophies to industrial arts programs that have traditionally been established in the secondary schools.

### **Vocational and Prevocational**

To deny that vocational education has influenced what industrial arts has become is to deny reality. The preceding chapter has dealt extensively with this influence; thus it will only be briefly reviewed here.

As the vocational movement began to gather momentum in the early 1900's the advocates were not content to show the place for their new form of practical education without calling for the eradication of manual training. As would be expected, this tended to put many in the profession on the defensive. One reaction was for some leaders to show how manual training could serve vocational purposes. This view was probably more prevalent in the Midwest and in the smaller school districts of the country where manual training was serving both general education and vocational roles. In practice, the outcome of such dual purpose programs undoubtedly served vocational interests much better than it did general education interests. While not entirely satisfactory to either, these vocationally oriented programs tended to move manual training, and later industrial arts, toward a trade-skill-development emphasis.

Some notable leaders in the vocational movement viewed the primary role of manual training and industrial arts as prevocational education. Its purpose was considered to be an orientation program for those students who would later enter trade training programs.

The influence of vocational education and the prevocational objective of many industrial arts programs had a very definite impact on the field of industrial arts. It moved the emphasis toward job or trade training, particularly in the material areas of woods and metals plus drafting, and away from its role as general education.

### **Teacher Education Institutions**

In the history of the field there have been several pioneering institutions in the evolution of "traditional" industrial arts that deserve special mention. Teachers College, Columbia University, mentioned earlier in this chapter, evolved from the social reform beginnings of the Kitchen Garden Association. After the Kitchen Garden Association reorganized as the Industrial Education Association in 1884, its major project soon became the professional training of industrial education teachers — the first such attempt to do so in the United States. Charles Richards served as one of the first instructors in the school from 1885-1888 before moving to Pratt Institute.

Notable changes began to occur in 1891 with the hiring of Charles A. Bennett as head of the Manual Training Department. Bennett immediately set out to make several major changes. One change was to rid the faculty of skilled mechanics and to only employ men with technical training, successful teaching experience, and an interest in a "study of modern pedagogy" (Bennett, 1947, pp. 24-25). Bennett was concerned that the college develop a high standard of instruction and that manual training teachers attain social prestige equal to that of academic teachers (Hammer, 1962, p. 54).

Bennett established the first two-year program leading to a diploma in manual training teaching in 1893. In 1896 the first graduate course and the first professional summer program in manual training in the United States were offered.

In 1898 Charles Richards returned to head the department of manual training at Teachers College. In this position of leadership, he advanced the field of manual training by graduating many future leaders, serving as an editor of *Manual Training Magazine* for eight years, suggesting the new name for the field, and with James P. Haney organizing the National Society for the Promotion of Industrial Education in 1906, an organization that eventually became the American Vocational Association (Bawden, 1950, pp. 15-25). It was evident that the concepts of manual training and vocational education were coexisting quite harmoniously at Columbia at the time, but this was not to last for long.

By 1910 the Department of Manual Training had become the School of Industrial Arts. Bonser arrived in 1910 as Professor of Education. Though he was not an industrial arts educator, Bonser's writing, speaking, and experimenting with industrial arts in the elementary school soon made him the best-known figure at Columbia in the field of industrial arts. Many future leaders in the field had courses with Bonser (Bawden, 1950). In 1928 William E. Warner, under the guidance of Bonser, was the first person to earn a doctoral degree in industrial arts (Buffer, 1979, p. 294).

As was pointed out earlier, Dean Russell and Bonser's concepts of industrial arts were very closely aligned. The Speyer School, an experimental school of Teachers College, was operating at the time of Bonser's arrival under a "social efficiency" philosophy. Bonser became director of the school and immediately began implementing the Russell/Bonser "Industrial Social Theory" through industrial arts at the school. This program continued until 1914 and is one of the most famous of all pioneering curriculum development projects in the field of industrial arts.

The closing of the Speyer School in 1915 could be attributed, in part, to a serious split developing within industrial education. For several

years there had been a move to make vocational education a part of the public school system. Among its advocates were those who envisioned vocational education coexisting with manual training or industrial arts. Others advocated the complete elimination of the latter in favor of vocational education (Bawden, 1950, p. 174).

David Snedden was one who favored the elimination of manual training and industrial arts (Evans, 1979, pp. 414-415). Snedden was a professor of Education at Teachers College from 1905 to 1909. He was the Massachusetts State Commissioner of Education from 1909 to 1916, then returned to Teachers College until his retirement in 1935. While in Massachusetts in 1914, he prepared the *Alumni Trustee's Report: Preliminary Report on the Speyer School and Industrial Arts Courses in Teachers College* in which he was critical of the program. Snedden reported, "It is a question of whether the experimental work as carried on has been of a sufficiently definite and prearranged character as to ensure satisfactory results" (Cremin, Shannon & Townsend, 1954, pp. 48, 105).

When Charles Richards left Teachers College in 1908, several changes began to occur. Russell, and later Bonser, began to emphasize the elementary school industrial arts program and advocated vocational education above the grammar school level. Snedden, advocating the elimination of all such work in favor of vocational education, remained there one year after Richards left. These events were the cause of much concern by alumni of Columbia and other manual training leaders throughout the country. An important reaction to these events will be explored in a later section of this chapter.

McPherson (1972) reported on a series of letters which disclosed a change in emphasis of the industrial arts teacher preparation program at Columbia in 1915. William Bawden, Managing Editor of *Manual Training and Vocational Education* and Specialist for Industrial Education, U.S. Bureau of Education had received information from a professor at Teachers College that changes were in the offing in the Industrial Arts Department. Bawden was an alumnus of Teachers College and in 1914 had been made General Chairman of the Mississippi Valley Conference (to be discussed later). He was an influential leader in the field of industrial education and in writing to Dean Russell he inquired about the rumored changes and stated:

If I understand what is involved, you are taking a step that will prove to be of considerable significance to education in this country. A brief statement from you would be read with the greatest interest, and I should appreciate very much the opportunity to bring such a statement to the attention of a large number of persons vitally interested who would see it in the columns of *Manual Training and Vocational Education*. (McPherson, 1972, p. 264a)



Dean Russell responded about two weeks after the inquiry in part as follows:

With the development in the field, and particularly with the increased attention to vocational education, it has come about that teachers of shop work are expected to be skilled mechanics as well as teachers. We do not have the equipment, nor is it in accord with our plans, to specialize in the training of class-room teachers in this field. Consequently we have decided to abandon all shop work of a highly technical or vocational character. In the future our rooms, equipment and endowment will be devoted to the strengthening of our work in industrial arts for the elementary and junior high schools, and the elaboration of our offering to graduate students . . . (McPherson, 1972, p. 265)

It appeared from the letter that Russell and Bonser were putting into practice their ideas regarding industrial arts and vocational education. Bawden and others who were strong advocates of manual training (industrial arts) in the secondary schools were less than pleased with this development. Included in Bawden's rather caustic reply were the following statements:

Last week I attended a conference of the leading men in the field of manual arts from the Mississippi Valley. . . . I believe you would have been tremendously interested if you could have been present and heard the reaction of these men. There seemed to be general agreement, among those who have known something of the inside history of Teachers College for the past five or six years, that this action is the logical outcome of other events which have preceded. There seemed to be general agreement also, among the Teachers College men present (alumni), that Teachers College is likely to suffer from the results of this action. (McPherson, 1972, p. 267)

As the size and reputation of the Teachers College graduate program grew, another drastic step was taken. The School of Industrial Arts had, some years previously, been combined with others to form the School of Practical Arts. In 1925 the entire four-year undergraduate program in the School was discontinued. Thereafter, the School was a graduate program "concerned with the advanced professional training of educational leaders in eight fields of technical education" (Cremin et al., 1954, pp. 64-65, 78-79).

Teachers College had a rich history in contributions to industrial arts. It was the first institution to offer professional teaching courses in the field; it was the site of several innovations in industrial arts curriculum; it was the first school to confine its offerings in industrial education exclusively to graduate courses; and it graduated the first doctorate in industrial arts and many other doctorates with major interests in industrial arts over an extended period of time.

Bradley Polytechnic Institute is another school that must be considered in any discussion of pioneering institutions in industrial arts.

Another name that must be considered synonymously with Bradley is Charles A. Bennett. Bennett working actively for forty-one years from Bradley and his publishing businesses had a profound influence on "traditional" industrial arts.

In 1897 Bennett was hired for the position of Dean of Manual Arts at the new Bradley Polytechnic Institute in Peoria, Illinois. The institution was organized as a six-year school with four years of high school and two years of college. Students could major in science, engineering, classics, literature, and mechanic arts (Hammer, 1962, pp. 89-97).

During the first years there was no manual arts teacher training. In 1904 Bennett instituted such a program during the summer school and found students very interested when fifty-five enrolled. By 1909 it was expanded to a two-year program, and in 1912 it became a three-year course of study. This was followed in 1915 by the granting of B.S. degrees in manual training teaching (Hammer, 1962, p. 98).

It is also significant to note that vocational programs were started at Bradley in 1911. The program grew rapidly and, following the passage of the Smith-Hughes Act in 1917, Bradley instituted a vocational teacher preparation program (Hammer, 1962, pp. 99-101).

Bennett's continued concern was for professionalizing manual arts teachers. This was evident at Bradley where, by 1919, sixteen professional courses plus a thesis were part of the program (Hammer, 1962, p. 108).

Bennett founded two important professional organizations in his early years at Bradley. The first was the Illinois Manual Arts Association on which Bennett served as President during its first two years (Hammer, 1962, pp. 113-114). Interestingly, this group was founded by Bennett in the winter of 1904 before the first summer school courses were offered at Bradley for manual training teachers. This began to establish Bradley as a center for professional manual arts even before the first course had been offered.

The second organization founded by Bennett was the Manual Arts Conference more commonly known as the Mississippi Valley Conference. This limited-membership group of teacher educators from the Midwest was founded as a forum for discussing various topics of concern to them. Many of the early leaders of industrial education were members of this organization. (A history of the Mississippi Valley Conference is detailed in the 1979 ACIATE Yearbook in a chapter written by Rupert Evans, its current General Chairman.)

Other positions in which Bennett served while at Bradley included President of the Manual Training Department of the NEA, President of the Western Drawing and Manual Training Association, and President of the Vocational Education Association of the Midwest.

Soon after arriving at Bradley, Bennett founded the first professional journal in the field, *Manual Training Magazine*. Bennett served

as senior editor from its founding in 1899 to 1939 when it ceased publication due to his failing health. He maintained high standards for the magazine and soon after its inception he recruited a distinguished group of assistant and associate editors from the profession to help assure that this quality was maintained.

In 1903 the Manual Arts Press was founded by Bennett to publish the *Manual Training Magazine*. The Press soon expanded to book publishing and published the first textbooks specifically for the field. The company, under Bennett's name, remains as an important publisher in industrial arts today.

Bennett wrote several hundred articles and editorials for journals, in addition to eight books including the important two-volume history of industrial education. Bennett resigned his responsibilities at Bradley in 1919 to devote full time to publishing. However, he continued to be associated with Bradley on an informal basis, occasionally teaching courses.

Bennett's, and thus Bradley's, philosophical position on manual arts centered on an application of Dewey's philosophy relating to individual differences of children, school reflecting the society with real life experiences, and manual arts being an essential part of general education. Drawing, design, and student decision making were important components. The advocacy and application of this philosophy was directed toward high school manual training courses as contrasted to Russell and Bonser's elementary school emphasis at Teachers College.

At Bradley, manual arts and vocational education were both considered important partners in the secondary school system. Bradley had special laboratories for each and prepared teachers for both manual arts and vocational education.

Stout Institute is a third institution that had a tremendous influence on the evolution of industrial arts. It was reorganized in 1903 from a privately-supported manual training school to a school for the preparation of manual training and homemaking teachers. Stout maintained this two-area specialization until the 1950's when additional program areas were added. It soon grew to be, and remains today, one of the largest producers of industrial arts teachers in the country.

Not long after its reorganization as a teacher preparation institution, Stout also began a trade school department. George Buxton (1912), Director of the Manual Training Department at Stout, indicated that courses in the following trades were being offered: "cabinet making, carpentry, wood turning, pattern making, forging, foundry practice, machine shop practice, bricklaying and cement work, plumbing and heating, printing practice, architectural and machine drafting" (pp. V-VI). Though these courses were being taught to high school boys at Stout, its rapidly growing teacher training mission developed a

similar specialization of instruction that contributed to the development of a unique form of industrial arts teacher preparation.

The systematic teaching of trades at Stout, plus the large student body, contributed to one of the most specialized and skill-oriented teacher training programs in the country. This was later "legitimized" by the trade and job analysis method of deriving course content. The tremendous numbers of Stout graduates who have dispersed throughout the United States, particularly from the Midwest to the West coast, have had a profound influence on "traditional" industrial arts.

While many other institutions could and probably should be described in this section, space limitations prohibit such other descriptions. Teachers College with Bonser and Russell's theories and its graduate program, Bradley with Bennett's manual arts orientation and publishing influence, and Stout with its skill orientation and large numbers of undergraduate students must be considered among the most influential institutions in the development of industrial arts.

### **Some Major Events, Actions, and Reactions**

There have been several events, actions, and reactions that could be considered turning points in the evolution of industrial arts. The development of the various movements discussed earlier are, of course, some of the most important, but there are others that are also significant.

**Bennett's Reaction to Structure.** When Bennett moved from a manual training school in St. Paul to New York City he realized that he was not only expected to be a good teacher but that he should also be able to explain to his teacher education students *why* what he did was sound instruction. He was bothered by both the Russian and Swedish systems because of their rigidity. In his partially-completed autobiography Bennett (1947) wrote:

Experience in working with many different boys had caused me to doubt the wisdom of organizing manual training handwork problems into a single rigid course of exercises and joints taught by class instruction methods . . .

I had begun to recognize "individual differences" in their pedagogical significance. I was beginning to see that a teacher could not and should not try to bring all pupils of a given class up to the same high standard of technical skill in performance. (p. 33)

He reported that "pupil interest" was beginning to take an important place in his thinking. From this thinking, Bennett developed a more flexible plan of instruction that took into account the individual differences of students. This was a significant milestone, particularly since it was accomplished by one who was later to profoundly influence the profession as a curriculum developer, speaker, writer, and publisher.

**Exhibits at the Columbian Exposition, 1893.** The Columbian Exposition held in Chicago in 1893 came at an exciting time in the develop-

ment of education. The NEA held meetings in conjunction with the exposition, which were attended by educators throughout the country and the world. There were at least fifteen exhibits relating to manual training, including one from Teachers College, showing some of their recent innovations in the teaching of manual training (Official Catalog, 1893). Bzowski (1970, pp. 276-278) related that the new developments in psychology and child development plus the interest given the manual work exhibits ushered in a new era for manual activities in public schools.

**James Russell's Assessment of Manual Training in 1909.** Dean Russell's plan for a new elementary school industrial arts program, as outlined earlier in this chapter, was indeed revolutionary. It was based, to some extent, on a reaction to what he had observed happening in manual training. His proposal, first published in *Educational Review* in 1909, was not particularly kind to manual training of the day:

Under the combined influence of pedagogical needs and public demands, the content of our manual training courses has been radically changed within the past decade. . . . Absurd as it may seem when one reads over a list of manual projects actually put before our children in school, there has been consistent progress along two lines: (1) in the usability of the completed article, and (2) in the design and artistic finish given to it. The difficulty of children's making really usable things contrasted with the ease of executing artistic design has largely changed the character of manual training within the past ten years. In fact, manual training today is little more than applied design. (1912, p. 4)

In reference to the manual arts' concern for useful projects of interest to students and the application of artistic design, this observation by Russell was probably less than enthusiastically received by many in the profession.

**Bennett's Reaction to Russell's Proposal.** A response by Bennett (1910) to Russell's proposal was not long in coming. His editorial in the *Manual Training Magazine* two months later took issue with Russell's thinking:

He (Russell) more than implies that in manual training there is nothing definite to teach nor is there a consistent way of teaching it . . . . A manual training course that is based upon or has running thru it a rational analysis of tool processes fundamental in the industries cannot fairly be said to be either incoherent or unorganized . . . . While it is true that applied design has come into manual training in America during the past few years . . . it certainly ought not to be true that it is taking the place of the fundamentals that were there before. (pp. 262-263)

Not only did Bennett defend his form of manual training, but he also attacked Russell's industrial arts proposal as unsound:

Probably most teachers of the manual arts will agree with Dean Russell that in the first two or three grades all the subject matter of the school should be served in one large dish, as it were, like a New England boiled dinner of our youthful days, rather than in Frenchy dishes *table d'hote*, but there comes a time when it is more appetizing to separate the instruction into subjects. As the work advances from grade to grade it becomes more and more separated, more specialized, and we believe that before the seventh grade, even before the fifth, manual training and drawing, or the manual arts, or handwork, is best considered as a fundamental division of subject matter. (Bennett, 1910, p. 261)

The two opposing viewpoints contributed greatly to the polarization of philosophies in the field. This exchange occurred seventy years ago, and there remains considerable evidence that these two points of view are both still prevalent today.

**Midwestern Reaction to Eastern Ideas.** In the years immediately preceding Russell's publication of his famous proposal some midwestern teacher educators were becoming concerned with developments in the field. In 1908 Robert Selvidge, University of Missouri, was on leave to pursue an advanced degree at Teachers College. He wrote to Bennett and suggested that a group of teacher educators should get together to talk over some alarming trends regarding the preparation of manual arts teachers. Bennett (1929) recalled that the pressure to replace manual arts with vocational education and the demand for a new type of work in the elementary schools were two of several reasons why "the men in the Middle West who were chiefly responsible for training teachers of the manual arts should get together and talk things over" (pp. 7-9).

The first meeting was held in November, 1909, in Peoria, Illinois. One item of interest examined and discussed at the meeting was proof-sheets of Russell's proposal for industrial arts, which was to appear the following month in *Educational Review* (Bennett, 1929, p. 8). No mention was made of how these proof-sheets were obtained.

Bawden (1950) suggested another reason for the concern of the Midwesterners was that the leadership of the National Society for the Promotion of Industrial Education (vocational education) were "ignorant of and indifferent to" interests of the middle west. Furthermore, some of these eastern leaders wanted to eliminate manual training from the schools entirely (p. 174).

The Mississippi Valley Conference has continued to meet annually and has operated, in many ways, like a closed professional fraternity. The group wielded much power for many years. The institutions represented prepared a large number of industrial arts teachers. Many, if not most, of the early texts in our profession were written by members of this association. For the first thirty-three years of its history, the

Charimen were Bennett and Bawden, publisher and editors of *Manual Arts Press* and *Manual Training Magazine*.

**Trade and Job Analysis.** The job analysis technique of determining content for trade training became a popular method of structuring vocational course content during the 1920's and thereafter. The technique enables the essential elements of an occupation or job to be identified and listed for instructional purposes. Through the years it has regularly been applied to course construction in industrial arts.

Many defenders of industrial arts as general education have not agreed with the use of job analysis as a curriculum development tool. Ray (1977) summarized this position as follows:

Although trade and job analysis was appropriate for the planning of industrial-vocational courses, it was totally inappropriate for the development of programs of study for industrial arts. As a result of the overwhelming influence of the efforts of such early leaders as Allen, Selvidge, and Fryklund, many industrial arts courses have developed as limited, narrow imitations of trade training . . . . For the past fifty years, the study of industry and technology (through industrial arts) has been, in the main, limited by courses which focus on the operations performed by a very few craftsmen in the production segment of industry. (p. 124)

Fryklund (1942) saw very little difference between industrial arts and vocational education. In fact, he reported that the only difference between "good" industrial arts and trade education was in the amount of time spent in the shop and the fact that trade teachers needed trade experience. He considered his analysis technique to be a way of making industrial arts "practical and thus giving it salable value. It is a step leading away from puttering which is so characteristic of industrial arts in the early years of schooling" (pp. 34-35).

With this lack of real differentiation between industrial arts and vocational education coming from among the top leadership of the profession, it is easy to see why the practitioners and the public were confused. And, if they had no other orientation or philosophy with which to compare it, it was often blindly implemented.

The trade and job analysis technique was also the method used to develop course content in the American Vocational Association publication *Standards of Attainment in Industrial Arts Teaching*. It was published first in 1929 and continued through ten printings without a major revision until 1953. This publication probably wielded more influence with teachers and administrators than any other during this period.

Selvidge and Fryklund were both members of the Mississippi Valley Conference for many years. The perpetuation of trade and job analysis can probably also be attributed in part to the Conference. Evans (1979) reported that:

Those industrial arts educators who were believed to de-emphasize skill development and who sought a basis for industrial arts content any place but in trade and job analysis also came in for considerable criticism during the 1940's and 1950's. (p. 416)

Fryklund served as General Chairman of the Conference from 1946-1961. He also served as President of Stout from 1945-1961.

## CONCLUSION

Industrial educators can look with pride to the fact that at the turn of this century and thereafter, the profession has been at the heart of many of the social and educational reform movements. Industrial arts educators owe much to such leaders as Jane Addams, Francis Parker, John Dewey, Felix Adler, James Russell, and Gordon Bonser.

Tremendous changes were occurring in society. Cities were developing with problems that this country had never before experienced. A form of large industry was evolving which had no equal in the world. The industrial arts profession, in its infancy, was being called upon to provide a new form of education to help acclimate the youth of this country to the rapidly changing society. To say that the field of industrial arts has had growing pains would be an understatement. The philosophical and psychological bases of education were changing. Many of the early leaders were not trained educators; thus they were developing a new discipline while acquiring knowledge of pedagogy at the same time – not an easy task.

The subject of this study, generically referred to as industrial arts, was significantly influenced by six major movements. These were manual training, sloyd, arts and crafts, manual arts, industrial arts, and vocational education. Each of these had a specifically identifiable structure. Many misunderstandings have occurred over the years, both within and outside the profession, because all of these movements but one have experienced broad misuse of their names. Only sloyd has not been subjected to this problem, probably because the word is foreign to the English language, making it more difficult to distort its meaning.

In identifying characteristics of the movements, it was found that even though manual training and sloyd were quite different, they were both based on faculty psychology. This theory was discredited in education circles in the late 1800's, leaving these two systems in disfavor, and this eventually caused their methodology to be discarded or changed. However, the term *manual training* did not die with its methodology! This was one of the most troubling problems the field faced in the first decades of the twentieth century. To some extent, the same problem occurred with the term *manual arts*.



During the manual training, sloyd, and manual arts era, programs were nearly universally established in high schools. With the introduction of industrial arts as advocated by Dewey, Russell, and Bonser the profession was faced with a serious dilemma. A sound, defensible definition of industrial arts had been provided, but the proponents advocated its application to the elementary school. And furthermore, it was to be integrated and correlated with the other school subjects. The profession and most of its programs were based in the high school, which was departmentalized and did not lend itself well to the methodology being proposed.

Much of manual training and manual arts had been vocationally oriented as was discussed in Chapter 5. Before vocational education became federally funded, these programs often served a trade training purpose. They were able to “be all things to all people” in spite of their stated objectives. The programs with the strong vocational emphasis were often left without a legitimate purpose in the school after the passage of the Smith-Hughes Act in 1917.

In the early decades of this century, the profession was adopting the new name, *industrial arts*. It sounded right for the time since machines were being used in most laboratories. In many cases, the new *definition* was, also, being adopted. But since the implementation models and literature about this new program were directed toward the progressive elementary school, the profession looked elsewhere for a system to derive content. Trade and job analysis was the perceived answer. It could be easily understood and applied to the existing high school model. One may want to contemplate where the profession would be today if Russell and Bonser had targeted the secondary school as the appropriate place for industrial arts and had applied their implementation efforts there.

The term *traditional* industrial arts has been used in this chapter but it has not been defined. Webster defined *traditional* as “an inherited pattern of thought or action.” However, this definition is only partially helpful for understanding the meaning of *traditional* industrial arts. A more complete understanding may be gained from the diagrams which follow. These attempt to show what has become the “inherited pattern of action” of industrial arts.

Bennett (1937), in his *History of Manual and Industrial Education*, concluded that:

In the term industrial arts, the “industrial” is emphasized; while in manual arts, the “arts” is historically the distinctive word and, in the term manual training, “manual” is the important word. (p. 455)

The three words – industrial, arts, and manual – as used by Bennett have been placed on a continuum in the three accompanying figures. Figure 6-1 shows approximately where each of the major movements

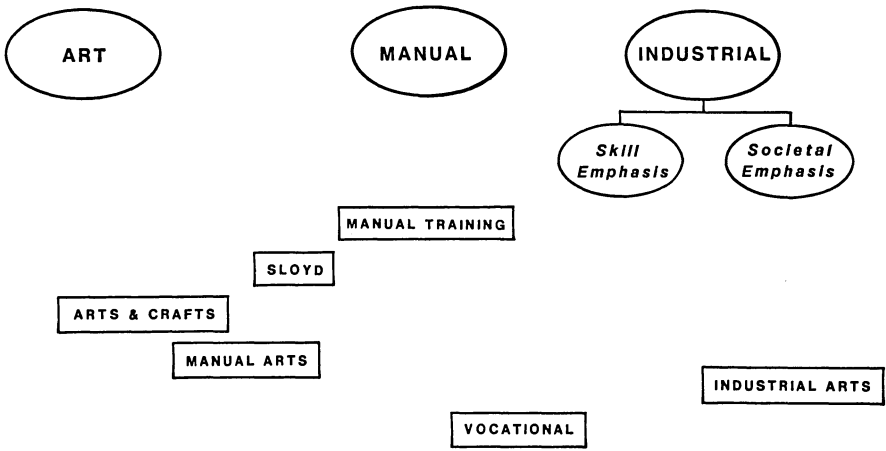


Fig. 6-1 — Location of each of the major movements in industrial arts as conceived by their founders and located on a continuum in relationship to the Art, Manual, and Industrial influences.

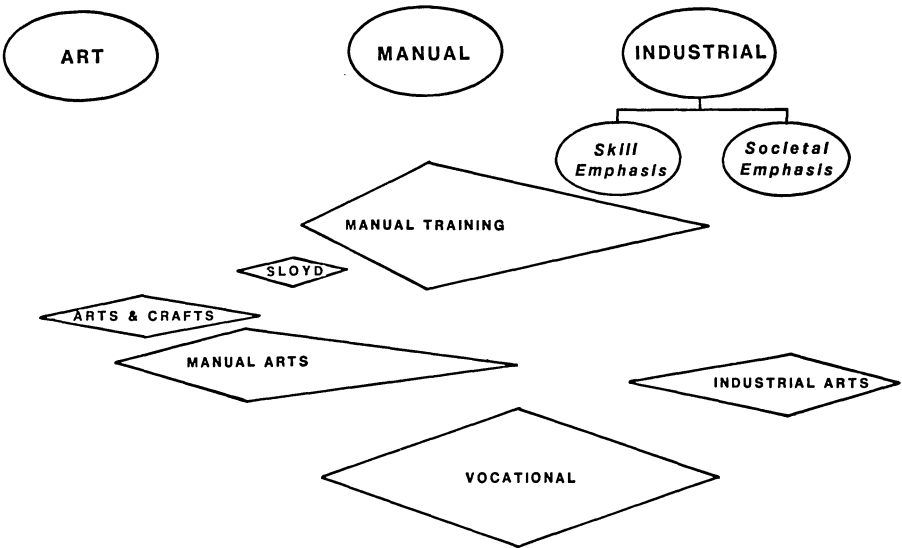
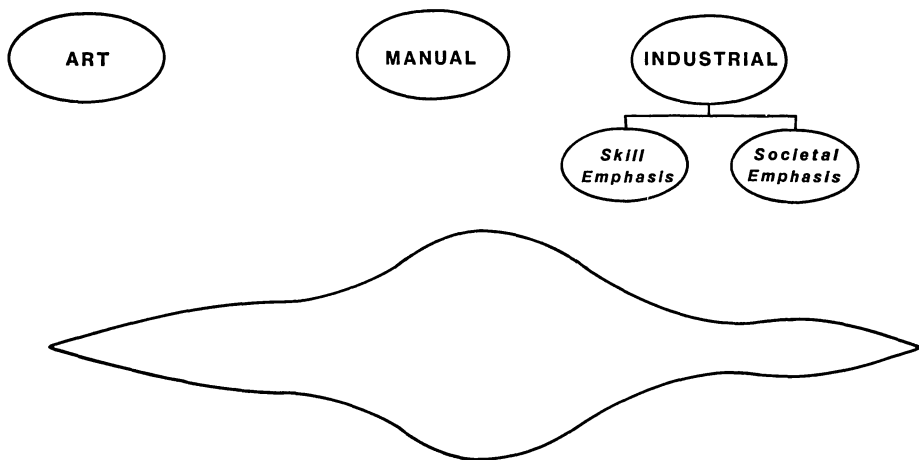


Fig. 6-2 — How each major movement in industrial arts has been implemented in relationship to the Art, Manual, and Industrial influences.



**Fig. 6-3 — The combined major movements in industrial arts showing our “inherited pattern of action.”**

fits in relation to the three terms as they were conceived by their founders. Figure 6-2 attempts to show approximately how each movement was implemented and to what extent its original meaning was altered by practitioners. Our “inherited pattern of action” or “traditional” industrial arts is shown in Fig. 6-3 as a combination of all the major movements.

The quote that opened this chapter seems to be a fitting close for it, also.

Men are quick to adopt and use mechanical inventions once they are made known; yet they are slow to change their social institutions . . . .  
(Edwards and Richey, 1963, p. 412)

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# Industrial Arts Redirected

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## THE SETTING

According to the United States Bureau of the Census (1966, p. 119) at the turn of the century the U.S. population was approximately 75,000. Then, the school year averaged 144 days of instruction, and only 6.4 percent of seventeen-year-olds were enrolled in school. The main means of transportation were foot, horseback, or horse-drawn carriages. Life was relatively simple, and an agrarian society's high school could justifiably be elitist and largely academic.

Under the above-described circumstances, it is difficult to understand how nearly every large city already boasted a technical high school by 1900. However, this showed powerful forces that promoted changes in education were already at work.

Urbanization was already well underway and rapidly expanding. This had the effect of removing children from direct observation of and, in many cases, direct experience in the world of work. It also removed them from a role in the economic activity of their families. Thus, urbanization left children free to go to school and at the same time imposed upon the school a new burden to orient children to the economic system and the people and processes that were active in it.

As the proportion of school-aged youth enrolled in school grew, it became more evident to students, teachers, and parents that four years of Latin and a purely academic program were not appropriate fare for all of the high school population. This caused a searching about for alternative school experiences.

Faculty psychology, the notion that certain faculties of the mind needed to be exercised and strengthened by rote drill that did not need to relate to any meaningful performance, was being replaced by the focus upon successful relevant experience as the basis for enabling one to cope with similar future challenges.

Perhaps these and other factors caused educators such as John Dewey at the Laboratory School of the University of Chicago to begin experimenting with ways to bring life experiences from the broader community into the school, to unbolt the fixed rows of chairs in classrooms, and to experiment with "learning by doing" through various kinds of activities within the classroom. The advocates of this new "progressive education" held that children should not be thought to be passive recipients of instruction. They were now seen as active participants in the teaching-learning process.

What industrial or technical studies should be undertaken was being widely debated. In a United States Department of the Interior, Bureau of Education publication (1892) it was stated:

The first promoters of the Manual Training Schools were very emphatic in protesting that no trades, or special industries, were taught in them, and in urging on this ground the greater value of their methods educationally.

This position need not be controverted; but when considering the relations of the public schools to industrial education, it is necessary to remember that these first 'Manual Training Schools' were practically private institutions, with large tuition fees; that their pupils were, for the most part, able to devote the time and money requisite to acquiring a liberal education, professional or mechanical. The advocates of the addition of this feature of the manual training schools to the public school system follow the line of the originators of the private institutions in giving prominence to the fact that no special industries or trades are taught in them, only a general foundation for all mechanic employments. The value of this form of elementary training as a basis for future special training is conceded. It is, however, suggested that, owing to the different conditions affecting the pupils of the private schools and those of the public schools, there exists, in the latter case, the need of practically bridging over the gap between the manual training school and the workshop, or manufactory, which is to give paying employment to the graduate of the public manual training school. Consequently the protest by the directors of private manual training schools against trade schools, technical special schools, etc., are not pertinent when uttered by the promoters of public manual training schools. (p. 83)

From the above, it may be concluded that, even then, taxpayers wanted to see some direct result of increased taxation for adding practical studies to academic programs. This debate between whether public schools could afford the luxury of technical studies as a component of liberal education, and be taught and organized for that purpose, began early and continues even today. All along, the public has readily understood the purpose of training someone to get a payroll job. It has been more difficult for them to conceive of studies in drafting rooms, laboratories, and workshops as liberal education.

With the approach of World War I and the closing of the European supply of skilled craftsmen to support industrial expansion, further pressure was exerted to provide publicly-supported basic, concentrated training for specific employment. This had the effect of strengthening the arguments of those who had been advocating specific trade training over general technical studies.

In the post-war prosperity of the 1920's developments in industrial arts flourished in the kindergarten through the senior high school. This was especially true in the rapidly expanding junior high schools. One of their founding premises was that they should provide a comprehensive orientation to the total culture. Bonser and Mossman (1925) were strong advocates of generalized technical studies and wrote:

The social purpose in the study of industrial workers and their work is realized in the measure that this study helps us to be intelligent and sympathetic in the regulation of the conditions of production so that employers, employees, and consumers shall all receive complete fairness and justice in the production or use of products. (p. 4)

In this statement are implicit arguments for a study of the total system and all of the players in it. Bonser and Mossman wanted youngsters to understand the responsibilities and benefits of all, workers and managers and consumers. These understandings had been provided for youngsters earlier, without school intervention. By simply growing up on farms they were important participants in a simple and readily observable socio-economic system.

The opportunities for redirection in industrial arts were never stronger than in this era. Yet the profession responded to the challenge to find comprehensive, liberal, technical studies for the emerging junior high school in a most unimaginative way. Instead of focusing on a study industry as an economic system in a democracy with a market economy, most looked backwards — to the skills and knowledge of selected individual craftspersons — for the source of their subject matter. Despite the clear advocacy of and the increasing theoretical support for studies of contemporary industry rather than the declining crafts, the main stream of industrial arts continued down the path that had been set by senior high school manual training. The missed opportunity was shared by teachers of other subjects in much the same way. For example, a high school biology teacher assigned to a junior high school tended to follow personal interests rather than to reflect on the educational needs of the students. The results were a simplified high school biology course rather than a comprehensive study of science.

The advocates of comprehensive and liberal technical studies received another setback with the stock market crash in 1929 and the ensuing depression of the 1930's. In this era, schools had difficulty funding programs in even the traditional basic academic studies and were



understandably reluctant to support innovation or to contemplate new and especially expensive additions to the program. About the best that can be said about this period, from the vantage point of the supporters of liberal technical studies, is that at least there was no strong competition from and support for specialized vocational education. With skilled and experienced workers from all fields in the unemployment lines, the need for expanding vocational education was clearly questionable.

Throughout all these trials and tribulations, arguments and counter-arguments, industrial arts as an important component of a contemporary liberal education continued to expand. The proportion of elementary, junior high, and senior high schools with industrial arts activities and teachers steadily grew, despite the lack of special financial support by the federal or state governments. Local communities sensed the need for more comprehensive programs despite the lack of any evidence that the general public ever clearly understood the continuing debate between the advocates of specialized vocational industrial training and generalized technical studies as a component of a contemporary liberal education. Their votes for bond issues to support the construction of new comprehensive high schools, with sometimes elaborate industrial arts facilities, and the addition of laboratory facilities to existing buildings is the best measure of the public's support for industrial arts through its first half-century of existence.

In the 1940's, the demands of World War II interrupted the progress being made in industrial arts and even had a negative impact. Because most industrial arts teachers were males, many left to join the armed forces, sometimes leaving programs abandoned until their return. Those teachers who stayed in the schools often were called upon to redirect their efforts to emergency manpower training programs and supportive efforts for the Red Cross through such activities as manufacturing splints or in making recognition models for the armed forces and civil defense warden training programs. New or replacement tools and equipment were unavailable, and many supplies were restricted in their availability. In the post-war construction boom, which continued well into the 1950's, industrial arts again prospered. However, the demands for new and replacement teachers and for new facilities focused more attention on meeting existing needs than on questioning the adequacy of traditional school programs, facilities, and teacher education programs. Not until the decades of the 60's and 70's was attention seriously refocused upon evaluation and redirection.

## CHANGE COMES SLOWLY

There are ample reasons why the leadership in industrial arts should have promoted periodic redirection rather than simple evolu-

tion for their field. The gestation period for industrial arts was unusually brief, as compared with that for most other school subjects. It represented a novel departure in education, so precedent provided little guidance. The early advocates of industrial arts were inexperienced and therefore probing for tentative or experimental solutions to educational problems that themselves were ill defined. Early conceptions of the nature and purpose of the program were many and varied. Also, there were variations in how listeners and readers of the pronouncements of program advocates interpreted what they saw and heard. Many factions argued for cautious acceptance of early development. Yet these developments were often quickly adopted and accepted as the last word. An eagerness to change from these early practices has not characterized the field.

Throughout the last century, the purpose of industrial arts in education has been widely argued. Many have held, and some still do, that its primary purpose was related to providing vocational guidance, prevocational training, or even job training.

Certainly the founding father was not confused. Woodward (1887) said:

The object of the introduction of manual training is not to make mechanics. I have said that many times, and I find continual need of repeating the statement. We teach banking, not because we expect our pupils to become bankers; and we teach drawing, not because we expect to train architects or artists or engineers; and we teach the use of tools, the properties of materials, and the methods of the arts, not because we expect our boys to become artisans. We teach them the United States Constitution and some of the Acts of Congress, not because we expect them all to become congressmen. But we do expect that our boys will at least have something to do with bankers, and architects, and artists, and engineers, and artisans; and we expect all to become good citizens. Our great object is educational: other objects are secondary . . . . (p. 229)

Many subsequently have found occasion for "repeating the statement." Snedden, in a work written with Warner and others (1927), wrote:

The present writer is convinced that the well-defined pedagogic separations or differentiations of aim, subject matter, and method that have been taking place during the last ten years between "industrial arts" and "vocational-industrial" education will presently take place, likewise, between the "practical arts" and the strictly "vocational" phases of homemaking, farming, and commercial education. The one kind will be organized more and more consciously and purposively for specific vocational ends, the other for the cultural or developmental ends of general education. (p. 12)

Wilber (1954) felt compelled to write, over twenty years later:

Since an important objective of general education appears to be transmitting of a culture or "way of life," it is essential that those charged with the responsibility for this transmission should have a clear conception of the nature of the culture they desire to pass on. An analysis of the American way of life indicates that it is characterized by the fact that it is democratic. Further study shows it to be highly industrialized and technological. It appears, therefore, that a subject such as industrial arts should be included in the school curriculum to orient youths to living in this highly industrialized society. (pp. 28-29)

And, almost twenty years later still, Lux (1973) wrote:

. . . we must continually emphasize that career or vocational education is a purpose of education, it is not the substance of a liberal education . . .

Our schools, if they are to achieve their mission, must deal primarily with the substance of education. They certainly may not ignore the purposes of this education, but the purposes are not the framework on which to fabricate a viable structure (of it). When we accept this fundamental point and clearly communicate it, we can expect great strides in achieving the societal mission we have always maintained that education should have. Studies based in industrial technology are as appropriate liberal education for college students (for their liberal education value) as they are for elementary and secondary school students. The need for industrial literacy studies at all educational levels becomes ever more evident . . .

In summary, the need for industrial literacy is not new. From earliest times, man has needed to achieve it in order to survive! Almost up to this century the achievement was rooted in simple observation, imitation, and application. Now industrial technology has become so complex and so remote as to require it to be in the formal school program as an essential liberal education component. Much as we now study the natural world in science classes, we need to study the man-made world in industrial technology. (pp. 80-82)

Most of the resistance to the redirection of industrial arts over the years has centered either over a concern that the contribution of industrial arts to orientation for job training was being compromised (if one believed that to be of primal significance) or that the "basics" of drafting, metalworking, and woodworking were being threatened. How much these concerns, considered by many to be largely irrelevant, have impeded the redirection of industrial arts is not easy to document, but they must have had an extremely extensive impact.

There have been other impediments to change. For one thing, industrial arts has lacked a sufficient number of operational programs that were examples of what contemporary programs should look like. For another, most definitions and elaborate statements have lacked sufficient detail to enable teachers to move with confidence to discard

obsolete programs and concepts and to innovate. Thus, if there has been continued misunderstanding as to the nature and purpose of industrial arts and a resistance to change, the would-be leaders must assume a sizeable share of the blame. They have not communicated in a way that has compelled traditionalists to move from the teaching of drawing, metalworking, and woodworking to program elements that offered more promise of helping learners to achieve technological literacy.

Richards (1904) expressed the need “to develop an insight in the basic industries of our time and a knowledge of some of the steps through which these have reached their present form” (p. 33). But he gave no further detail of how this was to be accomplished.

Bonser led a major thrust to redirect industrial arts away from activities and studies based on discrete materials or selected trade skills and toward broader conceptualizations such as how humankind provides itself with clothing, food, and shelter.

His famous definition of industrial arts has been widely accepted and quoted. It reads: “Industrial Arts is a study of the changes made by man in the forms of materials to increase their values, and of the problems of life related to these changes” (Bonser, 1925, p. 5).

Despite the acceptance of the above, it must be assumed that the majority of those who read and cited the definition did not understand its implications. Apparently, they looked at their curricula made up of courses in drafting, metalworking, and woodworking and concluded that through these they were teaching “the changes made by man in the forms of materials” and “the problems of life” that result from industrialization.

Only minor efforts were made in the decades of the 20’s and 30’s and the years of World War II to redirect industrial arts to conform with Bonser’s definition. That confusion as to purpose remained in those years can be determined by reviewing a couple of often-cited publications of the 1930’s.

Typical of the pronouncements that induced little change are the bulletins produced by the American Vocational Association that began with *Standards of Attainment in Industrial Arts Teaching*, published in 1934. Its sequels were *Improving Instruction in Industrial Arts*, published in 1946 and *A Guide to Improving Instruction in Industrial Arts*, first published in 1953 and revised in 1968. The bulletins made such statements as, “A superior educational program today may be an inferior one a decade from now – unless bold imaginative steps to improve upon that program are continually taken” (1968, p. i). However, the vague recommendations as to how to organize or carry out the “bold imaginative steps” caused the readers of the thousands of copies of the documents that were sold to effect no noticeable change in the essential character of what continued to be taught. No explicit statement of the

scope and sequence of a complete program was offered in any of the documents. Where such potential program elements as power and energy or construction might fit was left unclear.

The United States Department of the Interior, Office of Education, Bulletin 1937, No. 34, provides an example of the extent of the differences of opinion about the nature and purpose of industrial arts at that time. For example, Bess Goodykoontz, then Assistant Commissioner of Education, in the foreword for the bulletin, wrote as follows:

This is essentially an industrial age; modern civilization is dependent largely upon science, invention and skill. The manufacturing industries are important among the activities which made for the material well-being of the people. They should be exemplified in the facilities provided by public education. The general education of every public school pupil – his cultural development – is incomplete without concepts, understandings, and appreciations regarding manufacturing and its hosts of workers. Industrial arts as an educational field makes this desired contribution to the pupil's development. It concerns itself with the aesthetic and economic values of materials, with basic processes of manufacture, and with many problems of the workers.

The public schools, through the grades, should be rich in provisions for pupil experiences (1) which teach the necessity and dignity of work; (2) which illustrate the diversification of industry; (3) which provide for testing personal interests and aptitudes in representative crafts; (4) which serve avocational interests in construction; (5) which develop consumer knowledges and appreciations; (6) which provide occupational training for those who plan to enter employment as industrial workers and for those now in manufacturing trades who desire to improve their proficiency. The first five of these points are served by industrial arts as a phase of the general education desirable for all; the sixth point is the function of industrial or trade education for those who need it as specific training. Industrial arts merges into trade preparation at the time when general education objectives change to specific training objectives. (pp. v-vi)

It is noteworthy that Goodykoontz focused upon the “manufacturing industries.” It should not be presumed that the “interest in construction” mentioned in the second paragraph of the above quote is to be taken literally. She probably meant interest in constructive activities generically, rather than a specific reference to the construction phase of industry. Also, she tended to emphasize the occupational and other practical uses of industrial arts as opposed to their social-cultural values.

Despite the above, the following pages of the introduction, unsigned and presumably prepared by the Committee on Industrial Arts that prepared the bulletin, had a discernably different focus. In part, they read:

Largely manipulative in character, yet affording content of an informative, technical, and social kind, industrial arts contributes to complete living because it meets needs that are real and satisfies impulses that are inherent. It contributes in a unique and wholesome way to social awareness and morale. Reading, discussion, observation, and experiment are combined with participation in activities which permit discovery and development of creative and artistic abilities. The articles selected for hand or machine work and the topics chosen for study vary in complexity with the ages, interest, and needs of pupils.

The work is appropriate for boys and girls alike, and extends into the realm of adult education. Outside the schools, industrial arts subjects or activities are pursued for avocational and recreational or for occupational values, as individuals or groups may determine. In school and out, regardless of ages and interests, industrial arts makes a unique contribution to intellectual development, to social orientation, and to economic adjustment. Those who would have deep appreciation of its worth to individuals and to society must be students of its origins and compulsions, its universality and permanence, its outlets and satisfactions. (p. 2)

Consistent with the introduction, the first chapter of the bulletin expressed such thoughts as:

. . . industrial arts, as well as the other practical arts, provide a means for self-expression. (p. 5)

. . . The nature of industrial arts makes a universal appeal, not limited by age, sex, race, intelligence, or aptitude. Nor are the values in this phase of education limited to persons pursuing certain occupational interests, for there is no occupational interest but can be served through the broadening influence of an understanding of our industrial life which may be realized through industrial arts experiences. (p. 5)

. . . Activities, such as industrial arts presents, provide opportunities for self-expression in natural kinds of media as opposed to the kinds used in instruction in abstract subjects. Industrial arts activities provide most excellent educational experiences for preserving and developing the artistic and natural sides of the child's nature. (p. 6)

. . . As man advances in an involved technology, he should have educational experiences that will enable him to enjoy a finer culture as regards materials than was possible in any previous period of history. (p. 7)

. . . The school of today needs to interpret the ever-increasing number of significant (socio-economic) changes which press for consideration on every hand. (p. 9)

Furthermore, throughout the bulletin existed an emerging concern for a broadened industrial arts that would be more than mere occupational orientation. For example, in Chapter III, devoted to the junior high school, it was stated:

The junior high school provides a period of exploration and guidance preliminary to choice of a career or vocational training. Industrial arts, as part of general education, in these years (a) provides information regarding industry and workers; (b) reveals employment opportunities offered by industry; (c) satisfies the boy's and girl's desire to create useful things; (d) develops hobby and handy-man interest and abilities; (e) contributes to the tastes and judgment of the prospective consumer; (f) develops interest and ability in home repairs and maintenance; (g) affords practice in safety related to the school, home, and industry; (h) gives opportunity for cooperative effort in groups; and (i) illustrates and vitalizes the academic subjects. (p. 41)

Chapter IV, devoted to the senior high school, read:

In agreement with accepted objectives — The objectives of industrial arts education are identical with the accepted objectives of any good high-school program. If properly administered the industrial arts program will contribute its full share to the education of the whole child. The subject matter, the teaching methods, the activities in which pupils engage, provide some of the finest situations for developing ethical character, creating a sense of good citizenship, promoting thrift, developing a keen appreciation of fine things produced by good craftsmen, and for building a clear understanding of the problems which confront those who do the manual work of the world. (p. 66)

Also, the Ohio Prospectus of 1934 moved for redirecting industrial arts. In it was stated:

The utter futility of restricting the learner to a program of low-grade trade training in one or more of a half-dozen areas and neglecting (the romance and reality of the expanding conquest of materials) as a necessary part in everyone's education is evident. As social pressure increases, the schools will find a way to come out of the mid-nineteenth century curricula and at least try to keep pace with the modern world. (Collicut and Skinner, 1934, p. 42)

The Prospectus was widely cited, but as in this continuing saga of pleas for action and verbal directives to act, little change resulted. However, a strong member of the committee who prepared the Prospectus, William E. Warner, must be given due credit. Through his work he began in this era to cause several new Central Ohio school buildings to include very comprehensive general shops in new buildings. But difficulties repeatedly occurred in efforts to satisfactorily staff them. Even when innovative persons were employed, programs often reverted to unit offerings in drafting, metalworking, and woodworking when the pioneering innovators resigned.

After World War II, during the 1947 AIAA Convention, Professor Warner and a group of graduate students presented *A Curriculum to Reflect Technology*. It proposed "curriculum divisions of power, transportation, manufacture, construction, and communication in addition to . . . management" (p. 5). It also provided considerable

details as to what the scope of study should be, as well as some examples of appropriate student activities. Since the proposed curriculum to reflect technology was not widely implemented, it must be presumed that it was an idea whose time had not yet come.

In fairness, many judged that Warner's theoretical formulations were soundly rooted in course work he had had with Dewey and Bonser at Teachers College, Columbia University. Furthermore, as he had with comprehensive general shops, he caused school systems to build laboratories of industry in the expansion years after World War II. He also caused them to be staffed by his own graduate students, and some of the programs were exemplars of their times. Only after another quarter of a century did one see comparable programs springing up nationally and being advocated in a number of state curriculum guides. However, Warner's contributions often were presented with less than complete humility. Some would even say his impatience with the inability of some of his colleagues in the profession to accept change caused him to be abrasive, egotistical, and inconsiderate. At best, Warner on occasion was his own worst enemy in gaining advocates for his ideas.

Warner's greatest contribution to the redirection of industrial arts may have been indirect. Through students such as Brown, Hornbake, Wilber, and Williams, he exerted an influence for change and progress that was probably unexceeded by any other individual. Of course, Warner's founding of Epsilon Pi Tau and the American Industrial Arts Association also provided two forces for accelerating change in industrial arts.

At about the same time, Wilber (1954) also affected instructional theory in industrial arts by being the first to spell out in detail the application of behavioral psychology to the field. He essentially adopted Bonser's definition of industrial arts as follows:

For the purposes of this book, industrial arts will be defined as those phases of general education which deal with industry — its organization, materials, occupations, processes, and products — and with the problems resulting from the industrial and technological nature of society. (p. 2)

He did not add much clarification to the nature of the subject matter of industrial arts. Rather, his contribution was to focus subject matter decisions upon behaviorally stated objectives. He also wrote:

Every industrial arts teacher must answer the important question, "What shall I teach?" The answer lies in the selection of lessons, demonstrations, and other activities which will promote the desired behavior change. (p. 90)

A review of standard practice today would document that most industrial arts teachers indeed start their syllabi with lists of behav-



ioral objectives. However, the activities selected to achieve the objectives continue to be drawn from traditional drafting, metalworking, and woodworking. As another innovator trying to redirect industrial arts, Wilber achieved a partial result. He heavily impacted upon theory, affected the documentation teachers produce to describe their courses and curricula, but left day-to-day shop practice little changed.

Little of significance happened to redirect industrial arts in the 1950's. While Sputnik caused some diversions as efforts were made here and there to adapt traditional industrial arts offerings in order to highlight their contributions to achievement in mathematics and science, the fundamental nature and scope of the field went on as before.

In the 1960's several massive efforts were made to drastically redirect industrial arts. Certainly representative of these were the efforts at Stout State University, The Ohio State University, and the University of Maryland. The American Industry Project, Industrial Arts Curriculum Project, and the Maryland Plan are well described in a variety of publications so that details about them will not be provided here. However, one of these, the Industrial Arts Curriculum Project, made greater inroads than others. With regard to it, Householder (1972) wrote:

The Industrial Arts Curriculum Project (IACP) is unique in several ways. It is the only major industrial arts curriculum effort which has been rooted in an analysis of the structure of knowledge. It is the first project to produce instructional materials and a sequence of courses correlated with a taxonomic classification of a body of knowledge. The intensive field testing and in-service teacher education which accompanied the development have been unequalled. Finally, IACP is the only program which has produced a substantial group of integrated instructional materials and made them available through a commercial publisher. In view of these attributes, IACP is considered by many to be the outstanding accomplishment of the past decade in industrial arts curriculum development. (p. 18)

It can be safely estimated that something approaching 15 percent of the market adopted IACP, a high percentage for comparable innovative efforts in other subjects. In addition, parts have been adopted and integrated piecemeal into existing programs so that a far greater proportion of students have been affected, in part, by this effort.

What has been most unique about the IACP efforts is the extent to which the developers went beyond theory, discussion, and limited pilot testing to field-tested programs in a variety of socio-economic and geographic settings, with all accompanied by extensive evaluative data from students, parents, administrators, peers, and industrialists.

Also unique with IACP was an effort to redirect teacher education as well as secondary education. More than one hundred colleges and universities were directly involved in in-service efforts that provided

special workshops for more than seven thousand practicing teachers. Inevitably, this participation in turn caused pre-service programs to be reconceived and reorganized.

No more successful effort in the redirection of industrial arts can be cited. This success must in part be attributed to the production of complete instructional systems and their effective dissemination.

However, it should be noted that IACP was a centralized, nationally-focused and massively-funded (over three million dollars) effort. The climate for undertaking similar efforts has changed during the 1970's. It would be much more difficult today to accomplish an IACP-like project.

In the 1960's, individuals and groups were asked to compete in an open arena of research and development. Winning ideas were funded. In the 1970's, the era of the request for proposals (RFP's) developed, especially with regard to federal agencies. In this scheme, the funding agency decides which are good ideas, and individuals and groups are asked to compete to research and develop them. The effect of this has been to have many projects of small scope going on simultaneously in a number of states. Each is inventing a new wheel, without adequate funding for thorough development. Also, they are not constrained to make the projects suitable for use outside restricted areas. Many would prefer it to be so, based on the rationale that the user should be as close as possible to the developer because of the need for users to feel that they "own a piece of the action." Interestingly, this feeling was probably never stronger than it was within the IACP and its adopters.

Even the name of Olson's 1963 book, *Industrial Arts and Technology*, made it clear that the boundaries of subject matter for the new industrial arts were unclear. Within his book, Olson made it clear that the focus of industrial arts should be on *industrial* technology, rather than upon *technology* as a whole. Yet in other of his writings he vacillated between these two possibilities. DeVore and some of his former students consistently refrain from using the adjective *industrial* in referring to *technology* as the subject matter of industrial arts. The position held by persons with this belief with regard to the nature of technology is perhaps clear within the definition advanced by Pytlik, Lauda, and Johnson (1978) when they defined technology as:

A process undertaken in all cultures (a universal), which involves the systematic application of organized knowledge (Synthesis) and tangibles (tools and materials) for the extension of human faculties that are restricted as a result of the evolutionary process. (p. 6)

Clearly, following sheet music while playing a flute is a part of technology by this definition. But many in industrial arts think that the study of musical instruments and music, while part of technology, are outside the bounds of what might properly be studied in industrial arts.

The boundary question, unresolved, will continue to add confusion to those working to redirect industrial arts. This dialogue continues. Is industrial arts to study technology (meaning a sensible sampling of all of it) or restrict itself mainly to industrial technology?

Despite all the efforts to redirect industrial arts over the past century, little has been achieved. In fact, the original manual training program efforts were so quickly set in concrete that even the latest comprehensive study of industrial arts suggests little change in the nature of what was taught, even as of 1962-63. Schmitt and Pelley (1966, p. 4) confirmed that drafting, metalworking, and woodworking continued to characterize what was taught in industrial arts well past the middle of this century.

This tendency is very difficult to comprehend, except as a commentary on human resistance to change. Why is it that the tentative program solutions of the last century have been accepted by many as the "basics" for evermore?

Woodward was a mathematics major from Harvard. What in this background made him an expert in technology, curriculum, and instruction? Granted, he had an enormous curiosity, vivid powers of observation with regard to apparent changing educational needs, and the flexibility to read and experiment outside his field. However, if today a person with similar qualifications made pronouncements about a new educational field, most would recognize the problems that could predictably result from setting those tentative hypotheses and conclusions in concrete. Why then do we so commonly hesitate to redirect our activities, theories, and practices in the light of obvious changes in learning psychology, the socio-economic setting, and the culture? Some reasons for inflexibility, apart from a natural resistance to change, have been given. There are many more.

Federal legislation has continued to impact upon industrial arts. No direct effort has been made to legislate a redirection, however. The Morrill Act has had the greatest impact, even though it was passed well before industrial arts was conceived. It helped by drawing public attention and federal support to a new, practical kind of higher education. By placing land grant universities across the nation, it let it be known that agricultural and mechanical studies were appropriate components of a balanced higher education for a nation that was rapidly industrializing. While the secondary schools were slow to follow, the implication that they should was clearly there.

By 1917 another war emphasized the need for technically trained manpower, and the Smith-Hughes Act was passed. Even then, some of its supporters thought they were providing support for manual training. However, as interpreted, the legislation supported a variety of instructional programs, but never industrial arts. Confusion has con-

tinued ever since, in this regard and in many other ways. Concerning this, Lux (1970) wrote:

From 1917 until 1963, vocational education has consisted mainly of three disparate components: agriculture, home economics, and trade and industrial education. These program sub-elements have had less in common with each other than they have had with nonvocational program elements.

With an ever-declining farm population, vocational agriculture has adopted a college preparatory function in order to prepare students for admission to colleges of agriculture. At the same time, and under the same legislative stipulations, trade and industrial education has counted as a program loss any individual who left a secondary school trade and industrial vocational education program and then entered a baccalaureate program in a college or university. Trade and industrial education has administered secondary school programs that prepare people for careers in meat cutting, practical nursing, and tailoring, as well as auto repair and bricklaying.

For more than half a century, vocational educators have maintained that boys taking industrial arts must not share in the monies appropriated for trade and industrial education. Meanwhile, home economics educators have provided studies in dating behavior, child rearing, family budgeting and other practical subjects simply because they believed properly educated girls needed them. Many of these programs received federal reimbursement from monies appropriated for vocational home economics. In fact, practically all of the vocational home economics funds ever appropriated have been spent to provide for general citizenship literacy for females. Perhaps because of their program priorities, the leadership in home economics has been willing to relegate to trade and industrial education the responsibilities for preparing commercial meat cutters and tailors while the preparation and serving of meat in the home, or how to make a set of drapes for one's living room, remained in the mainstream of "vocational" home economics. It is common knowledge that the surest way to tell, in any large high school, which home economics class is vocational and which is not, is to go to the school office and find which teachers have nine month contracts and which have eleven month contracts partially financed with federal vocational monies. One could not tell one program from the other by observing the classes. Under this same enabling legislation, trade and industrial education has steadfastly maintained that industrial arts, the general home economics counterpart for boys, absolutely could not share in federal vocational funds. Such a tangle of inconsistencies and incongruities certainly must lead to confusion when one uses the term "vocational education" in an attempt to describe a particular kind of educational program. (pp. 311-312)

Ultimately, the 1917 vocational legislation did have a direct impact upon secondary school industrial arts. This, however, took about half a

century and the dramatic increase in spending provided by the 1963 legislation.

Even before the turn of the century, manual training had caused technical high schools to be added to the school systems in most of the large cities in the U.S. These were *not* vocational schools, in the model of the St. Louis Manual Training High School. These great schools, through comprehensive industrial arts programs integrated with rigorous academic programs, prepared people for successful careers in many fields. Schools such as Lane Technical High School in Chicago and DuPont Manual Training High School in Louisville proudly sent students off to careers in engineering and scientific fields as well as in industrial trades and the business world. Now they are just vocational schools and this probably happened inadvertently. At least most would hope it was not the intent of the U.S. Congress to exterminate technical high schools that largely were created with the support of private enterprise and were extremely successful, even though they never received any vocational funding.

Technical high schools had one shortcoming. They cost more than academic high schools. With skyrocketing educational and equipment and supply costs they capitulated, one after another, to the temptation to solve their problems by becoming vocational schools. With special federal and state funding for vocational programs they thereby became bargains instead of burdens. The impact upon students was quite another thing.

In technical high schools students could take a variety of technical studies that were survey in nature, comprehensive rather than the basics of a trade. In grades ten through twelve one could take courses in drafting, electronics, and power mechanics, for example, along with college prep mathematics and science. When these unique schools were converted to vocational schools, youth then had to commit half days, for at least grades eleven and twelve, to specific job training. Variety and flexibility were lost to the individual.

Vocational advocates have all along said they could increase school holding power. As the vast funding and area vocational school development occurred, the proportion of high school-aged youth in attendance peaked and has turned downward. If this is, in part, due to the inflexibility of vocational options and the reduction of technical high schools, it will not be the first well-intentioned federal program that misfired. In any case, technical high schools and many senior high school industrial arts offerings in comprehensive high schools have been casualties of the dramatic increase in vocational funding since 1963. In the latter instance, many school administrators have seen the area vocational schools as an alternative to offering industrial arts. Very obviously, this is not a defensible conclusion. The net effect,

nonetheless, has been to further the cleavage between the “two cultures” (literary and technical) that C.P. Snow decried in 1961.

Prior to the 1963 vocational legislation, it was clearer what vocational education is. The new legislation made this much more vague. It accepted that vocational education now included business education and various activity programs from K-14, but *not* industrial arts. By the 1972 amendments, industrial arts finally *could* be supported. To this day, any support for industrial arts remains at the whim of individual interpretations. In some states it receives substantial financial support, but in many others it receives none.

Unfortunately, a little appropriately administered financial help could have provided substantial aid in redirecting industrial arts. Yet it was not forthcoming. Industrial arts, in the main, has continued to struggle under severe financial handicaps while adjacent vocational programs, including ones which were similar in purpose to industrial arts, have wanted for little. The opportunities to provide a sound and thriving industrial arts that would serve both pre-citizenship *and* pre-vocational purposes have not been enhanced by myopically conceived and even more narrowly interpreted federal legislation.

Over fifty year ago, Snedden (1927) thought this problem would soon be solved. He wrote:

But well-informed educators, at least, are keenly aware that the strenuously defended faiths of some decades ago regarding the “manual training” or the vocational values of the several forms of shop and machine work for boys from twelve to sixteen years of age are now no longer tenable — tenable, that is, as serious justifications either for the general prescription of these subjects for all boys, or for the expenditure of large sums of money on equipment and teaching service in these fields.

Nevertheless, few of these educators would discontinue in their schools the teaching of industrial arts — the more rational designation under which the former “manual training” subjects are now coming to be known. Intuitively, perhaps, they feel that these pursuits have real educational values for at least many urban boys. (pp. 12-13)

Lux (1970) was not so optimistic, but he stated that some courses of action held unusual promise as follows:

1. Vocational education should make an effort to distinguish between the many and important programs which prepare people for job entry and those which are inseparable from common citizenship education for all youth. Tradesmen-teachers and separate schools are appropriate for the former programs while regularly certified professional educators and comprehensive schools, under a single administration, should characterize the latter.

2. General home economics and industrial arts educators at all levels should remain full working partners in practical arts programs, along with agriculture and business educators and all others, regardless of the source of supporting monies, and they should not have to occupationalize and thereby sterilize their subject matter in order to participate in joint planning councils with vocational educators. The principle focus of practical arts must continue to be how to solve all of life's problems, not just those related to how to make a living.
3. The educational needs of youth must continue to be the primary criterion on which judgments about educational programs are based, and whether or not there are federal monies available to support a particular kind of teacher and a particular kind of program must not be the controlling factor in deciding program worth.
4. Every possible effort should be expended to break down the barriers between the practical arts and academics, and vocational education must be enjoined not to widen the breach through separate planning, programming, and budgeting.

If these actions are taken, communications should improve. More importantly, youth will be better served by the practical arts and vocational education. (p. 312)

The National Defense Education Act specifically earmarked monies for industrial arts but this caused little program impact. It is true that much new equipment was purchased that otherwise would not have been. However, these purchases were often at individual whims, without due regard for related programmatic reconceptualization and redirection, with the expectable result that little change came about as a result of this legislation.

The concerns for equal opportunity, expressed in various legislation in the 1970's, has had a noticeable impact upon industrial arts. It has put girls into classes after leaders in the field since the turn of the century had recommended that it be done. Again, this has not caused noticeable program redirection, though the recent change in sex representation in industrial arts classes is too new a phenomenon to have its results judged. It has come mostly in the last five years, and it may very well be that the girls will have their say in the near future. It would be a good bet that they will. They should! Drawing, metalworking, and woodworking are no more appropriate for them than they are for the boys. Maybe the girls will be less docile, less willing to accept an ill-founded tradition. To this point, it has all been too new for them to spend much time in evaluative activity.

One last but very important impediment to the redirection of industrial arts should be mentioned. It is trade and job analysis.

Most of the teachers ever prepared to teach industrial arts have been taught that they may identify and organize appropriate subject

matter by analyzing what selected skilled workers know and are able to do within the performance of their job responsibilities. Anyone who understands the purpose of industrial arts can readily see the incongruity of such a technique. Yet over the past half century and more, trade and job analysis has been the content analysis technique taught in preservice teacher education and used by practicing teachers.

Lux (1979) decried this fact by writing:

From the interface of industrial arts with vocational education, the former has gained some help and some harm. In the category of "harm" nothing looms as prominently as does trade and job analysis. It sends industrial arts teachers down the wrong road in their search for the substance of industrial technology. Thus, industrial arts teacher educators should teach only enough knowledge about trade and job analysis to allow students to understand why it may be an appropriate technique for organizing vocational instruction but of little value to industrial arts teachers. Industrial arts teachers need to look to other forms of analysis for the core of their instruction, at least if their concern is to provide an understanding of industry as opposed to an understanding of some craftspersons.

So long as we teach trade and job analysis techniques to industrial arts teachers as the principal means to identifying and organizing subject matter we can expect the inevitable — courses which focus on the relative trivia of what drafters, cabinetmakers, and blacksmiths know and do instead of focusing on industrial technology. Only when we look to other, relevant bases for identifying and organizing subject matter can we expect industrial arts to provide the industrial technological literacy students so desperately need. (p. 2)

Thus, teacher education should assume a substantial part of any blame that may be levied for the lack of success in redirecting industrial arts over its first century of existence as a school subject. In addition to the problems that have been caused by often teaching a poor methodology for identifying and organizing content, too few examples exist of preservice programs whose technical content itself reflects an adequate model of contemporary industrial technology and how it can be effectively organized and taught.

At this point, the reader might be quite demoralized with regard to the extent of the redirection of industrial arts to this date or the promise of its being redirected in the future. Surely the record and the promise are nothing about which to be pleased. But the picture is not all gloomy.

The scope of subject matter suggested by such individuals as Richards (1904), Bonser (1923), and Warner (1947) has steadily gained theoretical acceptance. One now can find recommended curriculum schemes in such states as Iowa, Kansas, Ohio, Tennessee, and Virginia that are far closer to what leaders long have advocated than they are to



Woodward's trade-oriented schemes. While there remains a considerable theory-practice gap, the essential first step largely has been taken. A sound theoretical basis for the program exists and has been widely accepted. Changes in practice are more difficult to achieve but can be anticipated to follow. It should be ever more apparent to all that Woodward's "basics" in drawing, metalworking, and woodworking were only experimental first efforts and not eternal truths.

Finally, an eagerness to change is not characteristic of human beings generally or of teachers specifically. Education as a whole has perhaps changed even less than has industrial arts. This observation is not meant as a defense of the inactivity in redirecting industrial arts, but it is a basis for realistically appraising progress to date and projecting realistic plans for the future.

We can change, and we ought to change. Hornbake (1964) echoed it all in his closing comment in an address at the 26th Annual Convention of the American Industrial Arts Association:

The historians of the future will say whether we used our knowledge and resources to perpetuate in vain a world which has ceased to exist, or whether we used our imagination and wisdom to build boys and girls who, in turn, created a better world. Each one of you has a part in this important decision. (p. 10)

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# Summary And Reflections

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The major intent of this yearbook has been to reveal how industrial arts found its way into the mainstream of the American public school system. This revelation, by design, was accompanied by a panorama of the social, political, and economic climate of the periods discussed.

An examination of the emerging American society found that our country was first settled by several European groups. These early settlers sought freedom to establish communities that would be based on their unique religious and social views. The majority of the people who built these communities were woven closely together by the thread of survival — a need to survive a land and climate greatly unlike their native homelands. Yet the new Americans braved the harsh elements and succeeded in developing an agrarian economy with its requisite merchants populating widely separated towns. Schooling patterned after European educational philosophies and institutions was established haphazardly in various towns throughout the settled areas of the nation. However, the need to survive and to tame the wilderness so dominated the waking hours of each household that schooling was neglected for many years.

The new colonial life dictated the necessity for practical knowledge and skills, and this was not taught in the academic-centered schools of the time. The “important” skills were taught within the family. Fathers taught sons to farm, clear land, construct tools, and to prepare

for skilled trades, while mothers passed on the skills of food preparation and preservation, sewing and gardening, and other “wifely” pursuits to daughters.

The colonies grew rapidly as natural resources, such as forests and land, were put to use. It was not long before the colonies became major agricultural and forest-products exporters, dominating shipping routes with sailing ships that were hewn from timbers of the New England forests.

The Revolutionary War and the War of 1812 established and solidified a new nation out of the wilderness. The energies of the early Americans were then turned to conquering the vast regions to the west and to industrializing the Northeast.

As the common man grew in numbers, he began to exercise political power, particularly in the West, and a new cry was heard throughout much of the land. The temper of times created a loud call for representation and for education to meet the practical needs of the working class. This cry was most loudly heard with the election of Andrew Jackson, the nation’s first non-aristocratic president.

Problems, however, were developing. Three distinct philosophies were growing in the country. The South developed an agricultural philosophy with free trade and slavery as its principal foci. The North, because of poor land, soon became an industrial/merchant center favoring high tariffs to restrict foreign competition. The West became the most truly democratic area, placing little value on social class, heritage, and titles, and providing equal opportunity for all people who were willing to work.

The Civil War painfully united these philosophies into a national philosophy dominated by northern and western ideas. It, also, marked a period when American industry and technology began to accelerate. The real significance of the war is that the federal government had essentially been captured by eastern financial and industrial interests. A new philosophy had also gripped the country at this time. Most people believed that the individual had the right to regulate his own economic affairs without government interference. As a result, unrestrained freedom abounded, creating a *laissez faire* economy. In this type of economy the government deliberately supported policies that fired the rapid growth of large-scale industry throughout the nation. Thus, by the late nineteenth century the country was literally transformed from a chiefly agrarian society to an industrial power. This transformation not only brought great material progress for America, but it also created numerous societal problems and changes. The industrialization of America resulted in startling changes in education. In fact, the story of education is a study of change — change from the traditional study of the classics to a more practical education.

Woodward, in the preface to Blake's (1886) *Manual Training in Education*, described this phenomenon as follows:

The educational forces are changing front. One after another, the division commanders are discovering that the most direct and practical route to the citadel of strong independent manhood and to the high ground of good citizenship lies in the territories of modern life, modern science, modern activities, and modern thought. (p. V)

This yearbook has chronicled the efforts of a number of people and groups who moved education from a narrow tunnel program designed for the elite to one including comprehensive experiences for all youth. These individuals and groups moved the focus of education from the ancient truths to practical topics useful to the average citizen. Industrial arts and its antecedents played no small role in this change. Dedicated educators in the industrial arts camp were often on the front lines fighting for a balanced education.

The beginning of industrial arts thought is difficult to pinpoint. Certainly the work of the sense realists, Froebel and Pestalozzi, contributed. So, too, did the educators of Scandinavia in their search for an educational program to counteract disturbing social conditions in their countries. Furthermore, Victor Della Vos and his system of trade training for engineers also impacted what might be called industrial arts thought.

They provided ingredients for the mix: a concern for using all the senses in developing the body and the mind, a desire to use constructive activity to provide a more wholesome use of one's time, a need to rationalize the instruction in the trades so that they could be taught to large numbers of students.

Many of these early European ideas were rediscovered as the industrial revolution in America proved the apprenticeship system inadequate. Several efforts were tried to supply a more intelligent and productive citizenry through private activities including the introduction of manual work to literary institutions (the Manual Labor Movement), providing Mechanics Institutes to further the education of adult citizens of the cities, and the American Lyceum to accomplish a similar task in the rural areas and smaller towns.

However, these activities did not answer the cry of the common man for a more practical education. Out of this cry came the common school with its trained teachers, developed curriculum, and use of textbooks. Also came rigidity that was attacked by two notable movements designed to add objects and practical studies to the schools — the Oswego movement and the Quincy plan.

Close on their heels was a plan to introduce shop instruction to the schools. This movement, called manual training, became the focus of fierce fighting between the traditionalists led by W.T. Harris and the Father of Manual Training, Calvin Woodward. Woodward and his

followers were the winners even though many distorted the mission of manual training, which was “to make men, not mechanics.” Some educators modified manual training into trade training, which Woodward often spoke against. He saw it as *neither* a manual labor school, nor an industrial school, nor a trade or apprenticeship school. He saw manual training as “a thoughtful study and use of both books and tools. Its great object is education, moral, intellectual and physical; other objects are secondary” (Blake, 1886, p. X).

As manual training took its place in the schools of America shortly after the American high school was legitimized by the famous Kalamazoo case, another significant movement gained momentum. This movement sought public support for vocational training. The leaders of this movement, at least in part, saw manual training as either a failure or an impediment to their goals. Manual training as general education again came under attack but for new reasons. It was not accused of watering down the academic program as Harris and his followers contended. Instead, it was criticized for having little value in preparing youth for the world of work.

Manual training, however, weathered the storm but underwent modifications. Pressures from groups opposed to the structured exercises common to the Russian-type manual training encouraged changes in program and name. Soon *manual arts* was being used to describe programs influenced by the design emphasis of the arts and crafts movement and the useful project emphasis of the sloyd system.

This name change marked the start of a fragmentation of purpose and content that has plagued industrial arts to this day. For many, Woodward’s content areas of woodworking, drawing, and metalworking were sacred. These educators solidified this offering by using the vocational-content-identification technique of trade and job analysis to select “appropriate” industrial arts content. Out of this branch comes a brand of industrial arts that is based on the skills and knowledges of the mechanical trades and carries titles like woodworking, printing, metalworking, drawing, leatherworking, and electricity.

However, another direction was being plotted. Influenced by Dewey and the progressive education movement, a number of significant changes were proposed and adopted in varying degrees. Richards (1904) suggested that to better reflect the society of the time the name and emphasis should be changed. He felt *industrial art* best described what ought to be taught. Bonser and Mossman (1923) followed with a classic definition that suggested that industrial arts should study changes in the form of material made by man. Warner (1947) added to Bonser and Mossman’s work by identifying major areas or courses of study for industrial arts. They were management, communications, construction, power, transportation, and manufacturing.

From this progressive education-based branch of industrial arts has come two major theories for the field. One suggests that the domain of industrial arts is industry – its products, processes, materials, management, organization and occupations – and the impact industry has on society. The other theory places emphasis on the study of technology – its evolution, utilization, and significance.

So today we have, as Brown (1977) described, at least three types of industrial arts. These are programs based on: mechanical trades, industry, and technology. These opposing foci have caused disillusionment, a lack of a unifying purpose, and an absence of coherence within the profession.

In the late 1800's professionals desiring to introduce a manual element to the school waged a battle with the classical educators and won. It is quite possible that if we do not carefully study our history and unify our goals for the future, the division within the industrial arts profession over which type of industrial arts should prevail may cause the field to lose the war. Each industrial arts educator must develop a clear view of where the field has been, why it was the way it was, and how it changed so that reasoned paths into the future may be blazed.

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