PRIN*tips*

Typography from Gutenberg to Computers

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One of the best things about being a printer is recognizing the role our profession has played in the educational, political, and religious life of mankind. In the Middle Ages, before printing was invented, scribes made books by hand-copying manuscripts in distinctive calligraphic lettering. A single book could take years to produce using this method, meaning that only the church and nobility could afford them.

Printing made it possible to produce whole books in weeks rather than years. This, in turn, enabled the rapid spread of knowledge, ideas, literature, and news, profoundly shaping the development of whole societies.

Many people believe that the invention of printing hinged on the development of the printing press. Derived from presses used to squeeze the oil from olives and juice from grapes, the first printing presses used a heavy screw to force a block of type against the paper below.

But that's only half the story. It wasn't until Johannes Gutenberg perfected the technology of *movable type* in 1458 that the printing press realized its full potential. Movable type – letters of the alphabet, numerals, and punctuation marks constructed of durable metal – could be assembled into a page of text, then disassembled and re-used to create a new page of text.

Early printers needed both a printing press and a *type font* – the set of movable type – to produce books. Type was cast from molten metal poured into carved molds; the task of carving the molds was the done by *typographers*. Gutenberg himself fashioned a font containing over 300 characters, including flourishes and ligatures, to simulate the look of hand lettered Gothic script. He also invented a variable-width mold to cast type from metal and perfected a blend of lead, antimony, and tin that resulted in very durable type.

Early printers as typographers

Prior to the development of printing, lettering styles were confined to the calligraphic styles of scribes. Uncial lettering (from Latin *uncial* meaning inch-high) was used during the Roman Empire; this gradually evolved to Celtic Roundhand (developed in Ireland). Later, during the reign of Charlemagne, the king ordered a standardized lettering style to be used throughout the Holy Roman Empire – Carolingian lettering. Finally, a lettering style called Black Letter (sometimes called Old English or Gothic) developed in Germany. Black Letter was adapted

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Printers mark of Aldus Manutius

Printers mark of Nicolas Jenson

by Gutenberg for the movable type used to print the 42-line Bible (named for the number of lines per page), which is also known as the Gutenberg Bible or the Mainz Bible (for the place where it was produced).

Because type was so critical to early printers, many were also typographers, or employed them. One example is Nicolas Jenson (1420-1480), a printer and publisher originally from France who studied with Gutenberg and eventually settled in Venice, Italy. Jenson developed the first standardized typeface for printers. Jenson's types – known as *Old Style* – are regarded as among the very best of the Renaissance. Many typefaces in use today (such as Times New Roman) are based on Jenson's designs.

Old Style typefaces are adaptations of Roman type – a style influenced by the letter forms carved on classical Roman architecture. The clarity and regularity of Roman type was more aesthetically pleasing and easier to read than Black Letter. In addition, it adapted well to metal typecasting, hastening the move away from the Black Letter style used by Gutenberg.

Old Style fonts are conservative in design, very readable, and well suited to writing long documents. Old Style typefaces whose names you may recognize include Centaur, Bembo, Benguiat, Goudy Old Style, Palatino, Times Roman, Trajan, Jenson, and Caslon.

Nicolas Jenson and Francesco Griffo (credited with developing Italic type) both designed type for Aldus Manutius (1450-1550), a publisher and printer. Manutius founded the first successful mass market publishing house, called the Aldine Press. If the name *Aldus* seems familiar, it may be because in 1985, Paul Brainard named the first desktop publishing program *Aldus Pagemaker.*

Another early typographer was William Caxton (1421-1490), credited with developing Gothic type (a form of Black Letter). An English merchant and diplomat who worked translating French literature into English for the Duchess of Burgundy, Caxton brought printing to England when he opened a print shop in Westminster. In 1477, he published the first book in English, and over a span of 14 years he printed more than 70 books. Some of the best-known books printed by Caxton include *Troilus and Creseide, Morte d'Arthur, The History of Reynart the Foxe,* and *The Canterbury Tales.*

The first type foundry

In 1530, Claude Garamond (1490-1567) established the first metal type manufacturing factory and began to produce fonts for printers. His skill as a punchcutter (type carver) meant that his carvings of type molds produced superior type characteristics. Thus, his fonts became sought after by printers of the time, and the type foundry became a business enterprise. Garamond also cut the classic Old Style typeface bearing his name, which is considered one of the best faces in all typography.

Developing lettering styles

For the next 200 years – from the late 1600s to the late 1800s – the printing press and the science of typecutting had only minor refinements. Then in 1814 *The Times* of London introduced the first steam press to replace hand-operated presses; in 1868 the rotary steam press was introduced.

Type styles, which had continued to evolve through several periods *(Transitional, Modern, Slab Serif)* underwent a major change in the late 19th and early 20th century with the development of *sans serif* type faces. (*Sans serif* means *without serifs* in French). It is likely that several factors had, until that time, influenced the continuance of serifs at the end of letters. First is tradition – all hand lettering styles used by scribes had serifs, and cast metal type was a continuation of hand lettering. Secondly, serifs help the human eye move from letter to letter, thereby facilitating reading.

Regardless of the simple, clean, and ultimately pleasing design of sans serif type faces, their

introduction was so controversial that as a group the fonts were called *Grotesque*. Notable Grotesques include Helvetica, Grotesque, Arial, Franklin Gothic, and Univers. The Grotesque style later was joined by Geometric (Avant Garde, Futura, Century Gothic) and Humanist (Gill Sans, Optima). Sans serif typefaces became very popular in the 1920s and 30s.

"Sans serif typefaces became very popular in the 1920s and 30s."

Type Tips

A well-designed page of type contains no more than two different type faces or four different type variations (size, weight, slant, width).

- *For one-face projects,* create contrast by varying the size of the type.

- *If using a family of styles,* mix the roman version with its variants such as weight (bold, demi-bold), slant (italics or oblique) and width (condensed, extended).

- *If pairing historic styles,* the basic rule is: serif fonts work well with sans serifs. Some examples: Old Style or Modern can be mixed with Transitional; Slab Serif or Geometric with Modern; Slab Serif with Grotesque.

- *Remember* that when fonts are too different, they don't work well as a pair. Contrast is strongest between two fonts with many opposite features but some common traits.

- *Be careful about scaling fonts.* It may be tempting to scale a font to make it fit into the space available. But be aware that scaling distorts a font's design, and excessive scaling may reduce legibility.

TRICKS **&** *tips*

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Q. *What is the history of the Times Roman font?*

A. *The Times* of London newspaper developed the Times Roman font in 1932 under the direction of Stanley Morrison. Classified as a Transitional typeface, it was originally cut by the Monotype Corporation in England. The design was also licensed to Linotype because the *Times* used Linotype equipment for setting type. During World War II, the American Linotype Company applied for a trademark registration of Times Roman separate from Monotype and Linotype; it was granted in 1945.

With three companies all holding a legal trademark to the name Times Roman, there was the inevitable legal maneuvering to determine who had rights to the name in which countries. The result was that Linotype and its licensees (Adobe and Apple, for instance) continue to use the name *Times Roman* while Monotype and its licensees (Microsoft, for one) use the name *Times New Roman*.

In the late 1980s Monotype redrew its Times New Roman and Adobe upgraded its version of Times. Later Microsoft and Apple each produced a version (Times New Roman and Times Roman, respectively) in TrueType format. There are subtle differences between the versions, though most users don't notice them.

Q&A
questions and answers

"During World War II, the American Linotype Company applied for a trademark registration ..."

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"...a font can be plagiarized and renamed without infringing on the trademark."

Finding Fonts

As with so many things available on the Internet, finding a new font to use can be extremely easy. However, before you decide to download it for use in a document, please consider that you actually may be stealing someone's intellectual property.

If you purchase a font from a legitimate type foundry, it will come with a licensing agreement and credit given to the font designer. Beware of fonts being offered for free or very inexpensively, without a licensing agreement or credit given to the designer. These could be reverse-engineered or pirated.

Most fonts from legitimate type foundries are trademarked, though the trademark protects the name only, not the design. Therefore, a font can be plagiarized and renamed without infringing on the trademark. Some pseudonyms for Times Roman are *English* *Times, London, Press Roman,* and *Tms Rmn.* Some pseudonyms for Helvetica are *Helios, Geneva, Megaron,* and *Triumvirate.*

There is another, more practical, reason to avoid using pirated or reverse-engineered fonts – they are less likely to be of high quality, and therefore will produce a poor quality rendering. In addition, we may not be able to RIP (raster image process) your document if it contains non-standard fonts.

Here are our recommendations on acquiring fonts:

• Download fonts only from legitimate type foundries and designers.

• Avoid fonts found on shareware web sites.

• Don't give copies of fonts to your friends.