

Thesis

Origin, Development and Influence of Printing

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## Origin, Development and Influence of Printing.

"'Tis to the pen and press we mortals owe  
All we believe and almost all we know."

Printing has been defined as "the act, art or practice of impressing letters, characters, or figures on paper, cloth, or other material."

Before printing was invented, all books were written by hand, there being several different kinds of writing employed, as the nature or purpose of the book differed. One kind was called the book hand, and was employed for legal, theological and devotional books. The Church hand was used in works on the Bible, and other works of like nature used in the church or in private worship. The letter hand was employed in public writings in the nature of letters, while for charts, deeds, &c., the court hand was used.

The first attempt at printing was long before the fifteenth century, — pictures and engravings

being the first crude result. Manuscripts of the twelfth century bear signatures which appear to have been made with a stamp. It is thought that the early kings and nobles had their letter or seal engraved on blocks of wood to stamp their charters and other documents of an official character, but the idea of multiplying copies from one copy was unheard of at this early time.

The first printed date which can be said to be authentic was at the time when Pope Nicholas V reissued his indulgences, in 1457.

Block printing is probably the earliest form of printing. In this method, the letters for the whole page are cut out of a solid block of wood. Rude pictures were made in the same way, and block books were also made. At this time the matter contained in these block books consisted principally of scripture, — wood cuts being given — and also subjects with explanatory notes. This block printing was first known in China and Japan. Frequently the pages of the book were printed only on ~~one~~ one side, and in order to leave no blanks in the book, these unprinted pages

were pasted together. At this period in the progress of printing, any man with a little skill might print for himself. From this stage, there was a gradual change to printing with movable type, which was a great forward stride in the development of this art.

The early types used were necessarily very crude and imperfect, and the manner of holding them together very unsatisfactory and awkward. It is thought that the movable types were made of wood for some time, and held together by means of a thread. One feature of the appearance of the early printed matter, which seems to point to this as a probable explanation, is the fact that the letters were very irregular, and varied so much in size and form; which would not have happened had they been cast. But some believe that between the block printing and the period of movable type, "sculpto-fusi" types were used — the shanks being cast but the letters engraved afterward.

As to casting, some believe the type was cast in sand, while others are of the opinion

that the casting was done in clay moulds. The variations in the letters is explained by supposing the old types were used again, after touching up a little.

The method of casting polytypes has also been suggested. This is done by casting the metal on an engraved block, the metal letters are then removed, and can easily be detached from one another and fastened on to wooden shanks.

In regard to type metal similar difficulties were experienced as in perfecting the other materials for printing — to find a metal which should have all the requisite qualities — ductility and at the same time hardness and toughness. At last, an alloy was found that answered the purpose very well, being principally lead but containing antimony and tin to make it harder. Later other materials were also added, such as nickel, copper and bismuth.

Along with the change to movable type, came a dispute as to whom the invention was to be credited to, — which dispute has lasted even to the present time. Some are

of one opinion, some another. Perhaps the one who would be considered by the most people as the inventor, is Gutenberg, a German, who, though poor, and so not able to carry on the work alone, is believed to have thought of the idea of movable type. He was unable, through lack of funds, to make his idea practicable until Johann Faust lent him money to carry on the business. Some think Faust saw the great importance of the invention, and for that reason lent Gutenberg the money; others believe he wished to get the benefit of the invention, and so purposely robbed Gutenberg, when the business was well started. However that may be, the plain facts are that Faust brought suit against Gutenberg for the money he had loaned him. The result was the suit was decided in Faust's favor, 1455, and he took all the printing materials to his home - as Gutenberg had previously given him a mortgage on them as security. The greatest work done by the firm was the printing of the Mazarin Bible, sometime prior to 1455.

This was the first Bible ever printed, and there are about twenty copies in existence today.

After the separation of Faust and Gutenberg, Faust still carried on the business in partnership with Peter Schoeffer, who had been assisting the firm before. They continued printing until the sacking of Mainz, about 1457, when the business was broken up, and their workmen dispersed. The result of this dispersing was more important than might at first thought be supposed, for the workmen carried the knowledge with them, and thus spread the art of printing over all Europe.

Printing was first introduced into England about the year 1471, by Caxton, although the exact date is uncertain, but surely before 1477. He printed all the standard works of poetry which were then written, and also what little history was in existence. He translated many books, wisely choosing the kind the people wanted to read; this supplying of the demand, as he saw, being the only key to success in his

business. The first book ever printed in England, was now published under the title, "Dictes and sayings of the Philosophers". Many other men followed up this business later, but one of the important names of men engaged in this art was Stephens, or more correctly Estienne. The first of any note by this name was Henry Stephens who lived about the time of Caxton, and set up a printing press in Paris. During the first half of the 16th century, his son, Robert, came into prominence, being appointed printer for the king in Latin and Hebrew; but he was best known by his work on the Bible, and especially the New Testament. He published the Greek New Testament, at Geneva, in 1551, it being the first one divided into verses. He also printed several editions of the classics. His eldest son, Henry Stephens, who followed the same line of work, wrote and published a great many books.

Another family of some note in this art were the Elzivirs — Dutch printers of the 17th century, and before. The family first lived at Leyden, and later at

Amsterdam. They published French, Latin and Italian classics, and at the present time, their edition of these classics is prized as one of the best. They are also celebrated for their collection of French authors on history and politics.

In the next century, we find Franklin as another landmark in the progress of printing. He first went into the business at the age of twelve, under the management of his brother, James Franklin, and later worked for other printers until, in 1726, he went to Philadelphia and set up in business for himself.

In 1784, printing for the blind was introduced into Paris. Large script was used, and the impressions sunk so deeply as to make a strong relief legible to the hand.

The early presses used were known as platen presses. These were of several kinds: the hand presses, treadle presses, and steam or other power driven presses.

The hand presses were first made partly of wood, but later came to be made wholly of

iron. The Washington hand press works something in the following way: the form which is to be printed from, lies outside of the platen or frame work which supports it. The paper is dampened and spread out smoothly on a frame, which will fold down upon the form, called the tympan. Before it is folded down, however, the frisket is put down over the paper, covering it, except where it is to be printed. The form is now ready to be moved under the platen ready for printing, and this is done by means of a crank. Then by using a lever the printer causes the paper to be pressed down firmly on the face of the type, thus getting the impression desired. There are numerous other kinds of hand presses, but all are essentially on the same principle.

The treadle platen press is the simplest machine worked with a wheel. It is driven by a treadle, somewhat like a lathe, when no other power can be obtained. Nine operations are required to print a

single sheet on one side with a hand press.

A great improvement was made in presses, when Richard Hoe invented the type revolving machine in 1847. They were soon introduced into different parts of the world, there being, in 1864, one in Paris, four in England and thirty-eight in the United States. At this time, the ten cylinder press struck off 15,000 copies an hour, and this machine could be modified so as to give twice as many impressions. This machine seemed indispensable, for a time, for newspapers having a large circulation, but at the present time it has been superseded in large measure by the rotary web press.

A peculiar and interesting feature of these rotary web presses, is the large roll of paper, sometimes several miles long, on each machine, ready to be used as it is wanted.

The advantages of these power presses over the hand presses is very considerable. The nine operations necessary there, are greatly

reduced in the use of these machines. While two men are printing one sheet of book work on one side, at the rate of two-hundred and fifty per hour with a hand press, one operator working with a single cylinder machine is able to print twelve hundred per hour of the same kind of work. The largest sheet which could be printed with a hand press contained about eight hundred and five square inches, while single cylinder presses can print sheets containing about forty-eight hundred square inches.

A still further advance has been made, in the use of what is called the perfecting presses. These are arranged so as to print on both sides before the paper leaves the machine; but if so desired, the machine can be changed so as to print on but one side. As to its speed — in 1888 two youths could complete from twelve hundred to two thousand copies, per hour, equal to four thousand impressions.

As to the types now in use, the most

Common are the Roman and Italic. The Roman which is in most general use, was first used in Germany, about 1469, but it was not brought into England before 1518. The Italic is said to have been copied from the handwriting of Petrarch. The fount contains only lower case letters, the capitals being Roman. It is said to have been first used in printing Virgil in 1500, and introduced into England in 1524. When its use became more extensive, it was employed for portions not properly belonging to the book, such as prefaces, notes and introductions. Later it came to be used for quotations, and now it is used to emphasize certain words, and also to designate what does not rightly belong to the original.

As to the spread of printing — it was very slow at first, in fact almost stagnant for several years after the invention. The following dates may be of interest, showing the spread of books to various countries.

The first book printed in Rome was 1465.

The first book printed in Venice, 1469.

Naples, 1471.

Switzerland, 1474.

Sweden, 1483.

Portugal, 1489.

In the United States printing was not practiced until 1639 at Cambridge, Massachusetts. In 1776 there were forty printing offices here. In 1810, they had increased to three-hundred and seventy-five; by 1840, to eighteen hundred, and in 1850, to four thousand. Between the periods of 1815-33 there were but four power presses in Philadelphia; but between 1833-54 the power presses had increased to ninety. In 1770, the colonies were mainly dependent upon England for printing presses, but by 1856 they were able to send back to England the best press known at that time.

Lately, there has been a revival of old style book printing. A demand sprung up for old face characters, and now the foundries are able to supply imitations

of the old styles of type. This revival has encouraged printers to study the artistic attributes of the great printers of older times. The revival has also tended to educate public taste.

In regard to changes in printing from what it used to be — within the last twentyfive or thirty years, the hand press has been almost entirely displaced by the power presses. The paper is not dampened now as it used to be, and it is found to be best to have hard surfaces to print upon, and also as thin as possible a surface between the type and the printing press; while formerly it was thought necessary to have a layer of soft material between.

Within a very few years, further great advances have been made in the machinery. Machines are made with a keyboard something like a typewriter. With an operator at this keyboard the type is set up very rapidly, and when ready to be distributed, — this process is done by machinery also.

The linotype is, perhaps, the most wonderful of the new machines. It has a keyboard as the others do, but differs in that it sets up a line cast into a single bar, at one time, hence its name, line (of) type. The machine is composed of about two thousand different pieces, so perfectly joined together, as to make the modern printer machinist, type-founder, setter, justifier and distributor all in one. In its use, it is estimated that about 40% of the cost of printing can be saved, and matter set up from six to ten times faster than in the ordinary way. Each machine is capable of turning out fourteen thousand letters per hour, but, on an average, an expert generally turns out not over from eight to ten thousand letters per hour, but even a beginner can soon turn out six thousand. The linotype is mostly used for newspapers at the present, but it is thought it may be used for book work also, and thus cheapen books still more.

Let us now consider what was the cause or causes of the introduction of Printing, what effects it has produced, and what benefits have resulted from it.

At the time when it was starting, the spirit of the times was changing, classics were being revived, and the people began to feel a need of more complete interchange of thought, and a more rapid system than they then had. It is said that at the time of the introduction of printing into Paris, there were no less than six thousand persons employed in copying and illuminating books there: the result being that books were very scarce and valuable, and only the nobles, princes and other wealthy people could afford to have them. This meant that the common people were as a mass, ignorant, what knowledge they had gained having been picked up wherever possible. But now public opinion is beginning to demand better education for the people as a

whole, and schools and Colleges were founded. With the founding of these, text books were necessary for each pupil in order to do the best work, and these could be supplied only with the help of the printing press.

It is now possible, through the printing press, for books to go to various places in five years, where before it took twenty years. Facts become known to the masses, where before the common people were ignorant. Opinions are scattered to the remotest places, and explanations and theories of phenomena are published, and the general public is capable of being vastly better enlightened than in the older times. Counter speculations and theories are also widely scattered, and the people are roused to think and speak for themselves.

Printing has been a great impetus to historical works. Had it not been for printing many of the old books would long since have been lost, and with them the valuable history of the

past which they contained. The learning of today would be far less than it is — comparatively little — had these old books of history, and other writings not been preserved.

Then, too, as the people study the past history of nations they are able to draw conclusions as to what their own times may indicate, and to imagine in some measure what the future may possibly be.

What further effects has printing brought about? Rather say, what has it not affected. In 1892 the "World," "Tribune" or "Herald" were able to print, by means of the Hoe press, 48,000 copies per hour! The whole history of twentyfour hours, is within two or three hours scattered broadcast over the land, — sent to the homes, counting houses, great business centers, courtrooms and almost literally everywhere!

Dictionaries and other books of reference for general knowledge may be in nearly every home in the land, instead of, as

formerly, there being, for miles and miles, but one in some public library, which meant that the vast mass of the people, then, were totally shut off from its use.

The very progress of the nations themselves is dependent upon this wonderful invention! Had it not been for it, the peoples of each generation would have been compelled to follow in the footsteps of their fathers, which life would have consisted primarily of eating, drinking, and sleeping, and what information they did possess would be hearsay or tradition. Civilization would have tended to go backward rather than forward!

The height to which this art has attained, and the results it has been able to accomplish, the benefits conferred upon the human race is simply wonderful!! I can find no better word. As to what its future will be we can only conjecture, but we may safely say that it will be improved still more, and that what it has brought about, and

will bring about will seem yet  
more wonderful to future generations.