

Industrial Education.

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Industrial Training.

586

Index

Page

Evolutionary change of universe. . . .	1
Development of nations and society. . .	2
Evolution in education. . .	2
Necessity of education.	3
Exhaustion of natural resources.	3
How to bring up the youth.	4
Education as a fixed quantity.	4
Position of American labor.	5
Reasons for founding Industrial Schools in Europe.	5
Origin of Industrial Schools.	5
Effects on industry and wages.	6
Industrial schools in America.	6
Appropriation by Congress 1859-60.	7
Development in America.	8
System used.	8
Course of study.	9
Industrials of the U.S.A.C. at the option of the student.	9
Manual training in public schools.	12
Advantages of Industrial training.	12
Conclusion.	14

It is truly said, we live in a progressive age, progressive not only in religion, science, and art, but the whole universe seems to be pushing forward at a break-neck speed.

As the natural forces are working for the first place in the universe, so is man striving for the highest place in society and in the acquisition of wealth.

If we examine the various formations of the land and seas, we find once living organisms now dead and transformed into stone deposits or existing as fossil remains sleeping the sleep of ages.

We study these strange formations with the greatest interest and anxiety, searching for the cause, but have to be content with certain phenomena which tends to explain them, until nature and science reveals the true solution. Although by careful study and comparison we find that there is a progressive chain which connects those strange animals of antiquity to those that exist at the present time.

a development from a lower to a higher state of being.

There is a gradual change throughout the entire period and we get by this process a differentiation species that are entirely different in character and habits from their predecessors.

Take the development of nations as recorded in history, we find these gradual changes taking place from the first recorded annals through the various periods to the present time and still this variation goes on.

And so also with society we find it recorded in its various stages of growth and can trace it as it progresses step by step up the hill of time, until it has almost gained the summit.

Education has no less undergone these various stages of evolution. The education of centuries or even a few years ago is no longer practicable. The whole universe has undergone a complete change in form and needs. The ancient scholars knew but little about the sciences and arts and literature. What did such men as Caesar, Plato, Napoleon, Socrates, etc., know about steam and electricity? which

Today might be said to move the world, and all the natural sciences as Botany, Zoology, Chemistry, and Astronomy, have been greatly developed in the past few years by the aid of more efficient apparatus rendered by the more skilled mechanic.

Never before in the history of the world did man feel more the necessity of acquiring an education than today. The population is becoming more dense and shutting off the natural resources enjoyed by our forefathers. Man cannot depend on nature alone for a livelihood, competition is vastly greater than ever before.

The systems of communication and transportation make competition world wide. Another very important factor is the exhaustion of the natural resources, the mines are being exhausted, the soil upon which agricultural products, from which man obtains his livelihood are growing less and less productive every year, while the demand is increasing at almost a geometrical ratio. We need to grow two stalks of corn or wheat now or manufacture two suits of clothes to whom we produced but one in former years.

What the world wants and must have

is earnest, straight-forward scientific men and women to combine their knowledge with nature and help her by applying the needed stimulus to produce the necessities of life in abundance. But the question is how are we to develop scientific men and women? Who will willingly lend a helping hand to nature?

A wise old King of Sparta was once asked the question: How should we bring up the youth? He reflected awhile fingered his gray beard and said: "Discipline them and teach them that which they must know when they grow up and become men and women!" This was well said. The youth will be impressed with the facts and duties of his childhood and the character and habits developed then are those that will go with him through life.

The education required by a people is not a fixed quantity, what would be adequate for one locality and people, would not suit another generation or another locality. In general it might be said that an education of a people should conform to their necessities or in other words a man should pursue the studies and training which will bear upon his business in after life.

At this age of the world with the extent of

the various fields of knowledge it would be impossible for one man to become proficient in all the sciences and arts, as it was in the time of Plato and Socrates.

The future of the American laborer whether in the shop, bank, or in the field wielding the plow, requires a vastly better education than did his grandfather or even his father whose nature favored so bountifully.

It was the exhausting of the soil, the need of finer quality of manufactured goods and machinists that were foremost among the causes which led to the establishing of the first Industrial Schools of Europe, really of an economic kind.

The gradual decay of the ancient apprenticeship together with the increasing demand for trained and skilled workmen in all the departments of industry led to the founding in the second quarter of the present century trade schools and polytechnic institutions. Previous to this time the American schools were dormant in this useful branch of study, but soon the results of the European experience were apparent and the rapid development of industries in that country was due to the effort

put forth to educate the producing class which forms such a large portion of all nations.

The Worlds Expositions of London, Paris, and New York demonstrated these facts beyond a doubt, and showed that America was far in the rear and was likely to hold its degraded position, but at the late Worlds Fair of Chicago showed a grand advancement in the industrial line, and this growth is due to the Industrial Training and Polytechnic Institutions throughout the land.

Our exports before this were about equal to our imports, but the former was mostly raw material and showed low and degraded labor and consequently low wages, while the imports consisted of articles of high Industrial art and naturally higher wages.

To counter balance this it was thought that a high tariff would check the inflow, others thought it would give the manufacturing East great advantages over the agricultural West and South and that the thing they needed was a good education with proper training. The discussion goes on today but the good results in education are the leading features.

The first step in this country was

the introduction of industrial drawing in the public schools, but here a serious difficulty arose - there were no competent instructors who could teach these new branches of learning.

Massachusetts a leader in many educational movements began work by asking the English government for an experienced art teacher. England complied with the request and detailed Walter Smith an enthusiastic teacher who took up the great task with rare ability and courage. But another obstacle confronted them, where was the money to come from to build, equip, and maintain these Industrial Schools?

This was overcome in 1859-60, Congress passing a bill giving each state as many times thirty thousand acres of land as it had Senators and Representatives in Congress, for founding Institutions for forwarding the cause of agriculture and mechanic arts.

This however was vetoed by President Buchanan, but later was passed and the same hand that signed the Emancipation Proclamation put his signature to this bill.

This large sum gave the cause a great boon and if it had been used judiciously in all

cases the good that would come from it could be estimated. Legislatures of various states were ignorant of the use and the class of people it was intended to benefit and thus things moved slowly. But all states did not misappropriate their funds. It was from that source that the funds for founding the Kansas State Agricultural College by the Mcmill Act in 1863 which today is the leading Institution of its kind in the world. It was closely followed by the founding of the first apprentice school for mechanical Engineering in America, that of the "Worcester Free Institute".

In 1870 wood and iron shops were added to the University of Illinois.

In 1871 the Stevens Institute of Hoboken New Jersey, was endowed by Edwin A. Stevens as a school of mechanical engineering fitting up a series of shops for students.

Another step forward was taken by the Washington University in St. Louis in 1872. It provided for all its students instruction in both wood and iron in a systematic order.

A system called The Russian system is employed in nearly all manual training schools and consists essentially of a course of study that is systematically arranged beginning with the simplest

and going to the complex. Nearly all complications may be reduced to a few simple principles which when mastered will give the key to the more complex. It is not the aim of industrial training schools to make a student proficient in any one line of industry, but to lay before him those elements and principles which underlie the more complex whole, and with these once mastered he may be able to conquer by his own knowledge and increased skill the more complex things.

I would not have you infer from the preceding remarks that in manual training schools, the students do nothing save work on the farm or in the shops, on the contrary there is a parallel course of study to accompany this training, such as drawing, mathematics, english and most of the natural sciences. The aim is to divide the time about equally between the shops and class-room in most of the schools. My personal observations has been at the Kansas Agricultural College and here the training occupies much less time, only about one fourth of that devoted to the class room.

The various industries at the option of the students at this Institution consists of farming, - the

College has over two-hundred acres of land under cultivation and the experiment station publishes bulletins on the results of experiments of different grains in the fields and conducts feeding experiments with stock, and feed stuffs. Everything is done on a scientific basis and the information sent out from this station is of unknown value to the energetic Kansas farmers.

The horticultural department, with its orchards, gardens, propagating pits, and beautiful glass-house are very attractive and instructive.

This department also publishes the results of their experiments upon berries, fruits, and the extinction of the insects, and diseases which frequent orchards and gardens.

This department as well as the farm department attracts many students who make a special study in these lines.

The wood and iron shops in connection with the foundry are well equipped with tools and machinery for all kinds of work in iron and wood.

The machinery is run by electricity and all is under the direct supervision of competent instructors.

The printing department also attracts the attention of many students. The department is

The student is at liberty to choose the industrial he or she prefers, but all are required to carry on industrial in connection with the other branches of study.

Manual Training in public schools has not been successful with students below fourteen years old. Manual Training means work, — work done in a business like manner and with a man's not boy's tools. It means mental activity and physical exertion.

Its advantages in student life, and particularly in after life are great.

In student life it tends to rest the mind from worried study over books, and mind as well as body must have rest. It lets the mind rest and makes it more clear by doing so. And when the time comes for study the student is fresh and in good condition because of his physical exercise in the shops or on the farm. He thus feels like study and does not have to force the work upon a dull tired mind, but on the other hand his mind craves knowledge and study is a pleasure to him as is likewise his physical training.

Lastly and the most important consideration of all is, it trains him to combine the work of

the hands and mind in such relations that there is no effort necessary to make them work in unison. They can do nothing separately, but when combined the results are wonderful.

Now turning to the advantages in after life, they are very evident to the close observer. It is the educated that make the most of this world, and I think I will be safe in asserting that before another passes away, not to be witnessed again, but only to be recorded in history, education will rule the world.

It helps one to choose an occupation which cannot be over estimated, the student generally has an aptitude for some certain line of work, and here he has an opportunity to develop those plans he laid out while in the office or shops. No matter what occupation he intends to follow, those principles learned while in school are a constant store-house of useful knowledge and experience.

There is no one class of people that this education helps more than it does the farmer. You get the theory and practice combined and have them at your command to use when necessary. Take for an illustration the farm machinery, it becomes more complicated every

furnished with a large variety of type, three presses for doing accurate, tasteful and neat work. The students get practical work on the college paper and various forms of designing and job work.

The young ladies have sewing, the department consists of a well lighted capacious room which is carpeted and furnished with machines, and tables for cutting. The department takes all the best magazines, and fashion plates which the young ladies find very helpful and attractive.

The cooking department is well equipped and one to enumerate the good things that are made would have to upset the bill of fare of the highest hotel.

The dairy department at present is only for the young ladies of the second year class. It is hoped to extend the department and arrange for the young men to take a course in dairying which is one of the chief industries in many parts of the country.

The music department is fast growing music is fun and the many pianos, organs, and various wind and stringed instruments attract a large number of students who spend their leisure time practicing and many fine musicians go out from the college every year.

year, and at the present time takes a mechanic to manipulate the complicated combinations. There are a thousand other examples might be given to illustrate the necessity of manual training, but the fact is so evident that it needs little further amplifying to convince any thinking person of its desirable advantages.

As compared with a classical training to my mind it is far superior for the great percent of humanity.

We can not all be doctors, lawyers, ministers, and professors, but we can all be trustworthy, upright, straight forward citizens.

If it was desirable, life would be too short to become acquainted with all the languages now in use, not including the many dead languages of which ours is largely made up.

Every highly organized industrial nation has come to recognize the fact that it can excel in the sharp race of competition, only by maintaining superior skill, economy, and efficiency in the productive process, and the conclusion is fast gaining acceptance that there can be no better way of bringing about these results than through training and application of scientific principles and methods, and thus

can be no better acquired than through manual training schools.

Then encourage the new system, patronize the schools, and this world will be better in proportion to the proper education its inhabitants acquire.

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