

## Advancement in Printing Method from Gluing Strips to Electronic Printing

**Poonam Kumari**

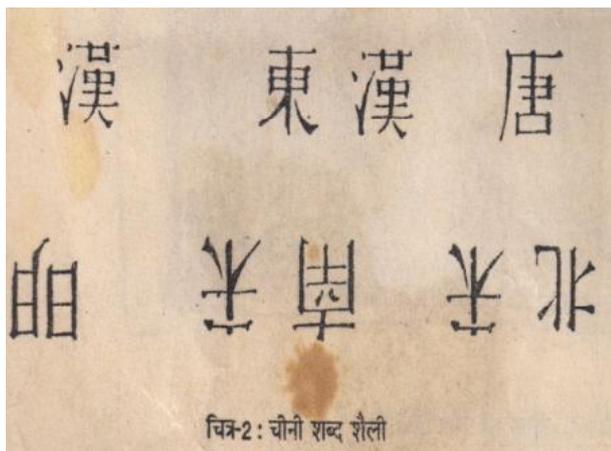
Sheel Chand Inter College

Aminagar Sarai, Bagpat, Utter Pradesh

### ABSTRACT

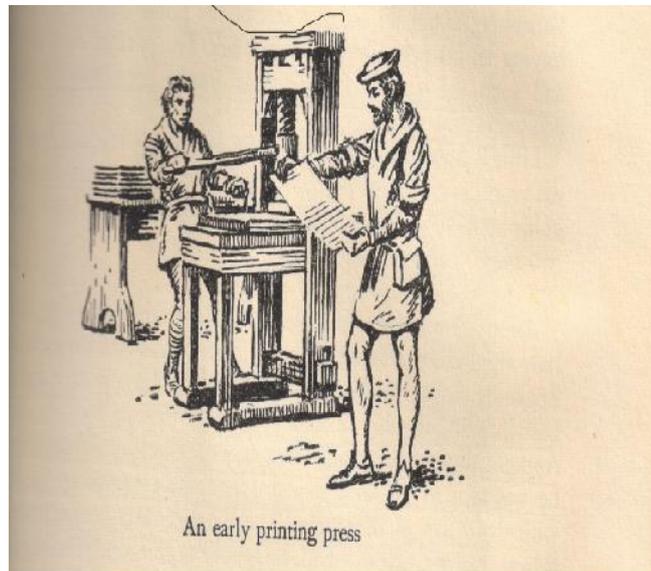
*Printing which had its origins thousands of years ago has evolved into a huge industry today. The process of learning and the dissemination of knowledge, the basic urge that was felt by mankind thousands of years ago led to the development of printing many centuries ago. During the Egyptian civilization in around 2500 BC, the method of gluing strips of papyrus together to form a continuous roll, and an ink that was suitable for printing on this material was discovered. The first European printing from movable type is credited to Johann Gutenberg, at Mainz in 1440. In 1796, Alois Senefelder discovered lithography. Today, printing encompasses our everyday life. Besides packaging and safety against frauds, printing has a major role to play even in today's communication industry*

Printing which had its origins thousands of years ago has evolved into a huge industry today. The process of learning and the dissemination of knowledge, the basic urge that was felt by mankind thousands of years ago led to the development of printing many centuries ago. Early records show that during the Egyptian civilization in around 2500 BC, the method of gluing strips of papyrus together to form a continuous roll, and an ink that was suitable for printing on this material was discovered. This ink was composed of vegetable charcoal, mixed with glue and oil. In fact, the ink was actually discovered some time before that between 2698 BC and 2595 BC in China, in the reign of Chinese Emperor Hueng - Ti, by Tien - Tcheu, a Chinese nobleman of the time.

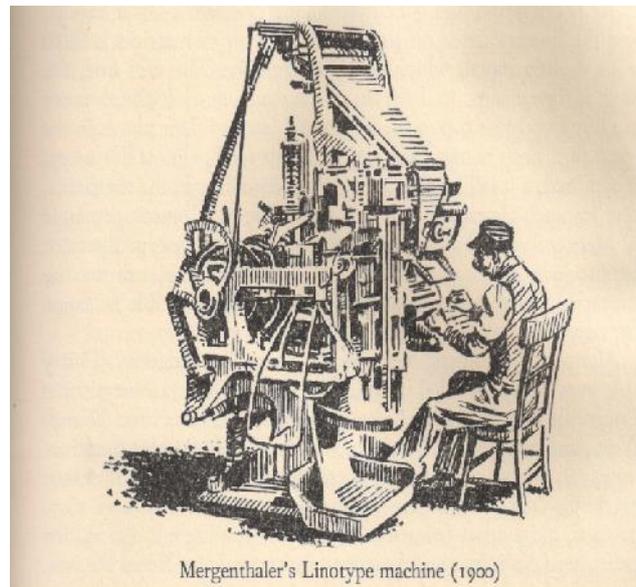
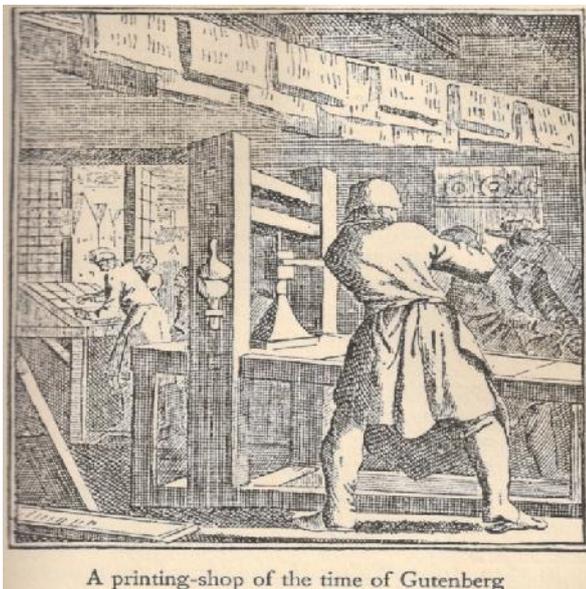


It took another 2000 years to invent wood block printing during the great Chinese Sui dynasty. At this time, there were some 37,000 volumes on file already in existence in the Imperial Library in Peking. The impetus given to creative writing by the invention of printing was so great, that during the Tang dynasty which flourished between 618 AD to 906 AD, another 16,000 volumes were added to the Library's collections. Interestingly enough, Huen Tsuang, the reigning Chinese Emperor between 718 AD and 755 AD, was himself an accomplished ink maker. In fact, he used to frequently send gift of ink made by himself to several of the Imperial Colleges in China.

The oldest non-printed book was discovered in the Chinese province of Kansu in 1800 AD. It was evidently printed from stone blocks and bears the statements, printed May 11, 868 – Wang Chieh, for free, general distribution, in order that in deep reverence the memory of my parents may be perpetuated'. Wood cuts of the same period have been discovered in the cave of thousand bhudhas.



The first European printing from movable type is credited to Johann Gutenberg, who set up his press at Mainz in 1440. The first authentic example of his work is the beautiful 42 lines Bible which was printed in the years between 1450 and 1456. In 1796, Alois Senefelder discovered lithography. This was a special type of printing from smooth surfaces leaving no impressions on the paper. With a greasy crayon, Senefelder drew on porous limestone, and then wet the slab. When the greasy printing ink was applied, it would get absorbed by the portion which was drawn upon, and repelled by the portion that was wet. So when the paper was placed directly on the slab, the design came up clearly.



The image first to a rubber blanket, then to the paper, giving a far softer impression of the design. Lithography printing was further perfected by John Walter. By his method, words were cast in one type to make page setting much quicker and easier. 'The Times' was printed by this method.



Printing was still done in flat presses, of which Koeing's Steam press (1814) was the most advanced type. This was capable of printing 1,100 pages in an hour. The same machine started giving an output of an incredible 20,000 pages an hours in 1857 with Richard Hoe's discovery of the rotary press.

In this method , amatel plate cast from each set page was curved and attached to the press and as it revolved, printing, inking, and paper feeding were done simultaneously. This tremendously increased the speed of production compared to the earlier methods.

The earliest known example of American printing was found in Mexico City between 1536 AD.In and 1539 AD. I638 Stephen Rays set up a press at Harvard University in Cambridge,Massachusetts.In 1881, Frederic E. Ives developed another innovative technique of printing . This was essentially a half tone process printing .It consisted of photographing the subject through a cross line screen, in order to break up the image into dots. And this created an illusion of tone gradation which gave a finer final output.

Today ,printing encompasses our everyday life. Right from the time we get up in the morning ,drinking tea or coffee, use toothpasteand read the newspaper. Most of the time we are not really conscious of the fact

that without printing there would be no newspaper, and the tea, coffee and toothpaste would not be available in well printed easily distinguishable packages.Printing has not only given us these amenities, it has helped us in ways that we aren't even aware of often. It has not only given us the opportunity to learn and to disseminate knowledge,but it has also given us a tremendous amount of protection against fraud and duplication. For instance, when we write on a cheque book or use any packaging containing invisible ink, at every stage the printing on the cheque book or wrapper protects us from any fraud. Besides packaging and safety against frauds, printing has a major role to play even in today's communication industry. Take for instance the printed circuit board on the television radio and satellite transmission equipment, rockets and supersonic jets. All of these are printed, and without the printed circuit board by no means would the communication technology have progressed so far the world over.

Then in the field of food and consumer products manufacturing, packaging and distribution, printing machines such as those which are capable of printing between 12 to 18colours at 60,000 impresioms per hour were discovered. News delivered at 12 o'clock at night is printed on web offset or gravure machines. These are capable of printing 50,000 impressions per hours. That is how the news is available to us at 6 o'clock in the morning at the breakfast table in our daily newspapers. The international coverage of television is actively competing today with the magazines and news papers. The printed medium is like having the luxury of dining in a five star hotel,where the food is presented in a relaxed and elegant manner. And one would surely agree that magazines and newspapers are one of the simple luxuries of life that will survive till eternity.

Screen printing an excellent technique of reproducing the masters brush strokes and colours to give visually appealing works of arts. While on one hand one can have traditional image like Ganesha, Hanuman, Ram, were on a verity of bases such as handmade paper, canvas or even silk, it is also possible to have special designs for corporate gift purposes. In fact, this art has been greatly encouraged by bulk orders that the corporate sectors has been placing to gift associate. On demand digital colour printing is a technique using digital file which eliminates intermediary processes and printing is done directly from the computer. Indigo's digital offset colour systems combines the professional quality and high thought put of offset printing with the

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flexibility and ease of electronic printing. This fully electronic image process produces just in time on demand printing that does not require films, plates, proofs, or make-ready. In mid 1993, Indigo launched the E-Print 1000 for the sheet-fed, on demand segment of the printing industry. And with the introduction of the Ominous one-shot colour press for the web-to-web flexible packaging options, E-print 1000 can print directly from digital data accepting industry standards such as Post-script and Scitex. The system can even work as a stand-alone unit or network with pre-press and desktop publishing system. At a process speed of 120 feet per minute it can print 2000 full colour A4- size images per hour. With a standard printing resolution of 800 dpi, E-Print's proprietary image enhancement technology achieves outstanding crisp, brilliant images, both for text and colour graphics. Besides saving time, material and money, E-print 1000 also offer numerous innovative printing capabilities. For instance electronic collections enables complex publications to be printed in their entirety with each page in the correct sequence without the use of any plates. And this together with the automatic duplex by which a page can automatically be printed on both sides. On the other hand the automatic booklet making option enables production of fully finished booklets, folded and stapled without manual intervention. Product brochures, presentation and promotional material, business cards, greeting cards, invitations, menus, calendars, direct mailers, newsletters, house journals, press releases can now be printed easily by on demand way.

#### Reference.

1. Larsen Egon, A History of Invention, p245-251.
2. Jharotia, j., BhartiyaCitkrakala, p-7- 32.
3. Arens, William F., Contemporary Advertising, p-5-28.
4. James, Cleaver, A History of Graphic Art, p-35-213.