

# THE FUNDAMENTALS OF TYPOGRAPHY

THIRD EDITION

**GAVIN AMBROSE, PAUL HARRIS  
& SALLYANNE THEODOSIOU**

B L O O M S B U R Y

**The Fundamentals of Typography**  
**Gavin Ambrose/Paul Harris/Sallyanne Theodosiou**

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# **The Fundamentals of Typography**



**Gavin Ambrose/Paul Harris/Sallyanne Theodosiou**



**3rd  
edition**

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# introduction

‘Language is the dress  
of thought.’

Samuel Johnson

Typography surrounds us: it adorns the buildings and the streets through which we pass, it is a component part of the ever-expanding variety of media we consume – from magazines, to television and the internet – and we even increasingly sport it on our clothing in the form of branding and symbolic messages.

The typography that is a fundamental part of our lives today is the culmination of centuries of development, as the letters that comprise the written word evolved and crystallized into the alphabets that are in common usage. Technology has played a central role in this development, affecting and changing the way that the marks we recognize as characters are made and presented.

Through the development of the printing industry, technology gave birth to the concept of typography: the many different presentations of the same character set.

While this book provides a deep insight into the essence of typographical development from the base of its historical roots, it goes much further, as by necessity it deals with language and communication, two concepts to which typography is inextricably linked. As the eighteenth-century English writer Samuel Johnson said, *Language is the dress of thought*. That being the case, typography can be viewed as one of the swatches of fabric from which that dress is made.

It is hoped that this book will serve as a valuable source of typographical information with which informed design choices can be made, to add depth and context to a work. This book is also intended to be a source of creative inspiration through the visual exploration of typefaces over the ages.

American  
Typewriter Light

Busorama

Century Gothic

De Vinne

Empire

Wittenberger  
Fraktur MT

Georgia

Humanist 777

Impact

Joanna

Kis

Linear Konstrukt

Modern No. 20

News Gothic

Onyx

Perpetua

Quorum Black

Rosewood

Stop

Trixie Cameo

Univers 45

VAG Rounded

Windsor

Xoxoxa

Yorstat

Zapfino

There are thousands of fonts available and used throughout the world and they each have a story to tell. This simple A to Z presentation of some of the rich and diverse variety of typefaces demonstrates the many nuances, styles and historical and cultural references that typography includes.

‘Typography at its best is a  
visual form of language  
linking timelessness  
and time.’

Robert Bringhurst

# chapter 1

# **type and language**

---

Typography has developed over the last 600 years as the printing process has evolved. The characters that are printed, however, have been developed over a much longer time period as language itself has developed from Egyptian hieroglyphs to the Latin letters we use today.

This chapter looks at the history of typography in relation to the development of language together with the cultural and historical changes the world has undergone. Typography is not only a craft, it is also part of a wider context. Having an understanding of this context can help to inform and enrich typographic practice.

## Type and language

Type is the means by which an idea is written and given visual form. Many typefaces in use today are based upon designs created in earlier historical epochs, and the characters themselves have a lineage that extends back thousands of years to the first mark-making by primitive man, when characters were devised to represent objects or concepts.

This section is an introduction to the complex origins of type. An appreciation of typography naturally involves understanding how written language developed. A general timeline is presented here, but it is important to remember that there is overlap across epochs and for many major developments, there exist counter-claims to the invention. What is shown here serves as a guide to the major milestones in typography.

This section aims to be as comprehensive as possible, but it is impossible to be conclusive. One of the wonders of typography is this fluidity, its ability to adapt to circumstances, technological advances and cultural shifts. For simplicity, this section has been divided into the following categories: The Alphabet, Early Printing, 1800s, Arts and Crafts Movement, The Early Twentieth Century, 1950s, 1960s, 1970s, 1980s, 1990s and Graphic Design Since 2000.

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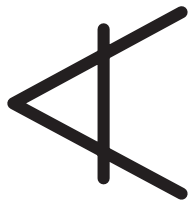
### Language is not static

Letters, language and indeed typography develop and change over time as the dominant power inherits, alters, adapts and imposes its will on existing forms. The modern Latin alphabet is a result of such ongoing transition, having been developed and adapted over several millennia.

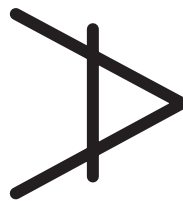
For example, the modern letter 'A' was originally a pictogram representing an ox's head, but as the Phoenicians wrote from right to left, the symbol was turned on its side. Under the Greeks, who wrote from left to right, it was turned again and finally, the Romans turned the character full-circle, giving it the form that we recognize today.



A pictogram of an ox's head...



...has been turned on its side by the Phoenicians...



...rotated by the Greeks...



...and turned upright by the Romans, to form the modern 'A'.

## THE ALPHABET

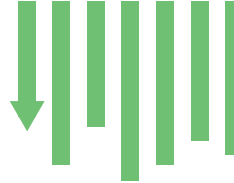
Latin



Arabic



Chinese



Greek boustrophedon

**Reading direction**

The direction in which text is read varies from language to language and is determined in part by historical factors such as how text used to be written. For example,

Chinese calligraphers use paint brushes to draw ideograms and so it is easier to write down the page with the right hand, while controlling the scroll with the left.

**Cuneiform tablets**

Cuneiform uses a wedge-shaped stylus to make impressions into a wet clay tablet and is one of the earliest standardized writing systems. It was developed in ancient Mesopotamia, the region that is now east of the Mediterranean, from about 4,000 BC until about 100 BC. Early forms of cuneiform were written in columns from top to bottom, but later changed to be written in rows from left to right. With this change the cuneiform signs were turned on their sides. Cuneiform began to die out as other language systems such as Aramaic spread through the region in the seventh and sixth centuries BC, and as the use of Phoenician script increased.

**Some terms to be familiar with**

There are many terms used within this book that you'll need to be familiar with, many of which are often confused.

**PHONOGRAM**

A written symbol, letter, character or other mark that represents a sound, syllable, morpheme or word.

**SYMBOL**

A graphic element that communicates the ideas and concepts that it represents rather than denoting what it actually is.

**IDEOGRAM**

A graphic element that represents an idea or a concept.

**PICTOGRAM**

A graphic element that describes an action or series of actions through visual references or clues.

**ICON**

A graphic element that represents an object, person or something else.

### Hieroglyphs

Hieroglyphs use a pictogrammatic writing system and were used by several cultures including the Ancient Egyptians and Incas. Each pictogram represents an object rather than a vocal sound. There are over 750 individual Egyptian pictograms. Hieroglyphs can be written from right to left, left to right, or downwards. This is indicated in each piece of text by the direction in which the objects face. For example, if they are facing to the left, the inscription is read from left to right. Border lines are used to indicate that text should be read from top to bottom.



Hieroglyphs on papyrus, reading downwards, as indicated by the border lines (above left).



The Rosetta Stone (above right) was carved in 196 BC with an inscription in Egyptian hieroglyphs, demotic and Greek. Discovered in 1799, the three scripts were key in deciphering hieroglyphics.



These Chinese ideograms represent the four seasons (left to right) spring, summer, autumn and winter.

### Ideogram-based languages

Ideogrammatic languages use characters or symbols to represent ideas or concepts. They have a one-to-one relation between a symbol and an idea. Ideogrammatic languages, traditionally written down the page, include Chinese, Japanese, Korean and Thai.

### Chinese and Japanese scripts

Written Chinese assigns a single distinctive symbol, or character, to each word. Many symbols have remained fundamentally the same for over 3,000 years even though the writing system has been standardized and stylistically altered. The system became word-based to express abstract concepts, with ideograms representing sounds rather than concepts.

A Japanese writing system emerged in the fourth century, appropriating Kanji characters from Chinese for their phonetic rather than semantic value. Alongside Kanji, three 'Kana' scripts emerged. These syllabic scripts are Hiragana, Katakana and Romaji (used for words borrowed from Western languages or where computer software does not accommodate Japanese script).



Kanji

Hiragana

Katakana

Romaji

English

### Phoenician characters

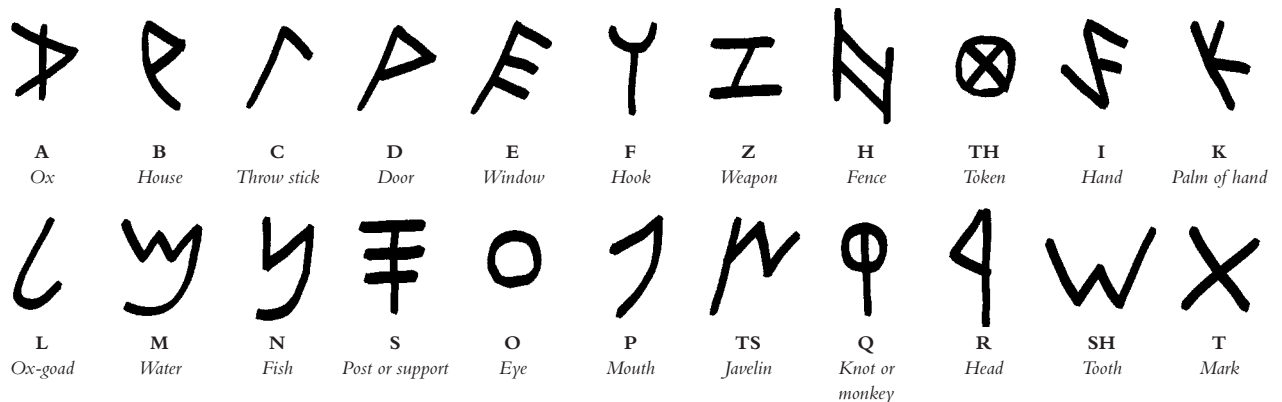
The Phoenicians lived in the eastern Mediterranean regions. They developed what was to become the basis of the modern Latin alphabet in around 1600 BC through a system of 22 ‘magic signs’ or symbols that represented sounds rather than objects.

The symbols could be put together in different combinations to construct thousands of words, even though the alphabet only contained consonants. Phoenician was written horizontally from right to left without spaces between words, although dots were sometimes used to denote word breaks.

### The 22 magic signs

The Phoenicians were responsible for the development of what is arguably the greatest invention in humanity.

The alphabet of 22 magic signs is pictured below along with its Latin equivalent and the objects that each character is believed to have originally represented.



### Some terms to be familiar with

Linguistics – the study of language – uses the following terms to describe various elements of language and speech.

#### Phoneme

The basic sound units used to form words. For example, the phonemes ‘o’ and ‘x’ come together to make the word ‘ox’. The pronunciation of letters varies, so there are more phonemes than letters.

#### Morpheme

Phoneme group forming the smallest language unit. Each morpheme has a meaning, for example ‘discredited’ has three; ‘dis’, ‘credit’ and ‘ed’.

DIS CREDIT ED

#### Syllable

A unit of spoken language consisting of a single, uninterrupted sound. The word ‘discredited’ has four syllables.

DIS CRED IT ED

#### Letter

A letter is a mark or glyph (symbol) used in an alphabetic writing system to indicate a sound. A letter’s context dictates its pronunciation.

D I S C R E D I T E D

**The Greek alphabet**

The Greeks adopted characters from the Phoenician system (such as aleph (a) and beth (b)) and used them to develop their own alphabet. (Indeed, the word ‘alphabet’ is derived from the Greek alpha (a) and beta (b).) By around 800 BC the Greeks had added other characters to their alphabet, and this became the basis of the modern-day Hebrew and Arabic scripts. Early Greek was written in the boustrophedon style (see the section on ‘Boustrophedon writing’), where rather than proceeding from left to right as in modern English, or right to left as in Arabic, alternate lines must be read in opposite directions.

# Aleph Beth Alpha Beta AlphaBeta Alphabet

---

α	Alpha	η	Eta	ν	Nu	τ	Tau
β	Beta	θ	Theta	ξ	Xi or Si	υ	Upsilon
γ	Gamma	ι	Iota	ο	Omicron	φ	Phi
δ	Delta	κ	Kappa	π	Pi	χ	Chi
ε	Epsilon	λ	Lambda	ρ	Rho	ψ	Psi
ζ	Zeta	μ	Mu	σ	Sigma	ω	Omega

The 24 characters from the modern Greek alphabet and their Greek names.

---

**Vowels and spaces**

The Greeks developed vowels, which created a complete and flexible phonetic alphabet. The first vowel letters were A (alpha), E (epsilon), I (iota), O (omicron), and Y (upsilon). The origins of modern Latin vowels can clearly be seen. Greek and Latin manuscripts were originally written with no spacing between words, as shown below.

ItwascommonforGreektobewrittenwithnospacing.

The insertion of spaces between words and diacritical marks (see page 77) was a development that helped facilitate reading and comprehension.

---

**Boustrophedon writing**

Text written boustrophedonically moves across the page from left to right, then right to left. There are three methods of doing this: reversing the lines, reversing the lines and words, or reversing the lines, words and letters.

### The Cyrillic alphabet

The Cyrillic alphabet is based on Glagolitic (developed by missionaries during the ninth century) and Greek. Developed in the tenth century, it is widely used in Slavic languages such as Belarusian, Bulgarian, Macedonian,

Russian, Serbian and Ukrainian. The Cyrillic alphabet has 33 letters, including 21 consonants and ten vowels, and two letters without sounds that represent hard and soft signs. Some Cyrillic characters are shown below, along with their Greek equivalents.

Б

The Cyrillic letter Be is derived from the Greek letter Beta (β).

Д

The Cyrillic letter De is derived from the Greek letter Delta (δ).

З

The Cyrillic letter Ze is derived from the Greek letter Zeta (ζ).

Ж

Some characters, such as Zhe, have no similar letter in Greek or Latin.

### The Russian alphabet

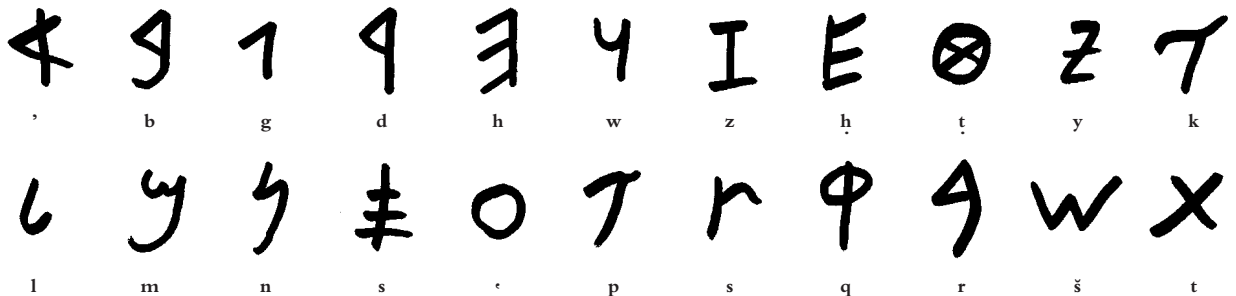
The 33 Russian Cyrillic lower-case and upper-case letters are shown with their English transliteration.

а	А	а	и	И	i	с	С	s	ъ	Ъ	“
б	Б	b	й	Й	j	т	Т	t	ы	Ы	y
в	В	v	к	К	k	у	У	u	ь	Ь	’
г	Г	g	л	Л	l	ф	Ф	f	э	Э	eh
д	Д	d	м	М	m	х	Х	kh	ю	Ю	yu
е	Е	e	н	Н	n	ц	Ц	ts	я	Я	ya
ё	Ё	e	о	О	o	ч	Ч	ch			
ж	Ж	zh	п	П	p	ш	Ш	sh			
з	З	z	р	Р	r	щ	Щ	shch			

### Semitic and Aramaic languages

Aramaic developed from Phoenician in around 900 BC in what is modern-day Syria and south-east Turkey. It is a Semitic language and a precursor for Arabic and Hebrew, which it closely resembles.

Aramaic was used and spread by the Assyrian empire and the Babylonian and Persian empires that followed it, taking the language as far as India and Ethiopia. Note the similarities with the original Phoenician symbols shown on page 13.



The 22 characters of the Aramaic alphabet and their Latin equivalents.

**Arabic**

Modern-day Arabic, like Phoenician, is written and read from right to left. Arabic is based on the 22 consonants of the Phoenician alphabet with an optional marking of vowels using diacritics. Arabic script uses the Aramaic letter names (Alef, Jeem, Dal, Zai, Sheen and so on).

This alphabet contains 18 letter shapes but by adding one, two or three diacritical marks (representing vowel sounds) to these letters, a total of 28 letters is obtained. These diacritical marks originate in Hebrew and Aramaic and were added so that Muslims of non-Arab origin could correctly pronounce the Koran.

ا	ب	ت	ث	ج	ح	خ	ر	ذ	د	ز	س	ش	ص	ض
a	b	t	th	j	h	kh	d	dh	r	z	s	sh	s	d
ط	ظ	ع	غ	ف	ق	ك	ل	م	ن	ه	و	ي		
t	z	c	gh	f	q	k	l	m	n	h	w	y		

**The Roman alphabet**

The 26-letter Roman alphabet that we use today was formed from the Greek alphabet and spread through the Roman empire. Majuscules or upper-case letters derive directly from the forms carved in stone by the Romans, and these are the basis for many modern-day typefaces.

Roman is now also frequently used to describe basic letterforms, principally the minuscules (lower-case letters), even though the name is derived from the majuscule forms. The Romans also used seven of their letterforms as base numerals, with each letter representing a numeric building block, as pictured below.

I	V	X	L	C	D	M
1	5	10	50	100	500	1000

LIKETHEEARLIERGREEKALPHABETOFTENNOSPACEWASUSEDDBETWEENWORDS BUT>OFTEN>A DOT CHARACTER WAS USED INSTEAD

Trajan, Carol Twombly, 1989

Modern typefaces such as Trajan (above) have their roots in stone carving from the Roman era. Typographer Twombly was influenced by early Roman forms in this design, which is modern yet steeped in historical reference.

**The ampersand**

The ampersand character is a ligature of the letters of the Latin word *et*, which means 'and'. The name 'ampersand' is a contraction of the phrase 'and per se and', which translates as 'the symbol for and by itself means and'. The 'e' and 't' can still be clearly seen in many ampersand characters, as shown opposite.



**The modern Latin alphabet**

The modern Latin alphabet consists of 52 upper- and lower-case letters with ten numerals and a variety of other

symbols, punctuation marks and accents that are employed by various different languages. Lower-case letters developed from cursive (joined up) versions of the upper-case letters.

ABCDEFGHIJKLMNOPQRSTUVWXYZabcde  
 ghijklmnopqrstuvwxyz1234567890§-=[];'\` ,./  
 %^&\*()\_+{}:”|~<>?;#¢¶•-≠œ®†¥ø““...  
 Æ«Ç÷ÅÄÊÎÔÛØUÁÉÍÓÚúääêîôûøuaéíóú

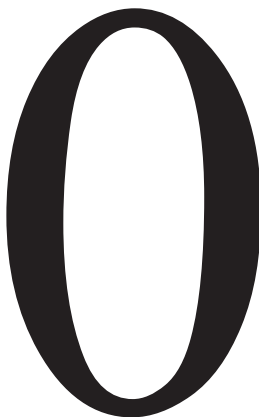
**All alphabets are not the same**

Although most European alphabets are Latin-based, they are not all the same.

English has 26 letters, while traditional Spanish has 30 with the addition of ‘ñ’, ‘ll’, ‘ch’ and ‘rr’. The modern Italian alphabet has only 21 letters, and lacks ‘j’, ‘k’, ‘w’, ‘x’ and ‘y’.

ABCDEFGHIJKLMNOPQRSTUVWXYZ

The modern Italian alphabet lacks the letters ‘j’, ‘k’, ‘w’, ‘x’ and ‘y’.


**The 0**

Modern numbers derive from Arabic characters and their adoption brought the ‘0’ with them. The numerals themselves originated in India and came into use in Arabic around AD 1000. Common usage in Europe did not occur until the Renaissance period. Modern European digits were created in India in the sixth century or earlier, and were introduced to the West by Arab scholars. As they represent place-based values and have a zero, calculations can be performed with relative ease (how quickly can you add up the Roman numerals?). Another advantage is that numbers of infinite length can be formed, whereas Roman numerals soon meet with limitations.

M	1000
C	100
VI	6
IV	4

### Gutenberg

Johannes Gutenberg (c. 1400–1468) was a German printer who developed the first printing press and the use of movable type. The development of the printing press allowed the mass production of books.

Movable type further improved this development by allowing text characters to be reused, providing further time and cost savings. This technology remained the basis of the printing industry until hot metal printing.

### Movable type

Shown is a piece of movable type. Many typographical terms are named after the different characteristics of these type blocks. The physical dimensions of the block dictated spacing and made negative spacing impossible, whereas computer technology makes spacing more flexible. While digitized type still adheres to the same conventions of the bounding box (pictured far right) in terms of measurements, digitization allows these boxes to overlap, and indeed have negative tracking.



### Blackletter

Block, Blackletter, Gothic, Old English, black or broken typefaces are based on the ornate writing style prevalent during the Middle Ages. Nowadays these typefaces appear heavy and difficult to read in large text blocks due to the complexity of the letters and the fact that they seem antiquated and unfamiliar to us. Blackletter typefaces are commonly used to add decorative touches such as initial caps.



#### Blackletter 686

Blackletter 686, a modern font created by Bitstream Inc. and based on London Text scripts from the Middle Ages that were written with feather quills. The clean lines of this font result in an engraved effect.

### The effect of printing in Europe

As printing spread it gave rise to various typographical styles. Many printers adopted the Venetian model as interest in Italian Renaissance art and culture grew. Parisian printer Claude Garamond (c. 1480–1561) established the first independent type foundry.

Letterforms from this period utilized the greater detail that working with metal offered. Old Style typeforms superseded Blackletter as people in Renaissance Europe began to favour classical forms. These are more condensed than the Carolingian forms that preceded them, but more rounded than Blackletter. Some common fonts are shown on the opposite page with an explanation of their development and characteristics.

ABCDEFGHIJKLMNOPQRSTUVWXYZ

#### Bembo

Created by Monotype in 1929 for a Stanley Morison project, Bembo is an Old Style font based on a Roman face cut by Francisco Griffo da Bologna, which Aldus Manutius used to print Pietro Bembo's 1496 publication of *De Aetna*. Morison modified letterforms such as the 'G' to create a typeface with 31 weights – an all-purpose font family suitable for almost any application. Note the crossed strokes in the 'W'.

ABCDEFGHIJKLMNOPQRSTUVWXYZ

#### Garamond

Based on designs by seventeenth-century French printer Jean Jannon that were themselves based on typefaces cut by Claude Garamond from the sixteenth century, Garamond is an Aldine font (fonts based on the designs of Aldus Manutius in the fifteenth century, of which Bembo and Garamond are examples) that is elegant and readable. Note the crossed strokes in the 'W', and the bowl of the 'P' that does not reach the stem.

ABCDEFGHIJKLMNOPQRSTUVWXYZ

#### Janson

Created c. 1685 by Hungarian punchcutter Miklós Kis, Janson wrongly bears the name of Dutch punchcutter Anton Janson, to whom it was formerly attributed. The font has sturdy forms and strong stroke contrast. Note the long tail of the 'Q', the oval shape of the 'O' and the unified apex of the 'W'.

ABCDEFGHIJKLMNOPQRSTUVWXYZ

#### Caslon Antique

This is a modern font based on a historical font. Modern typographers' attempts to recreate ancient fonts in digital format often involve imaginative leaps, as they are based on printed texts where there is ink spread, and in many cases the original fonts are not available to work from.

ABCDEFGHIJKLMNOPQRSTUVWXYZ vw

#### Caslon

Created in 1725 by typographer William Caslon, this serif font was styled on seventeenth-century Dutch designs. The font can be identified as most Caslons have a capital 'A' with a scooped-out apex, a capital 'C' with two full serifs and in the italic, a swashed lower-case 'v' and 'w'.

ABCDEFGHIJKLMNOPQRSTUVWXYZ

#### Baskerville

Created by John Baskerville in the eighteenth century, Baskerville is a versatile transitional font (making it a precursor to the modern faces that followed) with high contrast forms that are used for both body text and display type. Note the absence of the middle serif on the 'W' and the distinctive capital 'Q'.