



MASTERING TYPE

{ The Essential Guide to Typography }
{ FOR PRINT AND WEB DESIGN }

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INTRODUCTION

Communications technology permeates our society. Look around. Typography is everywhere. Commuting to work, grocery shopping, surfing the Web or navigating a smartphone, we are bombarded by words of every shape, size and arrangement. It is essential for designers to understand the basics of typography to get an effective message across instantly. The goal of this book is to guide the reader in building a solid foundation of timeless typographic knowledge, for both print and digital media, while transcending transient technologies.

Regardless of the ever-advancing technology at our fingertips, we still rely on the same twenty-six letters. Typographic basics start with the principles we all learned as children. Letters form words, words form sentences, and sentences form paragraphs. The designer's goal of optimizing communication via legibility, connotation and form are as fundamental as the alphabet. Does this mean we can't use technology to enhance our words? Certainly not. Typography is an art and can be treated as such—but only after the basics are thoroughly understood and ingrained in the mind of the designer.

This book breaks down the study of type into a systematic progression of typographic relationships—letters, words, sentences, paragraphs, pages and screen—through content examples, interviews and real-world inspiration. It illustrates to the beginning designer how professional type treatment looks, feels and reads. Careful study of these step-by-step details provides a virtual apprenticeship in typography, a valuable education for any designer.

chapter one

HISTORY

Confucius said, “Study the past if you would divine the future.” The past shows us where we came from and how we got to where we are today. In typography, many modern-day designs show the influence of the past. We must look to original forms of letters, how they were created and how they were used, to understand typography’s full potential. This understanding will help guide us in making the best typographic choices for the future.

IN THE BEGINNING THERE WAS COMMUNICATION

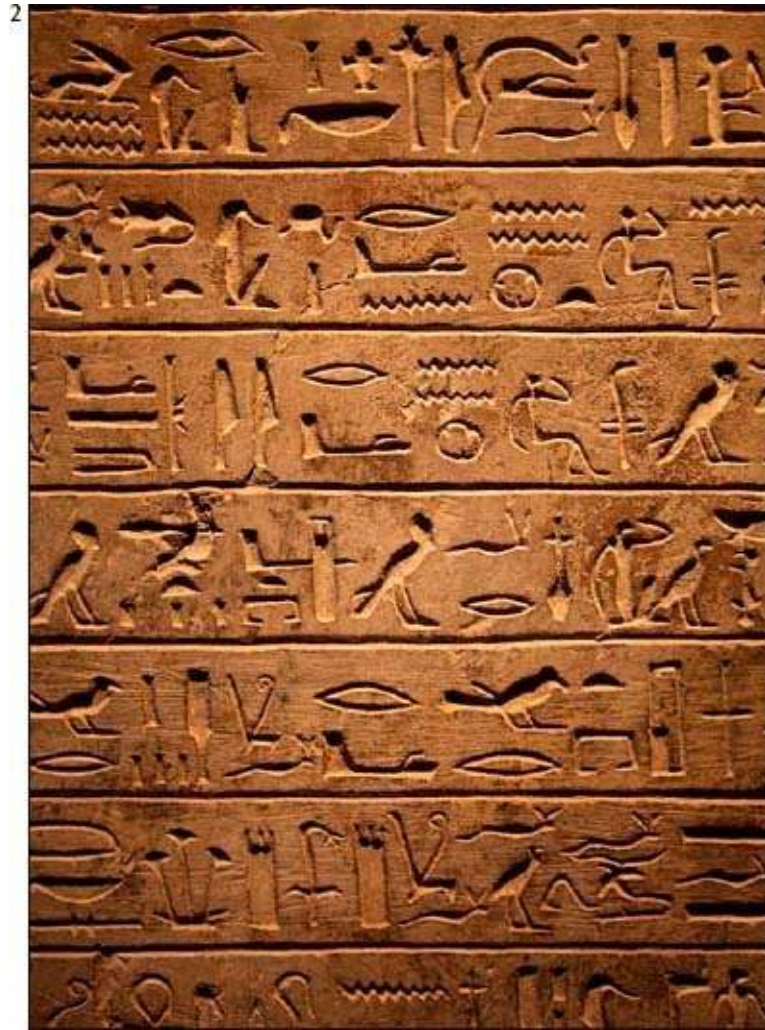
Cave paintings are the first recognized form of human communication (Fig. 1). Found all over the world, symbols painted on walls and carved in rock represent primitive means of recording information. These pictographs—images that represent their literal meanings—were easily comprehended by the non-literate culture that created them. Pictographs work well for materials that need to communicate to speakers of a variety of languages. Contemporary pictographs are most commonly found on directional signage such as traffic indicators and public toilets.

Ancient Egyptians utilized pictographs in their hieroglyphics, although their language took the idea of using pictures one step further (Fig. 2). Phonograms—images that represent sounds—were also incorporated into their writings. This language allowed the Egyptians to communicate both concrete things and abstract concepts. Because the Egyptian language used both pictographs and phonograms, though, it was undecipherable to early discoverers of the beautiful murals and carvings depicting Egyptian history. It wasn’t until 1799 that Pierre-François-Xavier Bouchard, a French captain, discovered the Rosetta Stone. This stone was the key to unlocking the until-then uninterpretable languages of the Egyptians. The Rosetta Stone had the exact same text carved in hieroglyphics, plus the demotic and Greek alphabets. This allowed scholars familiar with the Greek alphabet to decipher Egypt’s past.

Around the same time ancient Egyptians were creating hieroglyphics on walls and in stone, the Sumerians in Mesopotamia were writing on clay tablets. The Sumerians’ written language was called *cuneiform*, symbols that were pressed into clay with a wedge-shaped stylus (Fig. 3). Cuneiform used both phonograms and ideograms, sometimes using the same symbols for both. Ideograms are symbols or a combination of symbols that represent a concept. A modern-day example of this would be an image of a man holding a broom to represent the verb *sweep*, instead of meaning literally a man holding a broom. Reading cuneiform was not easy, as it required knowledge of both ideograms and phonograms, plus the ability to differentiate when a symbol was part of an ideogram and when it represented a sound.



1 1,500-year-old cave painting in the Cederberg region of south Africa



2 Egyptian hieroglyphics.

BIRTH OF THE MODERN WRITTEN LANGUAGE

During the fifteenth century B.C.E., the Phoenicians developed an alphabet that consisted of twenty-two characters, all consonants (Fig. 4). The Phoenicians were the first to combine these characters to spell words, writing right to left. This alphabet spread throughout the Mediterranean region because of extensive trading. This writing system became the precursor to the Greek, Latin, Arabic and Hebrew alphabets.

Around the eighth century B.C.E., the Greeks incorporated the Phoenician alphabet into their own language by adding vowels, dropping a few consonants and adding others; this brought the total number of letters to twenty-four (Fig. 5). The Greeks also began writing left to right. Spreading quickly, this alphabet became key to recording history. In fact, many texts from the Bible were written in Greek.



3 Cuneiform on a baked clay tablet.

The Roman alphabet evolved from the Greek alphabet (Fig. 6). Also called Latin, it is widely recognized as today's modern Western written language. Originally made up of twenty-three letters, the alphabet consisted of square capitals that were the Romans' formal writing system; it had no lowercase letters. Used mainly for carving inscriptions in marble and stone, these letters were the forerunners of modern-day serif typefaces. The Romans also used rustic capitals, a less formal alphabet used primarily for text written with a pen. Both forms are recognizable as letterforms that make up the Western alphabet.

4

𐤀	𐤁	𐤂	𐤃	𐤄	𐤅	𐤆	𐤇	𐤈	𐤉	𐤊	𐤋
aleph	beth	gimel	daleth	he	waw	zayin	heth	teth			
a	b	g	d	h	w	z	h	t			
𐤌	𐤍	𐤎	𐤏	𐤐	𐤑	𐤒	𐤓	𐤔	𐤕	𐤖	𐤗
yod		kaph		lamed		mem		nun		samekh	
y		k		l		m		n		s	
𐤘	𐤙	𐤚	𐤛	𐤜	𐤝	𐤞	𐤟	𐤠	𐤡	𐤢	𐤣
ayin	pe	sade	qoph	resh		shin		taw			
f	p	s	q	r		sh/s		t			

4 Phoenician alphabet.



5 Greek text in the Celcus Library, Ephesus, Izmir.



6 Roman text engraved in marble of the Santa Cecilia church, Rome.



7 A sheet of papyrus.



8 A tenth-century manuscript written on parchment.

The spread of the modern alphabets accelerated with the invention of papyrus and parchment. They provided a more portable way to transmit text, as carrying clay or stone tablets around was unwieldy. Papyrus, a paper-like material made from the papyrus plant, was invented in Egypt (Fig. 7). This material was cheap, easy to produce and quite portable. It had disadvantages, though: It was fragile, it couldn't be folded, and only one side could be written on. It was also prone to deterioration depending on storage conditions. Parchment, a thin material made from animal skin, was invented as an alternative to papyrus (Fig. 8). Parchment accepted ink well and became quite popular. People could fold it and write on both sides of it; it was also very durable over time. Until the Middle Ages, when what we think of as paper came into use, parchment was the predominant writing media for the Western world.



9 The Annunciation from the “Pontifical of Bishop Erasmus Ciolek,” c.1510 (tempera and gold on parchment) by Polish School (sixteenth century).

USES OF TYPE

One notable use of the Roman alphabet was illuminated manuscripts (Fig. 9). These were texts created as early as 600 C.E., decorated or illustrated with gold and silver leaf. Created by hand and incredibly laborious to produce, these books were owned mainly by religious entities and the very wealthy. The images filling these books illustrated the text for the benefit of those who could not read. Highly decorated letters called initials were incorporated into the text. The idea of combining text and imagery has continued through history and is most commonly found today in children’s books and graphic novels.

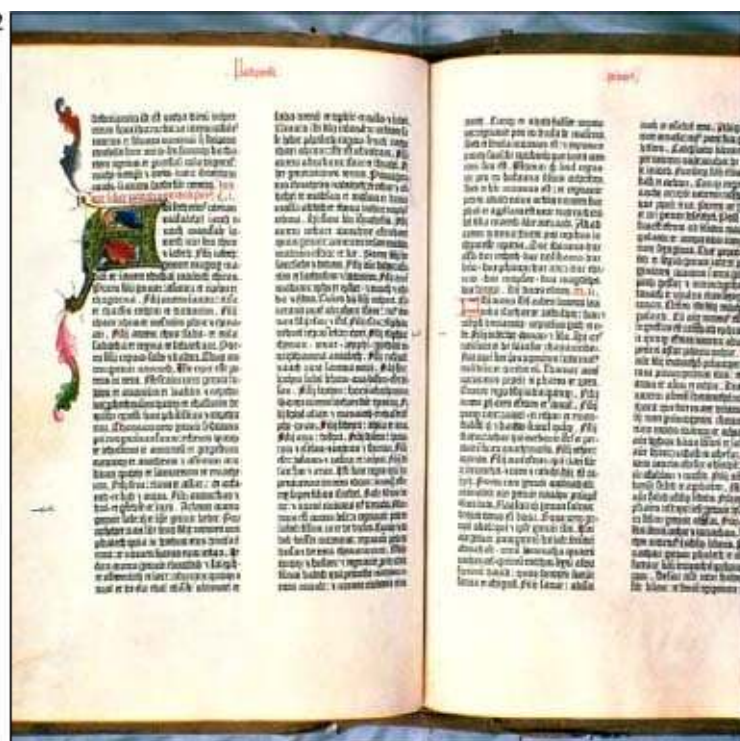


10 Illustration of Johannes Gutenberg and his press.



11 An assortment of metal type.

Manuscripts and documents continued to be written by hand in the Western world until the 1400s, which was when the invention of the printing press suddenly made the written word much more readily available to the public. Printing itself was not a new invention, as the Chinese had already been using woodblock printing for centuries. The revolution was the invention of movable metal type. Johannes Gutenberg developed this new printing method, called the letterpress, in 1452 (Fig. 10). He used a retrofitted wine press combined with oil-based inks to print books. Moveable type used a punch and mold system for each letter. Multiple copies of each letter were then used to assemble an entire manuscript page for printing—a process called typesetting (Fig. 11). After the desired number of pages were printed, the letters were reassembled to create the next page. Gutenberg still needed large numbers of letters in different typefaces and sizes, but storage of these libraries was a small inconvenience in exchange for the vastly increased speed with which books could be produced. The first complete book printed using this method was Gutenberg's forty-two-line Bible, so named because each page had forty-two lines of type per column (Fig. 12). This invention marked the beginning of mass production.



12 Two folios from a Gutenberg Bible, printed in the workshop of Johannes Gutenberg in 1455 (vellum) by German School (fifteenth century).

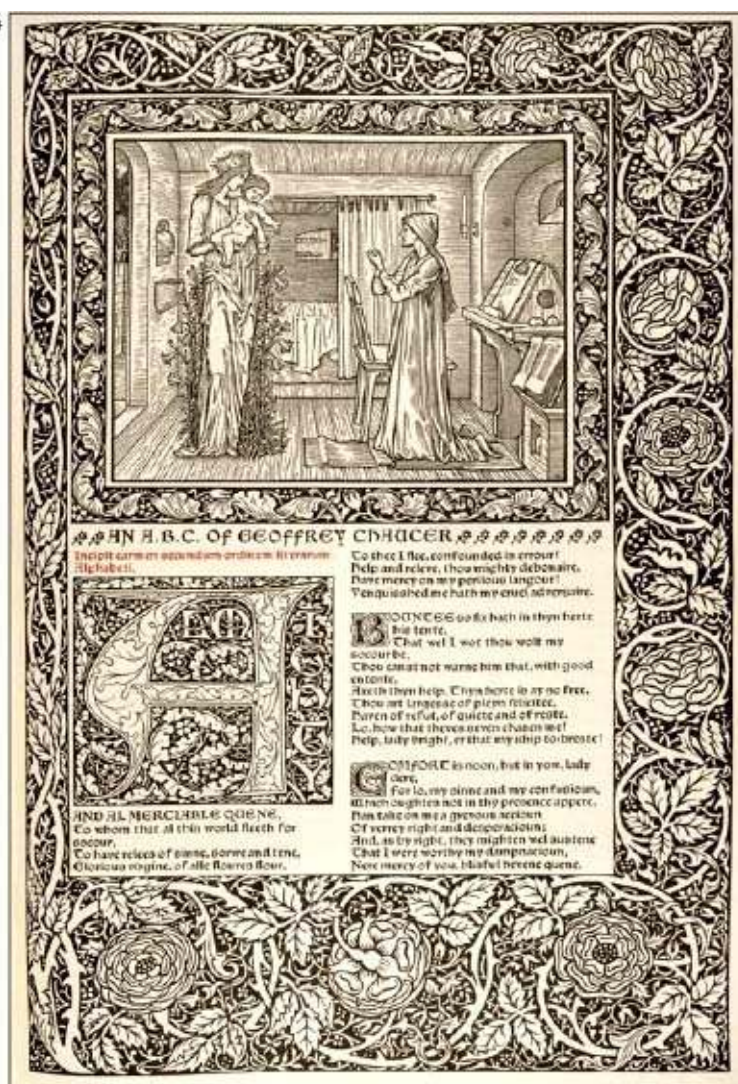
For the next 400 years, printing changed very little. It wasn't until the dawn of the Industrial Revolution that significant improvements were made to the printing press. The invention of the steam press and subsequent rotary press replaced the hand-operated press and made publications affordable to the masses. Typesetting also saw an improvement in 1889, when Otto Mergenthaler developed a technique that allowed him to produce an entire line of type at once. Called the Linotype machine, it used a keyboard to compose a line of type with letter molds (Fig. 13). Molten lead was then used to fill molds and create the line of type as one solid piece. This machine eliminated the need to set one letter at a time, speeding up the printing process ten-fold. Later, after the line of type was used for printing, the metal could be melted down and re-used for another line.



13 Otto Mergenthaler's Linotype machine.

TYPE AND ART

Several artistic movements occurring at the same time as these advances in printing also influenced typography. The first of these was the Arts & Crafts movement in the late nineteenth-century United Kingdom, which involved William Morris and the Kelmscott Press. With the advent of the Industrial Revolution, a small group of artists and designers were dismayed as the production of previously hand-created items became coldly mechanized. Their movement encouraging traditional craftsmanship was a pushback against industrial technology. The Kelmscott Press, founded in 1890, printed classic titles in addition to original works. Ornate, decorative designs were used for the type, ornamental letters and illustrations (Fig. 14). These elaborate typographic works were in direct contrast to the generic, albeit affordable, pages being produced by mechanized printing presses. This was how William Morris kept artistic typographic design alive.



14 The “Kelmscott Chaucer,” published 1896 by the Kelmscott Press by William Morris (1834–96).

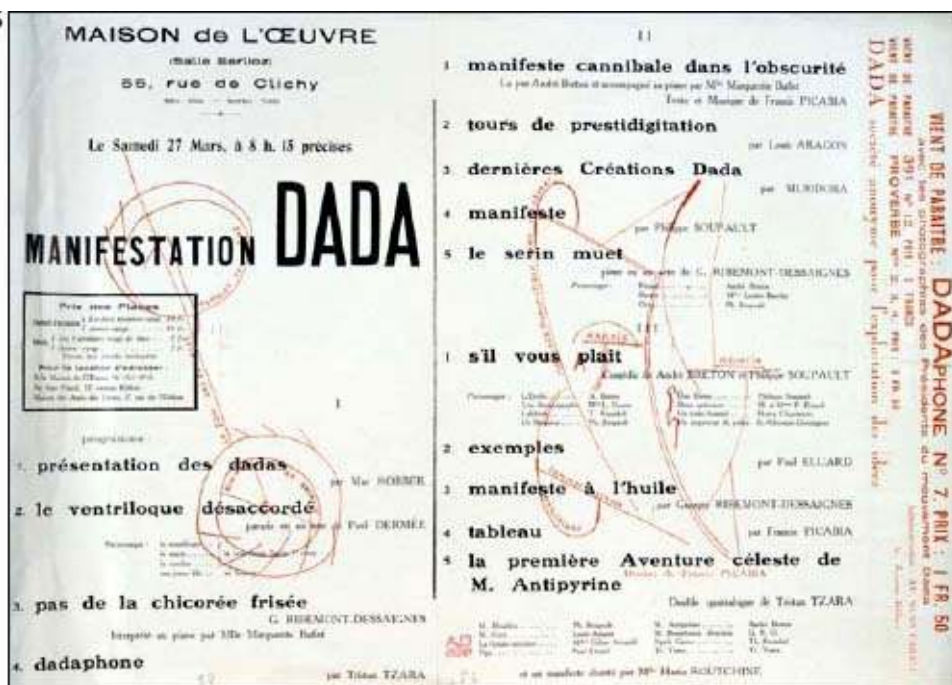
During the same time period, 1890–1914, Art Nouveau was France’s answer to the Industrial Revolution. The goal was to create an international style based on decorative elements. Unlike the Arts & Crafts movement, Art Nouveau tried to integrate the decorative style into everything from visual arts to applied arts and architecture. Lavish floral, abstract lines and intricate borders were a few of the elements worked into the art (Fig. 15). Type, too, was highly decorated, as artists strove to create new typefaces that contrasted with the utilitarian feel of metal type. Type took on an organic look that was often integrated with art inspired by nature.



15 Poster advertising “L. Marquet Ink, the Best of All Inks,” 1892 (color litho) by Franz Grassel (1861–c.1921).

A movement arose in Switzerland from 1916 to 1930 that was a direct contrast to the decorative and pleasant nature of Arts & Crafts and Art Nouveau. Dada, an anti-art movement, used type to make a statement about the horrific nature of World War I. Dadaists produced purposely incomprehensible pieces that were both abstract and expressionistic. The artists reveled in confusion, eliminating any meaning from the text or typographic elements employed in the images (Fig. 16). Type was set on the page forward, backward, upside down, angled, in a spiral and every which way, with no concern for flow or continuity. Dada was an introduction to the idea that type could be art.

The Bauhaus was a revolutionary art school in Germany from 1919 to 1933. The school's two mantras were “Form follows function” and “Less is more.” These two principles were applied to all aspects of art, including design, furniture and architecture. Its adherents were firm in their belief that the purpose of an item came first and its aesthetics were secondary. Bauhaus embraced modern technologies and production advances, striving to reduce everything down to its barest essential form. Type was unadorned and simple, with clear, concise execution in the design layout (Fig. 17). Color was kept to a minimum and, when needed for emphasis, was limited to primary colors.

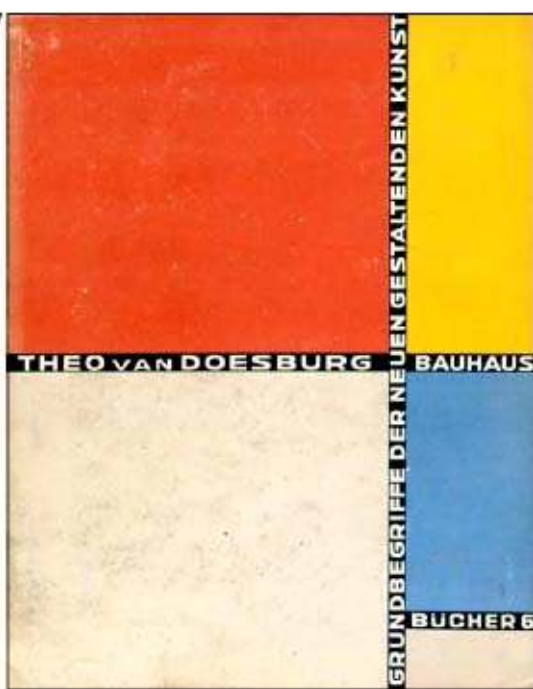


16 Dada Manifestation, c.1921 (litho) by French School (twentieth century).

In the 1920s, Russia found itself in a civil war after Czar Nicholas II was assassinated. Soviet youth movement, Constructivism, threw its efforts behind the revolution, showing its support by creating graphic design and photomontage pieces with very distinctive typography. Diagonal and perpendicular lines of heavy, bold type played off each other, framed by heavy shapes or rules (Fig. 18). Primary colors, particularly red and black, were used extensively. The designs were striking, bold and authoritative when combined with photomontage and collage.

Constructivism's heavy, bold and daring designs were a world apart from the classic and stylish look of France's Art Deco movement of the 1920s and 1930s. Art Deco epitomized elegance and sophistication. Although Art Deco is more known for its influence in fashion and architecture, it made a significant impact on the typographic world as well. Featuring sharp lines married to graceful curves, the typography was popular in the ever-growing world of advertising. Poster advertisements are the most recognizable remnant of the Art Deco era (Fig. 19). The streamlined and geometric style looked to the leisurely future, to a life not bogged down by the heavy realities of the day.

17



17 Book cover, from the “Grundbegriffe der Neuen Gestaltenden Kunst,” sixth in a series of Bauhaus books, published 1925–30 (color litho) by Theo van Doesburg (1883–1931).

18



18 Illustration from “The Results of the First Five-Year Plan,” 1932 (collage) by Varvara Fedorvna Stepanova (1894–1958).



19 Advertisement for the Holland America Line, c.1932 (color litho) by Hoff (fl. 1930s).

The International Typographic Style from Switzerland in the 1950s showed an evolving trend of functional typography and minimalist graphics combined into simple geometric designs. The movement presented typography as the focus by using primarily sans-serif typefaces and grid-heavy layouts. If imagery was needed, the precise, mechanical look of photography was preferred over hand-rendered illustrations. Also called the Swiss Style, the movement was responsible for introducing the world to Helvetica, and the style caught on within the design community (Fig. 20). Many corporations adopted it for its clean, no-nonsense look. Many design schools also adopted the Swiss Style as their primary design theory. It is still taught in many programs today.

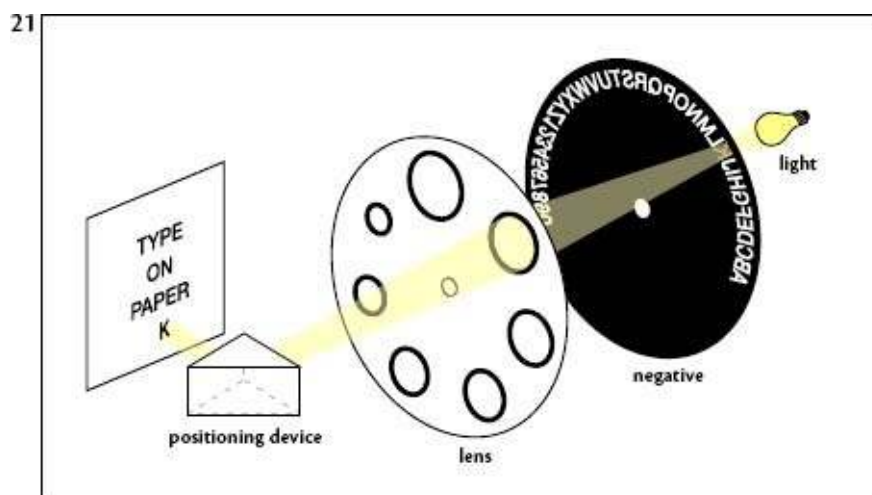
20 Helvetica, designed by Max Miedinger as part of the International Typographic Style movement.

TYPE MOVING FORWARD

Type continued to be set by hand up until the middle of the twentieth century. Foundries produced lead type, and printers continued to store large libraries of alphabets containing hundreds of letters. The sheer volume of lead type filled rooms. Then in the 1960s, a light

based photographic system, called phototypesetting, was invented for setting type. Phototypesetting's main feature was a disc with photographic negatives of letters around the edge. This disc was inside a typesetting machine. Simply put, as the technician typed letters on a keyboard, light would shine through the letters on the disc. The disc would spin to speed out the typed line, burning each letter onto photosensitive paper (Fig. 21). One or more pages could now be typeset with ease. In addition to being faster and less cumbersome than moveable metal type, the letters could be resized without having to change the disc. This was accomplished by changing the distance between the disc and the light source. Prior to phototypesetting, a designer needed to choose a different size type from the cast metal sets of letters. The typesetting machine could also be adjusted to overlap or even distort letters. None of these effects were possible with metal type, without custom molds, which were very expensive. The end result of phototypesetting was a complete page ready to be turned into a negative for printing.

This negative was used with a printing technique called offset lithography. Up until the 1950s, letterpress printing was the most common form of commercial printing. Improvements to inks, paper and technologies helped offset lithography to supplant older techniques for commercial printing (Fig. 22). In offset printing, a photo negative's image is burned onto a metal plate. The plate is then treated with a chemical process to repel ink in some areas and accept it in others, allowing ink to stick to type and imagery and not to the blank areas. The plate is then loaded onto the upper roller of a large press, while a rubber "blanket" is attached to a lower roller. The metal plate is coated with ink and then turns and makes contact with the blanket roller. The ink is transferred to the blanket, which then transfers the image to a piece of paper. This method prevents the sharp edges of the plate from pressing into the paper, dulling the plate and tearing the paper. The rubber blanket helps the plate last much longer before replacement. The process is called "offset lithography" because the plate offsets the image to the blanket instead of directly onto the paper.



21 Phototypesetting.



22 One-color offset lithography printing press.



23 Very early desktop computer.

By the mid 1980s, computers began replacing typesetting machines, opening up a tremendous range of typographic possibilities (Fig. 23). Designers now had complete control over the design, allowing them to create typefaces for all kinds of uses. The typographic world exploded with new fonts. Type foundries originally established to produce metal type and phototype either closed up shop or converted their business to the development and distribution of digital type. One of the foundries that successfully made this conversion was International Typeface Corporation (ITC). Founded by Aaron Burns, Herb Lubalin and Edward Rondthaler in 1970, ITC made great inroads into the digital type world. Their success arose partially because they were able to convert their collections of metal and phototype into digital files. This meant that the traditional typefaces designers relied upon continued to be available to them as they transitioned into the new digital medium. ITC was also at the

MODERN TYPE DESIGN

Modern type design is ever evolving. New typefaces and new uses for type are created every day. The short history of modern type design boasts several notable designers in the forefront of innovation and creativity.



24 David Carson.

Whether he realized it or not, David Carson was the first of many modern-day designers to emulate the Dada movement. He is known for his grunge-inspired work that uses layers of classic and funky fonts to create texture and mood (Fig. 24). Immersed in the Southern California surf and skate culture in the 1980s, he first began his experimental expression with typography working for *Beach Culture* and *Transworld Skateboarding* magazines. He further expanded his experimentation at *Ray Gun*, a rock and roll magazine, as its founding art director. Here, his abstract and often illegible sense of aesthetics became a defining style of the 1990s.

Another groundbreaking and influential magazine that rocked the typographic world was *Emigre*, published from 1984 to 2005. A graphic design magazine written by and for graphic designers, *Emigre* was the brainchild of the husband-and-wife team Rudy VanderLans and Zuzana Licko. VanderLans was responsible for the art direction while Licko created the font designs (Fig. 25). Embracing the then-new Macintosh computer, the magazine broke the boundaries of design. Experimental layouts were used; guest art directors were brought in to design sections and even whole issues. Even today, *Emigre* is considered one of the most progressive endeavors ever. The magazine is defunct, but VanderLans and Licko retained the name. Emigre remains as one of the first independent font houses. Although it began with Licko's font designs, the company has expanded its collection to include other type designers.

Matrix Mrs. Eaves Senator Tarzana

25 Several *Emigre* typefaces designed by Zuzana Licko.



26 *Some People*, New York, 1994.

Paula Scher is best known for her work with Columbia Records and the Public Theater in New York. Currently a partner with the design firm Pentagram, Paula made her mark in the design world through her bold typographic expressions. Her style of heavy typeface, interesting juxtapositions, and striking layouts set her work apart from that of other clear traditional designers (Fig. 26). Some of her most notable work was developed for the Public Theater. Interlocking blocks of text, angular grids and silhouetted images against bright, star backgrounds gave theater posters permission to have fun. Reminiscent of the Constructivists,

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