The origins of typography

TYPOGRAPHY is the balance and interplay of letterforms on the page, a verbal and visual equation that helps the reader understand the form and absorb the substance of the page content.

A specimen sheet of typefaces and languages by William Caslon I from the 1728
The origins of typography

Alphabets evolved from drawings of early man into pictographs and ideographs.
The origins of typography

Hieroglyphics means ‘sacred carvings.’
Until 1822, hieroglyphics were thought to be pictographic.
The origins of typography

Found in 1790 in Egypt, the Rosetta Stone contains three inscriptions of a single text, a decree of the priests of Memphis in honor of Ptolemy V. (196 BC).

The Rosetta Stone resides in the British Museum
The origins of typography

Text on the Rosetta Stone appears in hieroglyphs, Demotic and Greek, allowing Egyptologists in 1822 to decode hieroglyphics.
The origins of typography

French scholar Jean Francois Champollion (1790-1832) in translating the Rosetta Stone realized the phonetic value of hieroglyphs; they have more than symbolic meaning and served as a ‘spoken language.’

ses tu baíu abta, hennu-nek baíu amenta
‘Follow thee, the souls of the east. Praise thee, the souls of the west.’
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Chinese writing is ideographic; each character corresponds to a spoken syllable, usually with a basic meaning.

“Strength,” brush calligraphy by Lixin Wang
The large characters mean strength. The small character on the right says, “Strong enough to lift a mountain, and the power is unparalleled in the world.”
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To move from pictures to letters is to go from the specific to the universal. Letters can express abstract ideas.

SPECIFIC → UNIVERSAL

Face

Cuneiform Tablet, Umma, Sumeria, circa 2100 BC
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Phoenicians developed first ‘Western’ alphabet in about 1100 B.C. and used their language in commerce and to express ideas.
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As letter forms became more symbolic and less like pictures, the size, form and shape of each letter became important.

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The Romans used their alphabet to express ideas and for literature. Roman letters, derived from stone carvings, are upright, with serifs and variation of thick and thin strokes.

Trajan’s column, Rome 116 AD
Serifs originally were chisel strokes used to finish the bottoms of letters. Roman represent a ‘modern’ form, but printing didn’t come along for another 2,000 years.

The modern titling font Trajan was based on the lettering on Trajan’s Column in Rome.
The origins of typography

During medieval times, language was kept alive by religious scribes, who copied sacred texts by hand.

Their work influenced letter shapes.
The origins of typography

Scribes created books by hand in ‘black letter,’ or ‘textura.’

Uncial, a more angular version of black letter

Detail from medieval manuscript, France, Early 13th Century
Latin text; early angular Gothic script
We attach meaning to type, to the shape of the letters. Textura has been connected with Nazi Germany, but it also appears in trademarks of many newspapers.
The origins of typography

open style, is the precursor to lower-case letters.

To keep quills sharp and strokes uniform required skill and sensitivity.
The origins of typography

Designers are interested in type that is reproducible. Modern typography begins with the invention of movable type and the printing press.

LEFT: Block print: Hanshu, history of western Han. Fujian Province, China, 1304-1334. ABOVE: Ceramic moveable type, Ch’ing-li period (1041-1048).
Gutenberg’s contribution was a way of mass producing movable type cast in metal. Gutenberg’s font had more than 300 characters to imitate textura style of the scribes.
The origins of typography

Gutenberg’s legacy is ‘hot-metal’ type setting. The character forms, carved in metal, the strongly influenced type design for centuries to come
The origins of typography

Gutenberg’s masterpiece was his 42-line Bible. It had 1,286 pages in all. Today, 48 survive out of perhaps 180 that Gutenberg printed circa 1456.
The origins of typography

Aldus Manutius founded Aldine Press in Venice with the goal of preserving classic Greek texts. His artisans advanced typeface design beyond imitating hand-drawn characters by using Roman letter forms.
William Caxton printed first books in English, using the textura style type similar to Gutenberg’s. By 1509, English printers were using Roman type, influenced by the French.

Godefrey of Boloyne or Last Siege and Conqueste of Jherusale. Printed by Caxton, London, 1481.
Gutenberg’s contribution: A way of mass producing individual pieces of type in metal that could be used over and over again. A punch (top right) was carved by hand, then driven into softer metal to form a matrice (bottom right) that was used in a mold to form type slugs (top left).
Early printers used a composing stick (A) to build lines of type into galleys (B) that were locked into the press bed (C).
The printer worked at the typecase, containing all the letters, numbers and “sorts.” The flatbed press with the hand screw, derived from a wine press, served printers for hundreds of years.
Today hand set type is used for special jobs that require a refined, classic look.
As presses became mechanized, the typesetting function had to adapt to mass production. The Linotype machine allowed type to be composed on a keyboard. When a line was complete, the operator would cast this onto a slug. One by one, the lines of type formed a galley.
High-speed presses use cylinders and rollers. The stereotype system produced cylindrical plates. The Linotype slugs were set in a galley, then a papier maché mold was produced (left). It was used to make rounded plates that could be bolted on the press (right).
Gutenberg's raised type is called relief printing (A). Other process of printing include intaglio or gravure (B) and planographic such as offset lithography (C).
Phototypesetting introduced the era of “cold type.” Strips of photo paper containing the text were pasted into “mechanicals” to be made into plates.
Cold-type mechanicals are transferred to the printing plate through a photographic process. Most commercial printing today is done on offset presses, a lithographic process that uses lightweight aluminum plates.
Offset printing allows better reproduction of photographs, and it is a superior process for color because the press has a lighter touch on the paper and can use a finer halftone screen.
A word about halftones: A press using white paper and black ink cannot print shades of gray, so photos must be converted to halftones to reproduce correctly and look natural. A halftone is made by converting the photo to a series of dots. The bigger the dots, the darker that part of the photo will appear.
Computers first used bitmapped text (right) to create characters on a screen. The letters were composed of individual square picture elements, or pixels. But when bitmap type is enlarged, it gets jagged. Postscript type describes characters in a font by vectors, data points that form an outline. These can be enlarged without jagged edges. To be printed, the Postscript type is turned back into a bitmap by a raster image processor (RIP).
when type is rasterized, the smooth type is converted to square picture elements, or pixels. High-quality typesetting machines rasterize at 2,400 pixels per inch, so the square pixels are not visible. But for low-resolution applications, such as Web pages on a computer screen, the computer uses anti-aliasing to give the type a smooth look.
Digital printing uses technology similar to the laser printer to produce pages directly from a computer file.
a. star target  
b. registration mark  
c. page information  
d. trim marks  
e. color bar  
f. tint bar

DAISY.TIF   200lpi   12/19/2008   4:39:20 PM
PROCESS CYAN MAGENTA YELLOW BLACK

PRINTER’S MARKS
a. star target  
b. registration mark  
c. page information  
d. trim marks  
e. color bar  
f. tint bar
The final page size of a printed document is often referred to as the **trim size**. Printer’s marks are trimmed off, as is the edge of the page to create a **full bleed**.
The spreads are created on the computer using a program such as InDesign or QuarkXpress, or the pages are pasted up with strips of type from a photo typesetting machine.
A. Plates are produced directly from the computer, or they are “burned” from a negative of the paste-up. B. The printer “plates” the press in the proper order. C. The press is inked and ready to go.
Web presses print on a continuous roll of paper. The pages go into a folder and are trimmed to produce the final document. All newspapers are printed on web presses, as are most general circulation magazines.
Books and fine documents are printed on sheet-fed presses that allow for more accurate registration, meaning all of the color plates line up exactly. The sheets, called signatures, contain several pages each, front and back.