



Chapter 01

THE STORY OF TYPOGRAPHY

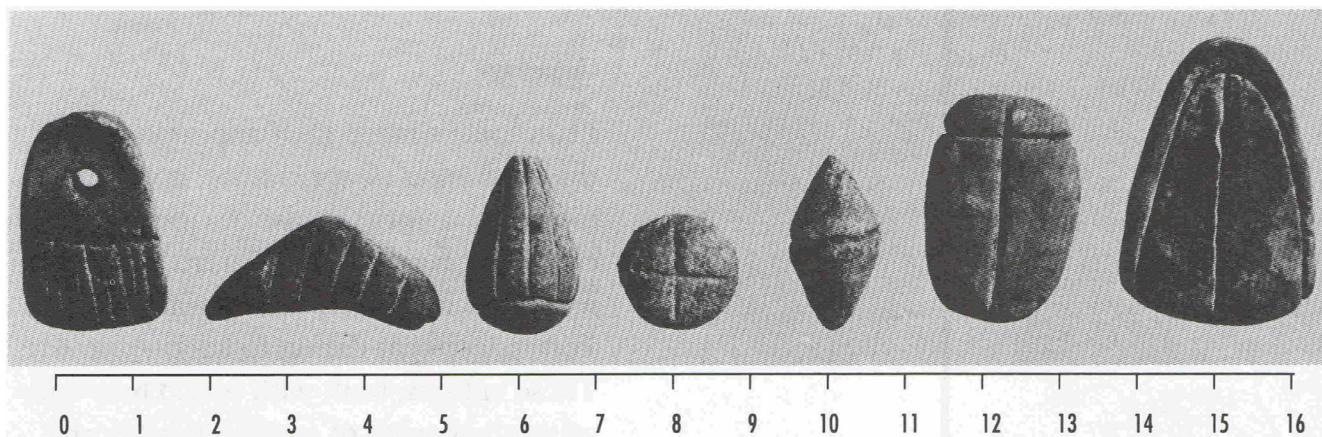
The beginning of written language

The prologue to the story of typography is the story of development of the alphabet and handwriting. The first known written language was cuneiform. This and the later Egyptian scripts, and the Phoenician, Greek and Etruscan alphabets, were the inspiration for the Roman alphabet, which we use today. Several different forms of handwriting were then developed, such as the Roman square capitals, uncials, and the Carolingian minuscule from which came the Gothic minuscule and humanistic writing, the models for the early moveable types of the 15th century.

Written language was invented by the Sumerians, who established the first advanced civilization in Southern Mesopotamia in 3500 B.C. They are credited with making the first "written" marks around 3150 B.C. which were signs impressed upon clay tokens used for recordkeeping. These simple marks soon became more sophisti-

cated and by 3000 B.C., the Sumerians had devised the earliest known writing system. This consisted of small, wedge-shaped marks, which are impressed in soft wet clay tablets using a piece of reed. The tablets were then baked in furnaces or under the sun. This system of writing was later called cuneiform from the Latin "cuneus" meaning "wedge". Like other early writing systems, cuneiform was syllabic (non-alphabetic) and not phonetic (alphabetic). By their arrangement, the marks made pictograms (simple pictures or symbols), which could represent a syllable, a work or an idea.

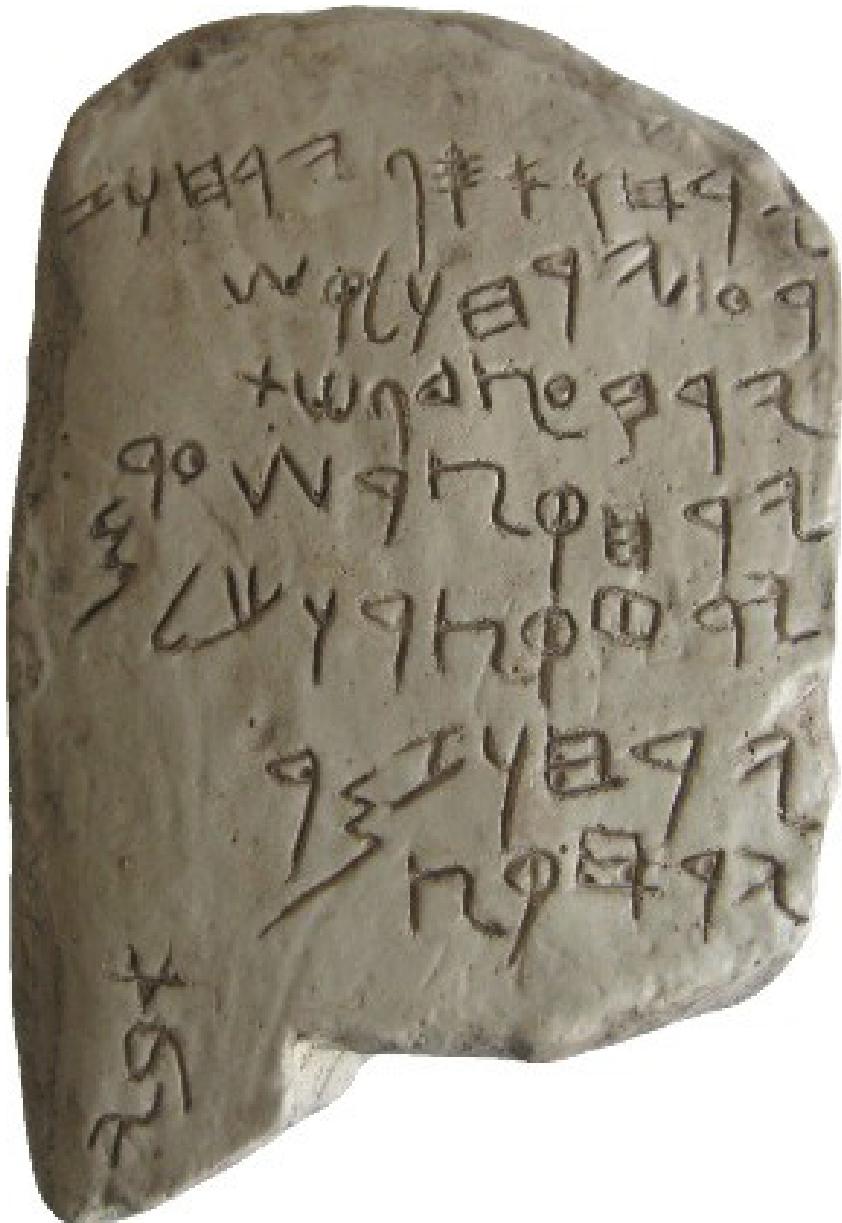
The Sumerian culture has a great influence on other early civilizations, in particular those of the Babylonians and the Egyptians. The Egyptians probably borrowed the idea of pictograms for the Sumerians and developed their own writing system using hieroglyphics. Initially,



Left: Before the Sumerian writing system—the first script ever developed—was invented at the end of the fourth millennium B.C., accounting was practiced in the ancient Middle East by means of small counters.

Right: Ancient cuneiform inscription on a clay tablet. Emerging in Sumer in the late 4th millennium B.C.E., cuneiform writing began as a system of pictographs. In the third millennium, the pictorial representations became simplified and more abstract as the number of characters in use grew smaller.





Right: Ancient Phoenician inscription on a clay tablet. The Phoenician alphabet developed around 1500 BC and comprised of 22 phonetically-based symbols. It is derived from Egyptian hieroglyphics and became one of the most widely used writing systems, spread by Phoenician merchants across the Mediterranean world.

Left: Ancient egyptian stylus. Originally the “pen” was a wooden or bone implement used to mark up clay tablets. Initially used to keep track of numbers for government and business purposes, the development of pictographs and hieroglyphics gave writing and these early pens more versatility.

The first alphabets

the hieroglyphic script has some similarities to cuneiform, but the Egyptians recognized the shortcomings of simple pictograms because they could not adequately convey more complex and sophisticated ideas. As a result, they created ideograms. These were made up of a number of signs or abstract drawings, which, by an association of ideas, could represent the message being expressed. They also developed an enhanced written language involving the use of 24 signs, each of which represented a particular sound. This clearly indicated that they had made the connection between the written and spoken word. The seed for a fully-fledged phonetic alphabet had been sown.

In 2500 B.C., the Egyptians made an ever greater contribution to the development of handwriting – the invention of the reed pen and papyrus (which came from the papyrus plant) as a writing surface. These new writing tools were to be a dynamic force, because they made the art of writing more accessible to a much wider audience. Throughout the history of handwriting and typography, the development of new image-making tools and surfaces has been responsible for corresponding changes in letterforms. The reed pen and papyrus enabled people to write faster and consequently, a new, simpler Egyptian script based on hieroglyphics developed, called hieratic.

There are many theories as to the origins of the alphabet, but, whichever one is true, its invention was a landmark of great magnitude in the development of civilization. An alphabet is a writing system with one unique visual sign (letter) for each consonant and vowel sound (although there were no vowels in the earliest alphabets), which can be combined to form visual units (words) to represent a spoken language. From about 1500 B.C., the alphabet has outperformed all other systems of writing and has survived intact through many

If the origins of the alphabet are unknown, what is clear is that in 1500 B.C., a Semitic people, the Phoenicians, developed a new phonetic written language – the first alphabetic system. It consisted of a sign for each of 22 consonant sounds and showed some visual similarity to the Egyptian hieratic script. Significantly, though, the







Phoenician writing system did not use any pictograms, which made the new language much more economical.

The Phoenicians used their location on the eastern Mediterranean coast to exploit sea travel as a means of exporting goods to other countries in the region. Through the cultivation of these business relationships, their trading partners were gradually exposed to their alphabetic system of writing, and, by 800 B.C., its influence had permeated westward to Greece.

In Greece at this time there were main local dialects and alphabets in use. But eventually, two principal alphabets emerged – the Ionian, in the east of the country, and the Chalcidian, in the west. There were many similarities between the Phoenician and early Greek alphabets – the older names of the letters were the same, as was the direction of the writing which was from right to left (or sometimes alternating). From about 500 B.C., the direction of writing was reversed so that it read from left to right. In 403 B.C., the Ionian alphabet was officially adopted in Athens as the Classical Greek alphabet. However, it was

Left: Detail from the Book of the Dead, a collection of writings that were placed in tombs as a means of guiding the ancient Egyptian soul on its journey to the afterlife. The Papyrus of Ani, which is reproduced here, is one of the most important and beautiful of the surviving papyri.

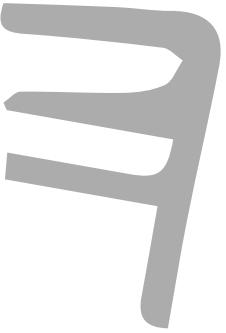


the Chalcidian, which had been most influenced by the Phoenicians, that was to play a more significant role in the development of the Roman alphabet. It was to become the model for all the succeeding alphabets of Western Europe.

Around 675 B.C., trade developed between the Greeks and the Etruscans, a people who had settled on the west coast of Italy after migrating from their homeland in Asia Minor. It was through this trading relationship that the influence of the western Greek Chalcidian alphabet spread to Italy, and it is believed that the Etruscan alphabet derived from the Chalcidian.

The Etruscans remained dominant in Italy for about

250 years, reaching the height of their power about 500 B.C. Some one hundred years later, their conquests were lost to the rising power of Rome. The legacy that the Etruscans left to the Romans was considerable. It is to them that the Romans owed their architecture, law, roads, and other trappings of a civilized society. The Etruscan alphabet was the basis for the Roman alphabet which we use today. After modification – the Romans changed some letters, added new ones, and deleted others – they were left with an alphabet of 23 letters, which is the same as the Roman alphabet used today (but excluding J, U and W which were added in the Middle Ages).



Ancient Etruscan characters. The Etruscan alphabet developed from a Western variety of the Greek alphabet brought to Italy by Euboean Greeks.

Even today, despite the discoveries of modern archaeologists, we know little about the origins of the Etruscans, and their language has yet to be deciphered. Although there are different claims about the origins of Etruscans, it is a well-known fact that the Etruscans were influenced by the Hellenic culture and underwent transformation accordingly.



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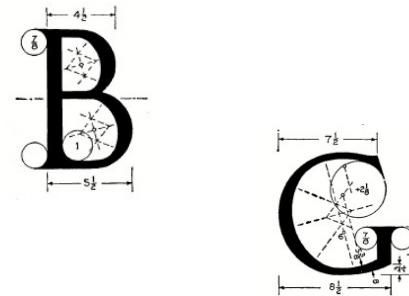
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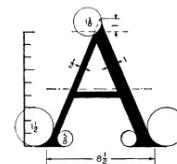
The development of the roman alphabet

From about 500 B.C., the Romans began to expand their Empire through invasion and colonization and imposed their written alphabet on the conquered nations in the process. The effect was that the letters of the Roman alphabet became an established set of signs which were understood in many parts of Europe and Asia Minor – an “international” written language.

In the Roman Empire, two main kinds of letterforms were widely used – square capital letters (called majuscules) for formal inscriptions and, later, a cursive style (which sloped like italics) for informal purposes such as letter writing. This cursive style is the origin of our lower-case letters (called minuscule). The finest example of formal Roman inscriptional square capitals, also called quadrata, is Trajan’s Column in Rome, completed in A.D. 114. These authoritative and beautifully proportioned letterforms were constructed from geometric shapes such as the square, circle, or triangle and were the mold for the capital letters of our alphabet today. At first, the stone-carved strokes of the letters were of even thickness, but later the width of strokes varied in imitation of the natural effect of a square-tipped brush which the stone masons used to draw out the letters on the stone prior to cutting. The difficulty of cutting curves with a chisel meant that many of the letters were simply constructed of straight lines. The varying width of the letters is believed to relate to their gradual evolution



The earliest known Roman *majuscule* letters are in the script known as *square capitals* and can be seen chiseled in the stone of numerous surviving imperial Roman monuments. Square capitals set a standard for elegance and clarity in the Roman alphabet that has never been surpassed.



over the centuries from pictograms and phonetic signs of a corresponding width. Serifs developed naturally as finishing strokes to visually strengthen the terminals of the letters.

By the first century A.D., a simpler and more condensed written style of inscriptional square capitals, called rustic, had developed—an example of which is the graffiti

found on the walls at Pompeii. This was a direct response to the needs of an increasingly literate Roman population to write with a pen or brush more quickly and economically (to save on vellum which was their writing surface). Rustic writing required fewer lifts of the pen, and the vertical strokes of the letters were thinner than the earlier square capitals since the pen was held at a sharper angle. Likewise, the pen-formed serifs were heavier than the stone-carved ones which they imitated. There were no spaces between the words and often little between the lines, producing a heavy effect on the page.

In the fourth century A.D., a further variation of the inscriptive square capitals called uncials was developed, which was mainly used as book scripts. Uncials were distinctively round and simpler, and had more contrasting widths of letter strokes, which were the natural result of an even faster writing speed made possible by the invention of a flat quill pen on a smooth paper-like surface. By the sixth century A.D., half uncials were in widespread use. This handwriting is characterized by ligatures (letters joined together with a linking stroke) and the extension of the vertical strokes of letters such as 'b', 'd', and 'p', so creating the first ascenders and descenders. This was an important development because it gave these letters more distinctive shapes which helped in the recognition of words. The ascenders and descenders automatically increased the space between the lines, which helped readability and created a

lighter color on the page. These letterforms can be regarded as the beginnings of a lowercase alphabet. One of the finest examples of this style is the Book of Kells, a Celtic manuscript with decorations and initial letters, produced by Irish monks in the eighth century A.D.

As a consequence of the decline of the Roman Empire, many national scripts had emerged in Europe by A.D.700. But in 800, a new style of writing called the Carolingian minuscule was commissioned by Emperor Charlemagne (742-814) for his official documents, which were produced at his scriptorium at Tours under the supervision of Alcuin of York. It was introduced at a time when the Emperor and the Christian Church had instigated an extensive program of education and culture – the Carolingian Renaissance. The Carolingian minuscule was an open, rounded, and upright style with more contrast in the width of the letter strokes and a strong diagonal calligraphic stress on the angle at which the quill pen was held. It had been influenced by the Anglo-Irish half uncials and the Frankish script known as Merovingian, and it was highly legible, as each letter had a distinctive shape and there was now even more space between the words and the lines. The Carolingian minuscule remained the dominant style of handwriting in Europe until the emergence of a second wave of national scripts in Europe during the 12th century, of which the German Gothic minuscule, or black letter, was the most significant in the development of movable types.



Piece of slate cast of the *Trajan Column* in Rome with Roman square capitals (also known as *Capitalis Monumentalis*) and a painted reconstruction of the brush strokes of an R. What makes this type so perfect is the fact that its design is intimately connected with its tools: the hand leading the brush as well as the following carving with the chisel.



The early movable types

The first movable types, invented in Germany, by Johann Gutenberg (c1397–1468) in 1455, and the roman types in Italy that followed, imitated the styles of handwriting that were popular in those countries at the time. These were the black letter in Germany and humanistic writing (a revival of the Carolingian minuscule) in Italy.

The black letter emerged as a national script in Germany in the 12th century after the decline in popularity of the Carolingian minuscule. The early forms were austere, heavy, and condensed, with a strong vertical emphasis. By the 13th century, they had become even more condensed with the vertical strokes ending in points. Slowly, the ascenders and descenders became shorted, and the style became less and less legible. It was on the later styles, Texture – a formal black letter used for religious and legal purposes – that was the model for Gutenberg's first movable types.

Although it is now known that the Chinese were experimenting with movable ceramic types as early as the 11th century, Johan Gutenberg is the acknowledged father of movable type. He lived in Mainz in Germany and by trade he was a goldsmith, but he had acquired technical knowledge of the art of printing (prints had been made from hand-cut wood blocks many years earlier). In 1440, he began a series of experiments which, ten years later, resulted in the invention of printing from movable type. He used his knowledge of existing technology and materials—the screw press, oil-based inks and paper (which was



que. **C**apitula etiam illis coniunctam
 rite pere amorum. **C**onspicuerat in
 case pibis ioseph extenuatio usque
 ad leonem quippe pibis dicitur. **C**onspicua
 agberunt et ab illo tempore Iesum
 alhebus. **A**lhebus.
Glennocarech legit nis librum esse et dicit
 non est acceptus profectus impatriatus suus.
Hisimacogt hominem habentem demouit
 mundantur. **c**atores hominum.
Ubi apostolis dicit uenite pecuniam uos pis.
Ubi leprosus rogauit nis et mundauit eis.
Parabolam curauit dñs qui collens gra
 dit cum suuim adiit in clomum suum.
Crederat istm publicanus nomine leu
 dicit nis nemo mitat utrumque huius m
 uores uferet. **a**ctus et mandauit.
Ole sabbati discipuli uellebant spi
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Chinese invention)—but it was the manufacture of type that consumes his energy.

As a goldsmith he had considerable skill and knowledge of the patterning, mixing, and casting of metal; and, with great ingenuity and tenacity, he eventually developed a method of manufacturing type. It involved the engraving of every character in relief and reverse on a steel punch, which was then struck with a mallet into the strike (a bar of copper). The strike was set into the matrix (a master

The Book of Kells is a 340-page illuminated manuscript created with the use of colored ink of vellum. It contains the four Gospels in Latin based on the Vulgate text which St Jerome completed in 384AD, intermixed with readings from the earlier Old Latin translation.

This document is a masterpiece of Western calligraphy and represents the pinnacle of Insular illumination. Shown here are folios 19v (left) and folio 20r (right).

Deutsch

mold for casting each letter) by a process called justification. Then the matrix was put into an adjustable hand mold into which a hot alloy metal of lead and antimony was poured, thereby casting each sort (the term for a single piece of type).

The process of hot metal casting gave rise to the term “hot metal typesetting” when referring to setting from metal types. This significant technological feat was the catalyst for a revolution in printing in Europe. The basic principles that Gutenberg employed for type manufacturing and letterpress printing were still used until well into the 20th century. Letterpress printing is a process whereby the impression on the paper is taken from the raised surface of the type.

The visible fruits of his labors finally emerged in the printing and publishing of his 42-line Bible in 1455, the earliest extant printed book from movable types in the Western world. He had, however, printed the Mainz Indulgences during the previous year, for which he used a

Lithogram of a Gutenberg-style screw press. In these machines, the type surface was inked with leather covered ink balls and paper laid carefully on top by hand, then slid under a padded surface and pressure applied from above by a large threaded screw.







Right: As a goldsmith, Gutenberg had considerable skill and knowledge of the patterning, mixing, and casting of metal; and, with great ingenuity and tenacity, he eventually developed a method of manufacturing type.

Left: Fragment of Johannes Gutenberg's famous 42-line Bible. Completed in 1455, this was the earliest European book printed from movable type. It marked the start of the "Gutenberg Revolution" and the age of the printed book in the West. It is also widely praised for its aesthetic and artistic qualities.



more cursive style of black letter type called Schwabacher or Bastarda. Gutenberg's use of the Textura black letter type produced a magnificent and authoritative effect on the page, quite equaling the manuscripts that it was imitating. But it was condensed, monotonous, and heavy-looking and, therefore, difficult to read. For his Cathlicon, in 1460,

he used a different black letter type, Rotunda, which was more open and legible, but lacked the style and authority of his Textura.

There was a human cost to pay for Gutenberg's invention – the job losses of the scribes and copyists who had been the "printers" of manuscripts until this time.

Featured Photographer

HERMANN ZAPF

Hermann Zapf (b1918), the German type designer, typographer, and calligrapher, has made the most influential contribution to typography since World War II. He is one of the few type designers whose career has straddled the manufacture of metal, photo-typeset, and digital type face, and who has successfully managed to adapt his work to suit all three systems. Perhaps Zapf's ability to adapt to the new technological developments in photography and computer lay in his interest in electrical engineering, a career he wished to pursue as a teenager. However, the sensitivities of the political climate in Germany in the 1930s made it impossible for him to follow his intended career path, and he had to be satisfied with an apprenticeship as a retoucher with a local printing company.

After he had completed his apprenticeship, he worked for Paul Koch (the son of Rudolf Koch whose calligraphy and type design he much admired), and then he moved on to the Stempel Foundry in Frankfurt.

Where he designed many of his well-known types. Zapf's first type, a blackletter called Gilgengart, was cut in metal in 1941, and in 1949 he designed his first major type, Palatino, based on 15th-century Italian Renaissance types. Melior, a contemporary newspaper type in the mold of the Linotype Legibility group of type faces, was produced in 1952; and, in the same year, he designed a contemporary interpretation of Jason for Linotype in Germany.

Zapf left Stempel in 1956 and in 1958, he produced his most outstanding type, Optima, a Humanist sans-serif. Originally cut as a foundry type, it subsequently became available for photocomposition.

Since then, he has continued to lead the field in type design with a prolific and outstanding string of commercially successful typefaces including Orion (1971), ITC Zapf Chancery (1974), Comenius (1976), ITC Zapf Book (1976), and ITC Zapf International (1977). He has won numerous awards for his work.





Hermann Zapf's typographic creations clearly demonstrate his concern that an alphabet work not just as a collection of single letters. Together, they have a sense of unity in itself.

Left: The Zapf International font, is the work of Hermann Zapf. It is formal enough for widespread use yet tempered with calligraphic warmth.

