Historical and Philosophical Background Leading to the Development of Industrial Arts in the United States

Bently W. Robinson

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HISTORICAL AND PHILOSOPHICAL BACKGROUND
LEADING TO THE DEVELOPMENT
OF INDUSTRIAL ARTS
IN THE UNITED STATES

by
W. Bently Robison
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OF INDUSTRIAL ARTS
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An extended paper
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the requirements for the degree of
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Preface

This study of the historical and philosophical development of Industrial Arts in the United States was written as part of the requirements for Industrial Arts 565. Because of the historical and philosophical interest in Industrial Arts to the writer this paper has been revised and will be submitted as part of the requirements for the degree, Master of Science in Education.

The establishment of Industrial Arts in the school curriculum in the United States has a long and complicated history of events. First called Manual Training, then Manual Arts, then Industrial Arts, the main reason for the existence of this type of work remained the same - that Industrial Arts shall be an integral part and contribute directly to general education.

The purpose of this paper is to give an account of some of the major developments that helped to establish Industrial Arts.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREFACE</td>
<td>iii</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td><strong>Chapter</strong></td>
<td></td>
</tr>
<tr>
<td>I. PESTALOZZI AND HIS INFLUENCE</td>
<td>3</td>
</tr>
<tr>
<td>II. CONTRIBUTIONS OF FELLENBERG</td>
<td>7</td>
</tr>
<tr>
<td>III. FREEBEL'S THEORIES</td>
<td>11</td>
</tr>
<tr>
<td>IV. DELLA-VOS AND THE RUSSIAN SYSTEM</td>
<td>14</td>
</tr>
<tr>
<td>V. EDUCATIONAL SLOYD</td>
<td>16</td>
</tr>
<tr>
<td>VI. C. H. WOODWARD AND THE ST. LOUIS MANUAL</td>
<td>19</td>
</tr>
<tr>
<td>TRAINING SCHOOL</td>
<td></td>
</tr>
<tr>
<td>CONCLUSION</td>
<td>25</td>
</tr>
<tr>
<td>SELECTED BIBLIOGRAPHY</td>
<td>28</td>
</tr>
</tbody>
</table>
Introduction

To understand fully the beginning of Industrial Arts it would be necessary to begin with the age of primitive man. The primary goal of primitive man was self-preservation. The Middle Ages had very little educational theory at all. As we pass through the Renaissance we see the beginnings of education. The writings of Comenius, Locke, and others bring us up to the time of Rousseau and his theory of naturalism. From this point on we can see the beginning as Industrial Arts takes form.

The financial failures of Pestalozzi were tragic but his sound basic principle of education stands out as a definite contribution to our present programs. One man, Fellenberg, succeeded where Pestalozzi failed. He was a success financially and partially fulfilled a personal dream of "education for all". Although Froebel's idea of using hand work as a part of general education stands out as a significant point in his lifetime, he will be best remembered for his establishment of a "kindergarten" and its "object teaching".

Della-Vos and his Russian System of tool instruction came along in 1868. This was immediately adopted by many schools in Europe. Most important to us was its adoption by two schools in United States -- The St. Louis Manual Training

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1 Charles Alpheus Bennett, History of Manual and Industrial Education Up to 1870 (Peoria: Chas. A. Bennett Co., Inc., 1926), p. 11.
School and the Massachusetts Institute of Technology.

While this was a great and important step it was not the "end" in instruction in Industrial Arts. The Educational Sloyd developed in Sweden by Otto Salomon was to become one of the most important steps in the establishment of Industrial Arts in the United States.

The ideas and philosophies of the men mentioned within this paper will give a partial picture of some of the events leading to the establishment of Industrial Arts in the United States.
Pestalozzi and His Influence

I

A look at Pestalozzi shows him as a man who experimented with some of the basic principles of our modern day Industrial Arts philosophy.

Johann Heinrich Pestalozzi was born in Zurich, Switzerland, in 1746. Because of the early death of his father, Pestalozzi was greatly influenced during his early years by his mother.¹ The idea of his model school at Neuhof stemmed from his view of home consisting of much love and co-operation. Visiting the peasants with his grandfather, a pastor of a nearby village, Pestalozzi became interested in helping poor people. After unsuccessful tries through the ministry and law profession he turned to teaching.²

"Education for actual livelihood was the conception of Pestalozzi."³ In order to pursue this idea he established his first school named Neuhof. Here Pestalozzi, wanting to satisfy his desire to lessen some of the misery of the world, started by

²Ibid., p. 123.
educating the poor.\(^1\) Although the school at Neuhof suffered many failures, Pestalozzi was determined to demonstrate how to educate poor children.

He acquired twenty destitute children to participate in his outstanding experiment at Neuhof. Making use of everyday life habits to educate the children, Pestalozzi taught them to work in the garden, fields and house. This was enjoyed by all the children. While this was taking place Pestalozzi would converse about different subjects and the children would repeat passages given them in previous lessons. In fact, they were memorizing Bible verses before they learned to read and write.\(^2\)

"Although Pestalozzi had not as yet learned to make any direct connection between the occupational and the formal elements, this first attempt at an industrial education made it evident that the two could be combined."\(^3\)

This was a very successful experiment and Pestalozzi was able to gain some financial support for his school. The financial support, however, did not prevent the bankruptcy of the school. By 1780 Pestalozzi was an economic failure. This failure did not cause Pestalozzi's philosophy of education to change but rather made it stronger. He believed in Rousseau's "naturalism" and explained education as a natural development of human

\(^1\)Graves, op. cit., p.124.

\(^2\)Ibid., p.124.

\(^3\)Ibid., p.125.
capacities. He strongly believed everyone had a right to education regardless of his station in life. His educational ideas have been preserved for man through two literary works, *Evening Hour of a Hermit* and *Leonard and Gertrude*.¹

Pestalozzi's second chance to apply this principle of combining study with manual labor came after the French had invaded Switzerland. Many children were without parents and Pestalozzi saw a chance to put into practice those principles and ideas of teaching he so vividly possessed. The idea of learning through experience and observation instead of abstract learning was one of the predominant factors of this school in Stanz. This successful experiment lasted only a few months because the French government needed the building Pestalozzi was using to provide a hospital for the soldiers.²

Other experiments by Pestalozzi were undertaken but always forced to close because of economic reasons. The last such institute was established at Yverdun in 1805. After much struggling this school proved successful. This was possible because teachers from other countries attended and money was contributed by men of wealth.³ About twenty years after the start of the school, it closed. Pestalozzi's age, the loss of his beloved wife, and dependence of an assistant teacher, Schmid, contributed to the closing of the school. For again his school

¹Graves, *op. cit.*, pp. 125-126.


³Graves, *op. cit.*, pp.138-139.
was a financial failure.¹

Notwithstanding all the failures of the various schools founded by Pestalozzi, his theory that the use of objects and manual labor related to other school subjects has been handed down through the years and has influenced modern educational thought.

¹Graves, op. cit., p.143.
The life of Pestalozzi leads directly to the life of Fellenberg. The two were friends and at one time were associated with the same school.

Phillip Emanuel Von Fellenberg was born in Berne, Switzerland, in 1771, the same year Pestalozzi established his school at Neuhof. Because his father was a nobleman who believed in education as a social reform and his mother believed in helping the poor, the early childhood of Fellenberg brought him in contact with every class of people. From this association came the theory that the only way for improvement in a country was for everyone to be educated. Extending this theory, Fellenberg believed that the social order of man must remain the same. If a man is born of high, middle or low class then his education should be designed to prepare him for his station in life. A man of the higher class is to be regarded as a leader and respected by a man of the middle or lower class. There is to be no reason for a man not to love or have sympathy for people of the other classes.¹

In order to educate people about his theory, in 1799,

¹Bennett, op. cit., pp.128-129.
Fellenberg purchased about six hundred acres of land three miles from Berne where he established a school named Hofwyl. Here he was able to continue Pestalozzi's theory of combining study with manual labor. Unlike Pestalozzi, Fellenberg was a very capable school organizer and administrator. Fellenberg believed things should progress naturally which could explain why the first building was not erected until 1807, some years after the purchase of the land.¹

The three main divisions of the school were scientific, agricultural, and manual labor. The three different classes of society were to be recognized and Pestalozzi's method of teaching was to be used. Partly because noblemen and wealthy individuals from England and Russia sent their sons to the Fellenberg School, the number of students attending the school increased and the reputation of the school spread rapidly.²

The most significant part of this school was the experimental work in agriculture. It was through a schoolmaster named Wehrli that Fellenberg established the Farm and Trade Schools for the poor. Every effort was made to establish the educational growth in this school through the natural processes. Along with the agricultural aspect of learning, these students participated in lessons in geography, history, and other subjects.³ From the trade division of the school came farm implements which

¹Sears, op. cit., pp.90-91.
²Bennett, op. cit., p. 132.
³Sears, op. cit., p.90.
the boys had made or repaired. This helped with the financial support of the school. These students would be trained as cartmakers, cabinetmakers, carpenters, and for other trades along with the acquisition of farm knowledge. Although they were not free to leave the school until they were twenty-one years old if they paid no tuition, there was still a great demand for these students.¹

Fellenberg also established a school for girls. In this school the girls were taught to read, write, and speak along with doing some manual work which had some direct application to some work done in the home. This might be in the form of drawing as applied to patterns and sewing. They also did some light farm work.²

The work and success of the school at Hofwyl created a demand for more teachers. Fellenberg developed a plan for a seminary for teachers. The plan was quite successful after some modifications were made. This plan consisted of seven steps:

1. Study of subjects teachers would use.
2. The method of communication of instruction.
3. Student participation in teaching with supervision.
4. The teachers instructed and assisted other students under the supervision of Wehrli.
5. Daily instruction and advice given by Wehrli, their instructor.
6. Observation of instructor's material.
7. Discussion groups were held at different times.³

¹Bennett, op. cit., p. 138.
²Sears, op. cit., p. 92.
³Bennett, op. cit., pp. 142-143.
When the training of teachers became an important phase of instruction along with the various forms of education at Hofwil, Fellenberg was partially able to fulfill his life goal -- education for all.
Another man, besides Fellenberg, who believed in the same idea as Pestalozzi was Froebel.

Friedrich Wilhelm August Froebel was born in Germany in the year 1782, eleven years after Pestalozzi started his school. Being the son of a Lutheran clergyman, he received a strong religious education. Because he led a very neglected childhood he spent time in the woods where he "communicated" with nature. Although Froebel did not appear a highly intelligent child to his teachers, his mind was too occupied for routine matters. He did, however, decide to become a teacher -- a decision which was made after pursuing several other occupations. Seeing his own need for more education he attended the institute at Yverdun. "During the two years following, 1807-1809, he was "drinking in Pestalozzianism at the fountain head, and qualifying himself to carry on the work which Pestalozzi had begun."2

Actually Froebel expounded some of the ideas of J. Heinrich Heusinger who was a professor at the University of Jena.3 Heusinger believed that the impulse toward bodily activity is one of the strongest in children. This activity should be coupled with the impulse to knowledge whenever possible. These

2Bennett, op. cit., p. 162.
3Sears, op. cit., p. 94.
activities play a leading role in the development of man and thereby a leading role in education. Heusinger demanded a carefully arranged succession of manual occupations for the entire period of the education of the child. He believed the benefits from these manual occupations are manifold. Listed below are nine of these benefits. They:

1. Exercise the mind and shield the pupil against idleness.
2. Gratify the natural tendency to employ the mind and hand together.
3. Promote health.
4. Cultivate mental ability and skill of hand.
5. Prepare for a vocation.
6. Cultivate a taste for art.
7. Train an appreciation of good craftsmanship.
8. Lead to an acquisition of knowledge of subjects that would otherwise be neglected.
9. Afford instruction in the most natural and direct manner.\

Froebel, instead of Heusinger, is the man credited for having used hand work as a means of general education. After a short period of time in the Army and as museum curator, he again turned to teaching. During the nine years he taught at Keilhau, he presented his theories in his most important book, *The Education of Man.* In this book he discusses the place of hand work in education and points out that play, modeling and

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building are important. Learning through looking means more than learning through books. Because the people thought he was a revolutionist the government was ordered to investigate. They gave him a favorable report. Receiving unjust religious persecution, then spending some time in Switzerland and finding no comfort there, Froebel returned to Germany to start his first kindergarten. Here he gives the people a new idea of a child.

Childhood is not merely preparation for adulthood; it is a value in itself and possesses its own creativeness. It participates in the divine whole with the same rights of its own as adulthood, and therefore it can claim the same respect or the part of the educator. The adult has no right to feel himself superior and to interfere with the natural conditions of childhood; rather, he must combine guidance with the capacity of waiting and understanding.

Froebel's complete belief in this theory can be studied by surveying his life for he was struggling for people, not for himself. Even though he, himself, was tested by many misfortunate acts his devotion to his principles of education did not decrease.

The Industrial Arts program, having the same corner-stone as the kindergarten -- object teaching instead of abstract teaching, connects itself with a basic principle of Froebel in that it believes in presenting ideas with representing objects.

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1Graves, op. cit., p. 201.
2Bennett, op. cit., p. 163.
5Ibid., p. 129.
Della-Vos and the Russian System

IV

Della-Vos' development of the Russian system of shop instruction is considered a most important step in the establishment of early manual training schools. The origin of the analysis of the present day Industrial Arts can not be definitely established before Della-Vos. However, there had been some development of analysis in the fields of drawing and sewing before this. This system was worked out because the process of having students learn through the imitative or apprenticeship system was not successful in the construction shops of the Imperial Technical School.

The basic principles of the Russian system were as follows:

1. There were separate shops for courses of instruction. The wood turning, joinery, blacksmithing, and all others had separate rooms.

2. The number of work stations and sets of tools was determined by the number of students taking instruction at one time. Students were each assigned a work station and a set of tools. This principle applied to each and every shop.

3. The courses of instruction included making models and were completed in the order of their difficulty of operation.

4. The models were constructed using drawings.

5. The drawings of the various models were made in the elementary drawing classes.
6. The models were to be completed in the order assigned and no new models could be started until the previous model had been passed by the instructor.

7. The teachers were to be more than craftsmen. They were required to have enough knowledge of their area of instruction to enable them to set an example for the students.

This system of class instruction was so successful in the Technical School in Moscow that the system was also established in the other technical schools in Russia. The Russian system was introduced in America in 1876 at the Centennial Exposition in Philadelphia. Display of the models, shop and the method of teaching was greeted with much enthusiasm. The system was immediately incorporated in the St. Louis Manual Training School and a School of Mechanic Arts was established in connection with the Massachusetts Institute of Technology in Boston.

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To fully understand the Educational Sloyd employed at Naas as developed under the guidance of Otto Salomon, home sloyd and the sloyd taught by Cygnaeus must be studied first.

Home sloyd was developed in Scandinavian countries as a handicraft during the long winter months. The whole family would engage in some type of work beneficial to the livelihood of that particular family. The making and selling of these different useful articles soon became an industry in each house. The decline of this system was gradually begun with the introduction of the factory system and power machinery. Also, the liberal freedom in the making and selling of alcoholic beverages resulted in a moral decline of the people and a further decline in home sloyd. The moral decline, reaching a new low, caused the national leaders to return the sloyd system to the people in the form of schools. The sloyd in these schools was quite different from that to be found later in the institution established by Salomon at Naas because the pupils in the schools made articles to sell and very little educational reference resulted in this method of teaching.¹

While this type of sloyd was being presented in Sweden and Norway, Finland was preparing herself for still a new aspect

¹Bennett, op.cit., pp. 53-56.
of sloyd. A Lutheran preacher and teacher, Uno Cygnaeus, was selected to introduce a system of folk schools in Finland.\(^1\) The sloyd in the schools of Sweden and Norway were similar to trade schools while the sloyd in Finland was quite different. It was to be a part of the elementary education and the instructor was to be the same one teaching the elementary subjects. In other words, there would not be a separate instructor for the sloyd course. This was the first time handiwork had been made a part of the elementary education on a national basis.\(^2\)

In 1872, the government of Sweden granted an annual appropriation of money for the instruction in sloyd. This was only one of two important events of the history of sloyd that took place that year. The other event was the establishment of a sloyd school at Naas, Sweden. This was a school for boys who had completed the folk school and was made possible by the uniting of Otto Salomon with his uncle, August Abrahamson, who had earlier founded the school for the boys and girls on the estate. This school at Naas had approximately thirteen different types of sloyd such as wood, basket making, saddlery and carving. Two years later, in 1876, a similar school was opened for girls.\(^3\)

Appointed as inspector of schools in 1874, Salomon quickly saw the need for teachers trained in sloyd. To help

\(^1\)Bennett, \textit{op. cit.}, pp. 57-58.

\(^2\)Bennett, \textit{op. cit.}, p. 60.

\(^3\)Bennett, \textit{op. cit.}, pp. 61-62.
this problem a school was established at Naas, along with the others for the instruction of sloyd teachers.¹

The need for sloyd to become a part of general education was what had prompted Salomon to make the study. The result of this study caused him to combine into Educational Sloyd some of the earlier characteristics of home sloyd, Cygnaeus' theory of sloyd as part of elementary education, and the Russian System of tool instruction. There is no proof as to whether Salomon evolved his own system of tool instruction or whether the Russian System was passed to him through someone's contact with the system earlier.²

Educational Sloyd was essentially the three types of instruction as formerly listed. The first, or home sloyd, was employed in educational sloyd in the making of useful articles. This was unlike the Russian System where exercises were constructed. Second, the Swedish objectives were for elementary education while the Russians were training men to become mechanics and engineers. This second principle was taken from Cygnaeus' idea that sloyd should be an integral part of elementary education. The third and last principle was the analysis of tool instruction.³

¹Bennett, op. cit., p. 62.
²Ibid., p. 65.
³Ibid., p. 67.
C. M. Woodward
and the
St. Louis Manual Training School
VI

Presenting new ideas to people having definite opposing
thoughts as to the value of manual training in connection
with the educational system of the United States required a
person who had standing and persistence. Such a man was
C. M. Woodward.

Calvin H. Woodward, born in Fitchburg, Massachusetts,
August 25, 1867, graduated from Harvard University in 1890.
Along with his A.B. degree, he was acclaimed by his fellow-
men and awarded membership in the Phi Beta Kappa honorary
fraternity. He accepted a position as vice-principal of the
academic department of Washington University, St. Louis,
Missouri, and also taught mathematics in the university.
In 1892, he organized an engineering department for Washington
University.¹

Because of the students' failure to visualize some
forms under consideration in the class of applied mechanics,
Woodward arranged to have the college carpenter supervise the
work of constructing these forms of wood. Here, to his surprise,
Woodward found the students could not perform the simplest tool
operation. The skills he had learned as a boy, which he thought
all boys should have learned early in life, gave him an idea of

¹Charles Alpheus Bennett, History of Manual and Industrial
Education 1370 to 1917 (Peoria: Chas. A. Bennett Co., Inc., 1937),
p. 318.
incorporating the use of tools in with the academic part of the course. This simple injection of manual training could be considered a culminination of past efforts leading to the present-day industrial arts program in the United States.

In 1873, Dr. Woodward, in an address at Washington University, told of his ideas of correlating shopwork into the educational plan. His vision, as he saw the need for it, was to establish this in the common school. Since it was not possible there, he continued to strive for this integration in the polytechnic school. "He said, 'But the acquisition of this desirable manual skill requires workshops and tools and teachers, and as such essentials are not in general to be had at home or at a common school, the work must be done at a polytechnic school.'"

Three years later, at the Centennial Exposition at Philadelphia the Russian Exhibit presented ideas or the basic principles of the Russian System.

In a paper read before the St. Louis Social Science Association, May 16, 1878, Dr. Woodward discussed the subject of education both philosophically and practically. In the course of his address he gave a full account of the Russian system of manual training as expounded by Dr. Runkle, endorsed it, and recommended it to the people of St. Louis as the true method of education in the following pregnant sentence: 'The manual education which begins in the kindergarten, before the children are able to read a word, should never cease.'

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1 Bennett, op. cit., p. 318.

2 Bennett, op. cit., p. 319.

Dr. Woodward, then a professor in the engineering department, believed a plan could be set up placing shopwork on the same level as the other school subjects.\(^1\) He was given this chance to test this program by the establishment of the St. Louis Manual Training School in 1879. The purpose of the school was stated thus:

Its object shall be instruction in mathematics, drawing, and English branches of a high-school course, and instruction and practice in the use of tools. The tool instruction, as at present contemplated, shall include carpentry, wood turning, patternmaking, iron chipping and filing, forge work, brazing and soldering, and the use of machine shop tools, and such other instruction of a similar character as may be deemed advisable to add to the foregoing, from time to time.

The students will divide their working hours, as nearly as possible, equally between mental and manual labor.

They shall be admitted, on examination, at not less than fourteen years of age, and the course shall continue three years.\(^2\)

The school was housed in an old dormitory with the various floors becoming the instruction shops. There were some free scholarships available, although the regular tuition was $80, $100 and $120 according to the class of enrollment. The students were required to take full courses in mathematics, science, drawing and toolwork in wood and metal, and could choose between a continuous course in English, history, rhetoric,

\(^1\) Bennett, *op. cit.*, p. 337.

\(^2\) Bennett, *op. cit.*, p. 347.
civics, and political economy, and a course in Latin, French, or German (in preparation for college) with a weekly exercise in English literature.¹

The period of time from 1880 to 1890 was a very decisive time for those who believed manual training was to become a part of the education for everyone. In 1883, Dr. Woodward spoke at the National Educational Association convention. His topic, "The Fruits of Manual Training," contained several defensive arguments for the manual training program.²

These arguments are listed in his two books published in 1887 and 1890. The fruits used during school years are:

1. It keeps boys longer at school.
2. It awakens a lively interest in school, and invests dull subjects with new life.
3. It keeps boys out of mischief both in and out of school.
4. It gives boys with strong mechanical aptitudes, but who are slow of speech, an equal chance with boys with glib tongues and good memories.
5. Manual training stimulates a love for truth, simplicity, and intellectual honesty.
6. Correct notions of things, relations, and forces, derived from actual personal experience, go far towards a comprehension of the language employed by others to express their thoughts and experiences.
7. Science and mathematics profit from a better understanding of forms, materials, and processes, and from the readiness with which their principles may be illustrated.³

The fruits for future years are:

1. It aids one who must choose his occupation.
2. It raises the standards of attainment in mechanical occupations and invests them with new dignity.

²Bennett, op. cit., p. 362.
3. It enables an employer of labour to better estimate the comparative value of skilled and unskilled labour, and to exercise a higher consideration for the labouring man.
4. It stimulates invention.
5. It stimulates the bread-winning and home-making power of the average boy.
6. It stimulates intelligent citizenship.¹

Apparently the crusade of Dr. Woodward was known throughout the educational field. Being invited to discuss his ideas on manual training at an educational conference at Manchester, England, in 1885 he spent several months in England and on the continent of Europe. Then on his return to the United States he spoke in Boston at a public meeting. His listeners were told that he, too, like Ralph Waldo Emerson, believed we were fighting against common sense in our educational system. Emerson had stated we go to school, recite, learn words, and still leave school uneducated because we can not use our arms, eyes, hands and legs. Woodward said, "My educational creed I put into six words: Put the whole boy to school."²

The actual turning point of discussion concerning the value of manual training in the educational system was the National Education Association convention held in Chicago in 1887. Speaking on "The Function of the Public School," Dr. Woodward expounded on some of the misconceptions of the

²Bennett, op. cit., p. 367.
manual training school. Some of these wrong ideas were:

1. Manual training schools are new, not old; manual labour schools are old and failed.
2. Manual training schools are not industrial schools.
3. Manual training schools do not allow opportunity for the boys to learn individual trades.
4. Articles made in shop are not manufactured for the market, but rather, as a learning process for the students.

Edwin P. Seaver, Superintendent of the City Schools, in Boston, in a report of his visit to the St. Louis Manual Training School said, "There are those who doubt the 'educative value' of manual training. Let any such person spend a few hours in a good manual training school like this, observing the boys at their work and questioning them about it; and if his doubts about the 'educative value' of manual training do not vanish, it will be because he measures 'educative value' by standards not in common use. I should desire him particularly to converse with those boys in the machine-shop, now drawing near the close of their school course, and busily at work on their 'projects' for graduation day. Let him ask for explanations, question them closely for reasons, observe the quality of their work, note their own criticisms and estimates of it, and he must be an unreasonable man if he does not admit that somehow their school training has developed in them a high degree of intelligence. The result is too striking to be overlooked, analyse and account for it as we may."2

2 Woodward, op. cit., p. 231.
Conclusion

The seventeenth century saw many theories expounded on in the field of education. This phase of education was like the wakening of a giant, slow at first, causing very little commotion; then with the writings of Rousseau, this giant began to take steps. Rousseau's writings on nature, reflecting in part the writings of John Locke, bring us to the life of Pestalozzi.

Pestalozzi was very interested in helping poor people and was partially successful in his efforts to establish an educational institution. The lack of ability in administration and weakness for giving to the poor were Pestalozzi's main reasons for failing to establish a permanent school. However, this partial success was not measured in his failures but rather in the principles put into practice. Pestalozzi's ability to apply the theories of Rousseau in practical experiments and his own theory that study and manual labor could be combined was very successful. Pestalozzi's contribution to the education of the poor was unlike the contribution of Fellenberg.

Fellenberg was concerned with what he called three classes: the upper, middle and poor classes. The education of these classes was to occur at the same time and place according to Fellenberg's theory. In teaching the three classes
of people Fellenberg has show how manual arts can be
applied specifically to each of the classes. It is interesting
to note here the similarity of Fellenberg's plan for the
training of teachers (page 3) to the present day plan.

Along with Fellenberg's theories of education of all
the classes, another man's theories toward body activity were
being exercised. Froebel studied with Pestalozzi and was
busily engaged in establishing himself as a person who believed
in the impulse toward body activity. It is universally known
that a principle on which Froebel built the kindergarten is
also a cornerstone of Industrial Arts.

Della-Vos and his Russian System of tool instruction has
been very instrumental in the instruction of present day
Industrial Arts. It was presented in Philadelphia in 1876
and immediately incorporated in schools in the United States.

It would be very difficult to say whether the ideas and
philosophies of Pestalozzi, Fellenberg, Salomon and Della-Vos
are the main link to our present day Industrial Arts. The
authors tell us of many more men who contributed to the
program also.

It is easy for a person to read about the methods and
techniques of another person and then give his opinions as to
whether they are good or bad. However, in the case of the
educators discussed in this paper, the good points outweigh
the bad. For instance, based on today's standards, the methods of teaching, testing, and operational procedures probably would not be very effective. Yet in their time and place they were far more superior to any other. Some of the ideas forwarded by these men have been contemplated by students of the past and will continue to be pondered by the students of the future.

The main idea conveyed in several texts seem to indicate and validate the idea that these men and their ideas, practices, experiments, and philosophies have a direct connection to our present day Industrial Arts.

We must remember, in passing, that the situation of world affairs also weighed heavily on the establishment of Industrial Arts. The industrial revolution, combined with social, economic and political affairs were some of the problems involved. People in the Industrial Arts profession owe their thanks to the men mentioned in this paper and those overlooked until the time when they, themselves, might be portrayed in their part of the development of Industrial Arts.

Everyone has respect for a man who can visualize the future and then act accordingly. Examining the writings of the educators mentioned in this paper we see the evolution of Industrial Arts objectives standing out as one of the most important contributions to modern programs in Industrial Education. Although there has been some change in phraseology, the objectives have remained almost the same in the present day interpretation. They could remain unchanged for many years to come.
Selected Bibliography


