



Technology & Type

Imagine a world without information
at your fingertips.



Ancient Techniques

- ✦ Signet stone - the earliest known form of printing, used in ancient Babylonia times (stamps).
- ✦ During the Egyptian, Greek, and Roman civilizations many books were hand reproduced using slave labour.
- ✦ The development from simple stamping to printing on a press occurred independently and at different times around the world.

Printing in the East

- ✧ Two major influences:
 - ✧ First—the invention of paper printing in the making, by the Chinese in AD 105. The paper was made from vegetable fibers, however, paper like sheets, were being made from pulped silk at least 200 years prior to this.
 - ✧ Paper making flourished in China but took a thousand years to reach Europe.
 - ✧ Second—the spread of the Buddhist religion throughout China.

Printing in the East



- ✧ Individual wood blocks cut in relief style were initially used to reproduce copies of prayers and sacred text.
- ✧ Using water-based inks.
- ✧ Prior to this papyrus and vellum were used for writing materials. Papyrus was too fragile for printing and vellum was too expensive.

Printing in the East

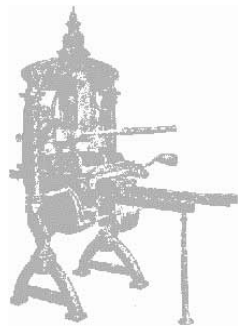
字典 Click on any character. + ?

富 fù

Roof 宀 covering abundant 富 (phonetic) reserves. (形) wealthy ⇄ 豪富, 阿富汗, 財富, 豐富, 致富
+ 富貴 fùguì (名) wealth and status
+ 富豪 fùhào (名) the rich and powerful
+ 富強 fùqiáng (形) rich and strong
+ 富人 fùrén (名) rich person
+ 富翁 fùwēng (名) rich man; 百萬富翁 millionaire; 億萬富翁 billionaire
+ 富有 fùyǒu (形) rich, abundant (動) full of
+ 富裕 fùyù (形) wealthy

- ✳ Movable type was invented for individual characters, held together with clay or with rods wedged between the characters.
- ✳ This proved impractical to accommodate the 2,000 to 40,000 character Chinese alphabet. So this method of printing was abandoned for the wood block method.
- ✳ They did however pass this knowledge on to the Arabic nations.

Printing in the West



- ✳ Papermaking came to West in the 12th century and spread throughout Europe in the 13th and 14th centuries.
- ✳ Moveable metal type was first cast in the 15th century using oil based ink. By Johannes Gutenberg in Germany.
- ✳ The Printing Press was inspired by winepresses and made of wood.

Printing in the West



✳️ Again, the principles of printing were used in the textile industry at least a century before printing on paper. Used to print designs on clothing.

✳️ Printing remained mostly a way to distribute religious material, however by the Renaissance period 16th and 17th century more and more material was political and scientific in nature.

Gutenberg Press



Note how the young apprentice is using the lever to screw down the press. This equipment is very similar to the wine presses of the used at the time.

Print and Modern Thought

- ✦ With the introduction of printing in the 15th century all “truths” proclaimed by the Church came under scrutiny.
- ✦ The exchange of ideas gave rise to revolution and innovation.
- ✦ No longer did geographical constraints hinder the flow of information, books made this all quite portable.

Print and Modern Thought

- ✦ Class structure and land gentries could no longer exclusively lay claim to education.
- ✦ One could challenge their place in society through learning.
- ✦ With the ability to create collective bodies of knowledge creative thought began to connect unrelated ideas.
- ✦ Printing had a profound effect on the development of individual rights that we now enjoy today.

Print in the North America



- ✧ As cries of revolution sprang up in Europe, this same spirit was carried over to the colonies. The few brave who dared to venture over the seas on their own were not about to give up hard fought for freedoms.
- ✧ Stephen Day brought the first press to the continent in Cambridge, Massachusetts in 1670.

Print in the North America



- ✧ Once again the printed word became the architect of revolution. Benjamin Franklin became a hero of his time for his inventions and writings.
- ✧ In the early 1800's continuous roll paper and steam-powered presses once again altered the societal norms.
- ✧ The price of the printed word dropped and the New York Sun was affordable by all.

Advances in Print Technology

- ✧ Until the 19th century Gutenberg's print technology remain unchanged. In the early 1800's continuous roll paper and steam-powered presses made from iron instead of wood. The Sulzer Press brought printing volume works to a whole new level, newspapers became big business.
- ✧ Linotype and Monotype method of creating moveable type by machine instead of by hand was introduced in 1884. Invented by Ottmar Mergenthaler. These machines were time and cost effective.

Advances in Print Technology



- ✧ 1804 Ira Rubel first developed the process of Lithographic offset printing onto paper. This came about with the introduction of metal plates. Therefore colour was introduced and enjoyed by many.
- ✧ George Mann Later made the first British lithographic press where the advances far exceeded the American.

Advances in Print Technology

- ✦ The Xerox machine made prints available to everyone in 1938. Color scanners were introduced in 1948 by Kodak, later in 1968 four colour scanners came about.
- ✦ Radical change continued with photo-mechanical composition, and laser technologies(1960).
- ✦ Word processing transformed editing practices,with computerized Linofilm introduced in 1968.

Print in the 20th Century

- ✦ Computer printing has such rapid change it's hard to keep up. From the first Daisy-wheel and dot matrix "impact" printers to no-impact printers: ink-jet, laser, and thermal - transfer.
- ✦ IBM personal computer introduced in 1981 and APPLE on it's heal in 1982, the Lisa the beginning of the Macintosh.

Print in the 20th Century

- ✧ Adobe Postscript used to set type on Laser Writer and Linotronic image setters at different resolutions (1984).
- ✧ Aldus PageMaker introduced with this the immergence of “desktop publishing”. Do it all from home in 1985. Quark is introduced in 1987 taking printing by storm.
- ✧ The changes since in the computer industry are to many to cover most of you have lived the rest.

Famous People in Printing

Johannes Gutenberg



- ✧ German printer and pioneer in the use of movable type. He was probably born in Mainz Germany.
- ✧ About 1450 he set up a press in Mainz on which he probably started printing the large Latin Bible associated with his name, as well as some smaller books and leaflets.
- ✧ The Bible, known variously as the Gutenberg Bible, Mazarin Bible, or 42-Line Bible, was apparently finished before the end of 1456.

Famous People in Printing

Johannes Gutenberg



- ✧ Johannes Gutenberg was born into a noble family of the city of Mainz, Germany. His early training was in goldsmithing.
- ✧ Gutenberg had the idea of utilizing techniques of metalworking, such as casting, punch-cutting, and stamping, for the mass production of books.
- ✧ Many years of Gutenberg's life are lost to history. Between 1450 and 1455, while preparing to produce a large Bible, Gutenberg is thought to have printed a number of smaller books, a calendar, and a papal Letter of Indulgence.

Famous People in Printing

William Caxton



- ✧ William Caxton, the first English printer, was born in the Weald of Kent. In 1438, he became apprenticed to Robert Large, a leading textile merchant.
- ✧ After spending a year in Cologne learning the art of printing, Caxton returned to Bruges and set up a printing press, where he published his translation of *The Recuyell*, the first printed book in the English language, around 1474.
- ✧ His next publication, *The Game and Play of Chess Moralized* (1474), was a translation of the first major European work on chess.

Famous People in Printing

Aldus Manutius



- ✦ Manutius was born in 1452 at Bassiano, a hill town some 80 km south of Rome. Between 1467 and 1473 he was a student in the Faculty of Arts in the University of Rome where he developed a passion for Classics.
- ✦ In 1489 Aldus decided to abandon teaching for the rough-and-tumble of publishing.

Famous People in Printing

Aldus Manutius



- ✦ Aldus' importance lies in his invention of Italic type, his superior editions of classical texts, his close relationship with the scholars who edited and used these texts, and his contributions as a printer to the intellectual culture of Europe as a whole.
- ✦ It is a fitting modern tribute to this artist and intellectual that a desktop publishing program, Aldus Pagemaker, has been named in his honor.

Famous People in Printing

Aloys Senefelder



- ✧ Principally known as the inventor of lithography, born in Prague, 6 Nov., 1771; died in Munich, 26 February, 1834.
- ✧ After attempting to become an actor, he took up dramatic writing, at which he was at first fairly successful.
- ✧ Because of difficulty in finding a publisher, he tried to devise means for printing his productions himself, and began a series of experiments with etching and copper-plates until he discovered, in 1796, that Kilheim limestone could be used for the purpose.

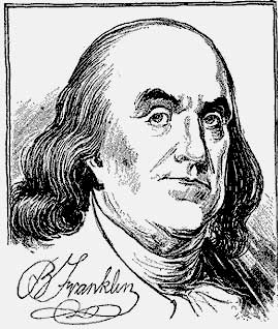
Famous People in Printing

Aloys Senefelder

- ✧ He soon found that etching was not necessary, owing to the fact that grease and water do not mix.
- ✧ By his method the marking is done upon the stone with a greasy composition of soap, wax, and then the plate is washed over with water, which soaks into the unmarked parts of the stone.
- ✧ The printing ink is then applied and adheres only to the marked places, while the water protects the rest of the plate; a number of impressions can then be obtained. This process he called "chemical" printing.

Famous People in Printing

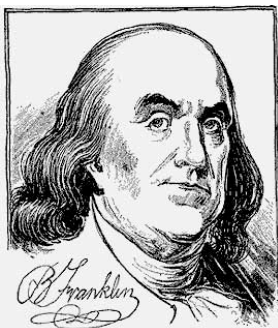
Benjamin Franklin



- ✧ Benjamin Franklin was born on January 17, 1706 in Boston, Massachusetts. His accomplishments as scientist, publisher and statesman are particularly remarkable when considered in the context of colonial North America, which lacked the cultural and commercial institutions to nourish original ideas.
- ✧ He introduced the library system so all people could enjoy books.

Famous People in Printing

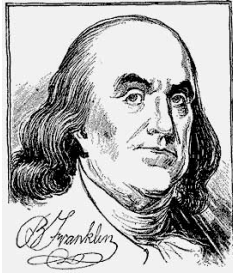
Benjamin Franklin



- ✧ Although Franklin had little formal education, he was an avid reader and writer. At twelve he was apprenticed to his brother James, a printer, who published a weekly magazine called The Spectator.
- ✧ At seventeen Franklin moved to Philadelphia and quickly opened his own print shop and started publishing.
- ✧ In his newspaper he was the first to use a lot of advertising of products and services.

Famous People in Printing

Benjamin Franklin



- ✧ Franklin's Pennsylvania Gazette provided information about politics to the people.
- ✧ Franklin used political cartoons to illustrate news stories and to heighten reader appeal. The May 9, 1754 issue included Join, or Die, which is widely considered the first American political cartoon.
- ✧ Devised by Franklin, the cartoon reflected concern about increasing French pressure along the western frontier of the colonies.

Famous People in Printing

Friedrich Koenig of Suhl

- ✧ In 1801 Senefelder patented his design in England and by 1803 had adapted the process further to incorporate the use of metal plates.
- ✧ At around the same time Friedrich Koenig of Suhl was working on a power press but his first attempt, called the Suhl press, was eventually aborted as was a second.
- ✧ But by 1812 he had built a steam operated twin cylinder machine and within two years this was adopted by The Times newspaper in London.

Famous People in Printing

Freidrich Koenig of Suhl

- ✦ At that time the paper was published by John Walter II, having taken over from his near bankrupt father in 1803 but by 1837 distribution of The Times was approaching the 30,000 mark.
- ✦ This had been made possible by the invention of Koenig's power press. The output of the new machine was 1,100 sheets an hour, more than four times higher than that of the manually operated press previously used by the newspaper.

Famous People in Printing

Ottmar Meganthaler

- ✦ Born May 10 1854 - Died Oct 28 1899
- ✦ Born in Germany, Mergenthaler was trained as a watch and clockmaker. He arrived in Baltimore in 1872 and took a job in a machine shop, eventually working his way up into a partnership.
- ✦ At the age of 32 he designed and built his first linotype machine. With it, the two operations of setting and casting type in leaden lines were performed simply by touching the keys of a board similar to the keyboard of a typewriter.



Famous People in Printing

Ottmar Mergenthaler

- ✧ Ottmar Mergenthaler's invention of the linotype composing machine in 1886 is regarded as the greatest advance in printing since the development of moveable type 400 years earlier.
- ✧ Mergenthaler's machine enabled one operator to be machinist, type-setter, justifier, typefounder, and type-distributor.
- ✧ Since the machine was first used in 1886 by the New York Tribune, great improvements on its design have been made. Probably more than 1,500 separate patents have been taken out in connection with it.

Famous People in Printing

Ira Rubel and George Mann



- ✧ Perhaps the 20th century is most marked by the arrival of offset printing, particularly for colour.
- ✧ In 1904, a New York lithographer by the name of Ira Rubel was the first to develop the process of lithographic offset printing onto paper.
- ✧ This was achieved largely because of the widespread introduction of metal plates, as previously the process had only been suitable for printing from stone to tin.

Famous People in Printing

Ira Rubel and George Mann



- ✧ It was two years before the first British offset lithographic press was built by George Mann and although the invention was ostensibly American, most improvements in the following years (notably the 1920s) were made by European printers.

Famous People in Printing



- ✧ There are many more people that have influenced the History of Printing and the Graphic Design Industry.
- ✧ Spend some time on your own investigating this, it is very interesting to see how print affected history, and how the internet is doing the same at a much faster rate.