

Printing: Its Invention, Progress
and
Influence on Education,

by

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I. Introduction

a. Definition of Printing

b. Before the Invention of Printing

1. Writing

2. Block-printing

c. The Invention of Printing with
Movable Types or Typography

II. A Brief History of Early Printing and its Progress

III. Its Influence on Education

I. Introduction.

a. Definition of Printing.

Printing, in its broadest sense, means "making an impression." If this be accepted as a definition, we can trace its footprints to a period long before man stood upon the earth. Nature has printed the history of past ages on the very rocks that form the crust of the earth.

Printing, as we take it, is, in reality typography, or the art of combining separate letters and taking from them an impression.

b. Methods of Keeping Records before the Invention of Printing.

Writing and Block-printing.

Before taking up the subject of printing proper, it will be well to take a glance at the art of writing and that of block-printing.

Although both differ widely from printing with movable type, yet this last process seems to have been such a gradual transition from block-printing, and it, in its turn, such a natural outcome of the many trials to produce books in some more expeditious manner than could be done with hand-writing, that it will be well to study it a little.

Down to the time of the introduction of printing, writing ran in two lines — the set book-hand and the cursive hand. The writing in set book-hand filled the place now occupied by printed books, the writing being kept regular, and the lines even by ruling, the pages provided with regular margins. The letters employed in the cursive writing were fundamentally the same as in the set-hand, and it was necessary for the ordinary business life. The set book-hand disappeared before the printing press; the cursive writing necessarily remains.

The materials used in hand writing may be briefly noticed. The parchments were either written with style, reed or pen. Parchment consists of the skins of various animals, unhaired, cleaned and dried, so as to form sheets of uniform thickness suitable for writing upon. The skins used for parchment were principally those of sheep, lambs and calves.

The preliminary unhairing and cleaning of the skins were effected as in the manufacture of leather. Skins for fine parchment or vellum had to be powdered with chalk and rubbed with fine pumice-stone until a uniform velvety surface was raised.

Vegetable parchment, or parchment paper is a modified form of paper produced by chemical treatment, having considerable similarity to ordinary animal parchment. This is prepared by

treating ordinary unsized paper with a dilute solution of sulphuric acid and immediately washing away all trace of the acid. Paper so treated, undergoes a remarkable chemical change.

Block Printing.

The art of printing from wooden blocks on silk, cloth, vellum and paper, made its appearance in Europe, when writing, transcribing and illuminating had reached their period of highest development.

We have evidence that it was practiced on cloth and vellum as early as the twelfth century, and on paper as far back as the last half of the fourteenth century. In the early part of the fifteenth century, it was employed in the production of separate leaves, containing either a picture or a piece of text or both.

The Invention of Printing with Movable Type or Typography.

The first printed date, fourteen hundred fifty-four, occurs in two different editions of the same letters of indulgence issued in that year by Pope Nicholas Fifth, in behalf of the kingdom of Cyprus. The art of printing on other objects, as also the art of engraving, which is inseparably connected with printing, existed long before the fif-

teenth century

The real invention of printing, however, was the invention of movable types, capable of being used again and again in different combinations; and the question as to which city has the honor of being the birthplace of printing, is being debated up to the present day. From modern researches, it appears that the honor lies between John Gutenberg, of Mentz and Laurence Coster, of Haarlem.

Printing in Italy.

Printing was taken into Italy in fourteen sixty-five by two Germans, Eygenheym and Pannartz, who went to the monastery of Lubeaco, near Rome. However, they only printed a few books there, but two years later, they went to Rome itself. The number of printers increased very rapidly and in a few years after its introduction at Lubeaco, more than twenty towns in the north of Italy were supplied with presses.

John, of Spire, introduced the art of printing into Venice in fourteen sixty-nine, where it prospered greatly.

Venice was the leading city in this art, but Foligno, Milan, Bologna and Florence

followed the lead. The productions of the Italian press had a great influence in the Renaissance. While the Germans printed books on theology, the Italians, on account of the revived interest in classical studies, issued all the most important classics, in graceful modern letter. They translated the Greek into Latin, and printed their classics, at first, in the Latin language; but in fourteen eighty-eight, the first edition of Homer appeared in Greek.

Printing in England.

William Caxton first introduced the printing press into England. His career, as a printer, began when he was about fifty-five years old. For several years before this, he had been engaged in literary work, mostly in translating into English. In fourteen seventy-seven, Caxton settled near Westminster Abbey. He brought type from Bruges, and printed the first book in England. The book was entitled "Dictes," or "Sayings of the Philosophers." This book was overseen by Caxton, but translated from the French by Earl Rivers. In fourteen eighty a rival printing press was started in London by John Letton, who had made some

improvements over Carton's press. All the improvements were soon copied by Caxton. At this time, the lines were not evenly spaced out and consequently gave the appearance of a very ragged page. John Letton was the first to use even spacing ~~and~~ smaller, neater type.

Illustrating was introduced by Caxton about that time. At first, illustrations were very crude affairs and not very much in demand.

Printing in France^{and} Spain

Printing was first introduced into France, at Paris, in fourteen seventy. Spain published her first book in fourteen hundred seventy-five.

Influence of Printing on Education.

If we could imagine the printing-press out of existence, we could realize more nearly what its invention has done for education.

Let us take a glance at the educational advantages before the time of the printing-press. During the Middle Ages, the church kept up the manufacture of manuscript books in a manner. Before the invention of printing the cells of monks were the nurseries of learned

7.
literature. The monk had a quiet cell, with a desk at the window, a single chair at the desk, and a chest full of manuscripts.

As we look at England during the eighteenth century, there was scarcely a monastery which had not, at least, one literary man who was eager, not only for his spiritual work, but for some special line of literature or art. The writing of history, also, or rather the collection of material for history, now began in the monasteries. Most of the great monasteries jotted down short annals of their growth and expansion, or any remarkable story that belonged to their history. Then books began to be collected and libraries to be established. Anyone who wished to take a donation to the monasteries for any cause whatever, gave manuscripts or books if they could secure them in any way. All were received, with joy and cherished in the library. These manuscripts and books were exchanged by the monasteries and copies made of them.

But the need for more books was imperative, and the printing-press came. The change was by no means sudden.

The first effect of the increased demand for books was to create a great division

8

of labor in the manufacture of manuscripts.

Printing did not spread rapidly for many years after its introduction. For some time, we find the price of books as excessive as ever, and the same precautions taken for their security that had been usual when the only mode of multiplying a volume was by its repeated transcriptions.

The invention of printing was destined to revolutionize the whole world and to extend civilization. It came when it was needed and the world was ready to receive it. A large literature had sprung up, not only of chronicles, philosophical and scientific treatises, religious works and others of an equally solid character, but the novel, *i. e.*, a work of fiction, was also well developed.

On account of the political, religious, and educational activity, the world was ripe for a great revolution which was destined to advance the interests of mankind with gigantic strides.

The progress in printing must be considered as the primary material agency in forwarding this advance. It multiplied

readers a hundred fold; it stimulated authorship; it revolutionized literature, because it made the preservation and dissemination of thought easy; it was a mighty influence in bringing about universal education.

During many years, the only teachers were leaders of the church. As yet, the state paid no attention to education. The church could not furnish universal education, consequently, nearly all their educational efforts were directed toward training of the priesthood and providing for the perpetuity of the church.

Not only were monasteries the only places where schools were kept; they were also the repositories of valuable manuscripts, which were copied with marvelous diligence and preserved for future generations. Both classic and pagan literature were preserved.

However, in this way, only a few received the benefits of ^{an} education. In order to think of the printing-press as an educational agent, we must think away, for a moment, all forms of printing. All the forms of education have for their object, the relation of man as individual, to man as species, or race. All

education must be looked upon as a theoretical and practical adjustment. In the educational instruments are included everything that collects the facts of human life, the experience of mankind, and distributes again to the individual man this experience of his fellow-men, these facts of human life.

What would be the condition of any community without any intercommunication other than oral? When we view the case this way, we are enabled to grasp the significance of the printing-press as an educator. We can scarcely realize what it would be like if each individual was limited to what he experiences of life in his own person, or in the comparatively few persons whom he sees daily; or lastly, in what he hears from travelers.

This was practically the condition before the invention of printing. This would leave one defective and undeveloped in many ways, immersed in his own special atmosphere, unable to purify his views by those of others, unable to comprehend or ever to know the life of remote parts of his own country, to say nothing of other countries. In limiting the hu-

man experience in this way, we have no knowledge of those phases of life which embody human reason or divine reason, for it prevents the perception of such vast processes as institutions.

When we add the printed page to experience, we at once increase the participation of each individual in the life of all to such an extent that the face of society, the state and all that it contains, at once wears a new aspect. The constant processes of readjustment now go on in the life of each individual.

The modern school is possible, only by means of the printed book. Not only the school, but the social life has been benefitted, also. Pupils learn to read in school and continue to learn by reading. Books become an essential part of the furniture of the home. Reading keeps up a constant communication between the wisest of the race and the most humble, - a perpetual education through life.

The Daily Newspaper

Through our newspapers we get a glimpse of the panorama of the human race. It follows that the life of the inhabitant of the city, with his social advantages, penetrates the country wherever the telegraph and railroad make the daily paper possible. In this way each individual sees the activity of his fellow men under the form of vast processes, instead of that former narrow view of mere individual exploits of commonplace people.

The printing of newspapers, with their far-reaching influence, tends toward a common, ideal standard of humanity. It means the gradual elimination of local peculiarities, the limitations of caste and narrow self-interest. This does not mean the reduction of all to one insipid, ideal standard on a lower level; but the elevation of the members of the human race to the higher level of its ideal.

Since the newspaper has become the possible possession of every member of society, the humblest individual has access to the wisest and most gifted of his race.

Every morning the newspaper gives us a few thoughts of the wise, a poem or two, some popular statements of the recent results of science, some pieces of biography and history, and, mainly, a complete picture of the movement of the world of humanity, far and near.

We find that the printed page in its myriad forms, newspapers, periodicals, poetry, fiction, etc., — the most potent agency for the realization of the high spiritual being of man in the image of God, and the most perfect means for the emancipation of man from slavery to his own ignorance and passions and from his dependence upon others for guidance and direction. He becomes less dependent upon his fellow men, and more independent and self-directive, more rational and more participative in the wisdom and goodness of the human race.

Conclusion

Thus by contrasting the few who received an education before the invention of printing, with the many who now receive it, we can have a slight conception of what its influence has done for education.

What the future will give can only be a matter of conjecture, based upon the past. But we expect to advance more and more until we approach as nearly as possible to our ideal. However that may be, it is undoubtedly true that past developments along educational lines, the present status, and the probable future, — all would have been impossible had it not been for the art of printing.