

The Elements
of Typographic Style

second edition, revised & enlarged

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tuted, but the underdot is preferable. Editors of classical inscriptions and papyri routinely use the underdot to mark all letters whose reading is uncertain. The underdot is also one of the tone-marks used with vowels in Vietnamese. Its typographic nickname, *nang*, is a simplified form of its proper Vietnamese name, *nặng*. It is missing from the basic ISO character set.

a

underscore A diacritic required for many African and Native American languages, and useful for some purposes in English. It is also used as an alternative to the underdot in setting romanized Arabic and Hebrew. To clear descenders, a repositioned version of the character is required. See also *lowline*.

0 ≠ 1

unequal A useful symbol missing from the ISO character sets. Apart from its importance in mathematics and general text, it has several more specialized uses. In writing the Khoisan languages of Africa, for example, it is used as a symbol for alveolar clicks.

vertical rule See *bar*.

AA

vinculum An overbar, used in mathematics ($\sqrt{10}$) and in the sciences (\overline{AB}). *Vinculum* is Latin for *bond* or *chain*.

a/c

virgule An oblique stroke, used by medieval scribes and many later writers as a form of comma. It is also used to build *level* fractions, to represent a linebreak when verse is set as prose, and in dates, addresses and elsewhere as a sign of separation. In writing the Khoisan languages of western Africa, it is sometimes used to represent dental or lateral clicks. Compare *solidus*.

wedge Another name for the *caron*.

yen See *currency symbols*.

3

yogh A letter of the alphabet in Lapp. It was also part of the early English alphabet and is still therefore used in some editions of Anglo-Saxon and Middle English texts. It is absent from most text fonts, but the lowercase form can be found on any standard font of phonetic symbols, because the yogh is also part of the IPA (International Phonetic Association) alphabet. (The numeral 3 is not a suitable substitute.)

Names of individual characters and diacritics (circumflex, dyet, midpoint, virgule, etc) are not in this glossary. They appear in appendix A instead. For summary definitions of historical categories (Renaissance, Baroque, etc), see chapter 7.

$10/12 \times 18$ Ten on twelve by eighteen, which is to say, ten-point (10 pt) type set with 12 pt leading (2 pt extra lead, in addition to the body size of 10 pt, for a total of 12 pt from baseline to baseline) on a measure of 18 picas.

Abrupt & Adnate Serifs are either *abrupt* – meaning they break from the stem suddenly at an angle – or they are *adnate*, meaning that they flow smoothly into or out of the stem. In the older typographic literature, adnate serifs are generally described as bracketed.

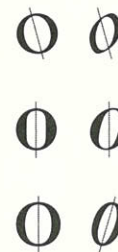
Aldine Relating to the publishing house operated in Venice by Aldus Manutius between 1494 and 1515. Most of Aldus's type – which included roman, italic and Greek – was cut by Francesco Griffo of Bologna. Type that resembles Griffo's, and typography that resembles Aldus's, is called Aldine. Monotype Poliphilus and Bembo roman are Aldine revivals, though their companion italics are not.

Analphabetic A typographic symbol used with the alphabet but lacking a place in the alphabetical order. Diacritics such as the acute, umlaut, circumflex and caron are analphabetic. So are the asterisk, the dagger, the pilcrow.

Aperture The openings of letters such as C, c, S, s, a and e. Humanist faces such as Bembo and Centaur have large apertures, while Romantic faces such as Bodoni and Realist faces such as Helvetica have small apertures. Very large apertures occur in archaic Greek inscriptions and in typefaces such as Lithos, which are derived from them.

Axis In typography, the axis of a letter generally means the axis of the stroke, which in turn reveals the axis of the pen or other tool used to make the letter. If a letter has thick strokes and thin ones, find the thick strokes and extend them into lines. These lines reveal the axis (or *axes*; there may be several) of the letter. Not to be confused with *slope*.

11



f

Ball Terminal A circular form at the end of the arm, leg or brow in letters such as a, c, f, j, r and y. Ball terminals are found in many romans and italics of the Romantic period, some Re-alist faces, and in many recent faces built on Romantic lines. Examples: Bodoni, Scotch Roman and Haas Clarendon. See also *beak terminal* and *teardrop terminal*.

Baseline Whether written by hand or set into type, the Latin lowercase alphabet implies an invisible staff consisting of at least four lines: topline, midline, baseline and beardline. The topline is the line reached by ascenders in letters like b, d, h, k, l. The midline marks the top of letters like a, c, e, m, x, and the top of the torso of letters like b, d, h. The baseline is the line on which all these letters rest. The beardline is the line reached by descenders in letters like p and q. The cap line, marking the top of uppercase letters like H, does not necessarily coincide with the topline of the lower case.

Round letters like e and o normally dent the baseline. Pointed letters like v and w normally pierce it, while the foot serifs of letters like h and m rest precisely upon it.

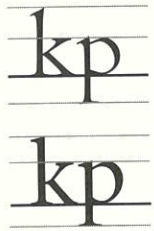
Bastarda A class of *blackletter* types. See page 250.

Beak Terminal A sharp spur, found particularly on the f, and also often on a, c, j, r and y, in many twentieth-century romans and, to a lesser degree, italics. Examples: Perpetua, Berling, Méridien, Pontifex, Veljović, Calisto.

Bicameral A bicameral alphabet is two alphabets joined. The modern Latin alphabet, which you are reading, is an example. It has an upper and a lower case, as closely linked and yet as easy to distinguish as the Senate and the House of Representatives. Unicameral alphabets (the Arabic, Hebrew and Devanagari alphabets, for example) have only one case. Tricameral alphabets have three – and a normal font of roman type can be described as tricameral, if you distinguish upper case, lower case and small caps.

Bilateral Extending to both sides. Bilateral serifs, which are always *reflexive*, are typical of roman faces, while unilateral serifs are typical of romans, Carolingians and italics.

Bitmap A digital image in unintelligent form. A letterform can be described morphologically, as a series of reference points and trajectories that mimic its perimeter, or embryologically, as the series of penstrokes that produce the form. Such descriptions are partially independent of size and position. The same image can also be described quite accu-



f

e

rately but superficially as the addresses of all the dots (or *bits*) in its digital representation. This sort of description, a bitmap, ties the image to one orientation and size.

Blackletter Blackletter is to typography what Gothic is to architecture: a general name for a wide variety of forms that stem predominantly from the north of Europe. Like Gothic buildings, blackletter types can be massive or light. They are often tall and pointed, but sometimes round instead. Compare *whiteletter*. The categories of blackletter include *bastarda*, *fraktur*, *quadrata*, *rotunda* and *textura*. See page 250.

Bleed As a verb, to bleed means to reach to the edge of the page. As a noun, it means printed matter with no margin. If an image is printed so that it reaches beyond the trim line, it will bleed when the page is trimmed. Photographs, rules, solids and background screens or patterns are often allowed to bleed. Type can rarely do so.

Blind In letterpress work, printing blind means printing without ink, producing a colorless impression.

Blind Folio A page which is counted in the numbering sequence but carries no visible number.

Block Quotation A quotation set off from the main text, forming a paragraph of its own, often indented or set in a different face or smaller size than the main text. A *run-in quotation*, on the other hand, is run in with the main text and usually enclosed in quotation marks.

Body (1) In reference to foundry type: the actual block of typemetal from which the sculpted mirror-image of the printed letter protrudes. (2) In reference to phototype or digital type: the rectangular face of the metal block that the letter would be mounted on *if it were* three-dimensional metal instead of a two-dimensional image or bitmap. Retained as a fiction for use in sizing and spacing the type.

Body Size In graphic terms, the *height* of the *face* of the type, which in letterpress terms is the *depth* of the *body* of the type. Originally, this was the height of the face of the metal block on which each individual letter was cast. In digital type, it is the height of its imaginary equivalent, the rectangle defining the space owned by a given letter, and not the dimension of the letter itself. Body sizes are usually given in points – but European type sizes are often given in Didot points, which are 7% larger than the points used in Britain and North America.

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oa

b i
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Th

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o o

f

Bowl The generally round or elliptical forms which are the basic bodyshape of letters such as C, G, O in the upper case, and b, c, e, o, p in the lower case. Also called *eye*.

Cap Height The distance from baseline to cap line of an alphabet, which is the approximate height of the uppercase letters. It is often less, but sometimes greater, than the height of the ascending lowercase letters. See also *baseline* and *x-height*.

Chancery A class of cursive letterforms, generally featuring extra ligatures and lengthened and curved extenders. Many, but not all, chancery letterforms are also *swash* forms.

Cicero A unit of measure equal to 12 Didot points. This is the continental European counterpart to the British and American *pica*, but the cicero is slightly larger than the pica. It is equivalent to 4.52 mm or 0.178 inch. See *point*.

Color The darkness of the type as set in mass, which is not the same as the *weight* of the face itself. The spacing of words and letters, the leading of lines, and the incidence of capitals, not to mention the color (i.e., darkness) of the ink and of the paper it is printed on, all affect the color of the type.

Contrast In the analysis of letterforms, this usually refers to the degree of contrast between the thick strokes and thin strokes of a given letter. In faces such as Gill Sans and Helvetica, there is no contrast. In Romantic faces such as Bulmer and Bodoni, the contrast is high.

Counter The white space enclosed by a letterform, whether wholly enclosed, as in *d* or *o*, or partially, as in *c* or *m*.

Crosshead A heading or subhead centered over the text. Compare *sidehead*.

Cursive Flowing. Often used as a synonym for *italic*.

Dingbat A typographic glyph or symbol subject to scorn because it has no apparent relation to the alphabet. Many dingbats are pictograms – tiny pictures of churches, airplanes, skiers, telephones, and the like, used in the tourist industry. Others are more abstract symbols – check marks, crosses, cartographic symbols, the emblems of the suits of playing cards, and so on.

Dot Leader A row of evenly spaced periods or midpoints, occasionally used to link flush-left text with flush-right numerals in a table of contents or similar context. (There are none in this book.)

DPI Dots per inch. The usual measure of output *resolution* in digital typography and in laser printing.

Drop Cap A large initial capital or *versal* mortised into the text. (See page 64 for examples.) Compare *elevated cap*.

Drop Folio A folio (page number) dropped to the foot of the page when the folios on other pages are carried near the top. Drop folios are often used on chapter openings.

Dropline Paragraph A paragraph marked by dropping directly down one line space from the end of the previous paragraph, without going back to the left margin. (See page 40 for an example.)

Elevated Cap A large initial capital or versal set on the same baseline as the first line of the text.

Em In linear measure, a distance equal to the type size, and in square measure, the square of the type size. Thus an em is 12 pt (or a 12 pt square) in 12 pt type, and 11 pt (or an 11 pt square) in 11 pt type. Also called *mutton*.

En Half an em. To avoid misunderstanding when instructions are given orally, typographers often speak of ems as *muttons* and ens as *nuts*.

Extenders Descenders and ascenders; i.e., the parts of the letterform that extend below the baseline, as in p and q, or above the midline, as in b and d.

Eye Synonym for bowl. But large eye means large *x-height*; open eye means large *aperture*.

FL Flush left, which means set with an even left margin. By implication, the right margin is ragged. To be more precise, one could write FL/RR, meaning flush left, ragged right.

FL&R Flush left and right, which is to say *justified*.

Fleuron A horticultural dingbat. That is to say, a typographic ornament ordinarily in the shape of a flower or leaf. Some fleurons are designed to be set in bulk and in combinations, to produce what amounts to typographic wallpaper.

Flush and Hung Set with the first line FL and subsequent lines indented, like the entries in this glossary.

Folio In bibliography, a page or leaf; but in typography, a folio is normally a typeset page *number*, not the page itself.

Font A set of sorts or glyphs. In the world of metal type, this means a given alphabet, with all its accessory characters, in a given size. In relation to phototype, it usually means the assortment of standard patterns forming the glyph palette, without regard to size, or the actual filmstrip or wheel on which these patterns are stored. In the world of digital type, the font is the glyph palette itself or the digital information



encoding it. (The older British spelling, *fount*, has not only the same meaning but also the same pronunciation.)
Fore-edge The outside edge or margin of a book page; i.e., the edge or margin opposite the spine.
FR Flush right. With an even right margin. By implication, the left margin is ragged.
Fraktur A class of *blackletter* types. See page 250.
Glyph A version of a character. See *sort*.
Gutter The blank column between two columns of type or the margins at the spine between two facing textblocks.
Hanging Figures Text figures.
Hard Space A word space that will not translate into a line-break. Also called *no-break space*.
Hint The letterforms that make up a digital font are usually defined mathematically in terms of outlines or templates, which can be freely scaled, rotated and moved about. When pages are composed, these outlines are given specific locations and sizes. They must then be *rasterized*: converted into solid forms made up of dots at the resolution of the output device. If the size is very small or the resolution low, the raster or grid will be coarse, and the dots will fill the mathematical template very imperfectly. Hints are *the rules of compromise* applied in this process of rasterization. At large sizes and high resolutions, they are irrelevant. At smaller sizes and lower resolutions, where distortion is inevitable, they are crucial. Most, but not all, digital fonts are *hinted*. That is, they include hints as integral parts of the font definition. See also *bitmap*.

Humanist Humanist letterforms are letterforms originating among the humanists of the Italian Renaissance and persisting to the present day. They are of two primary kinds: roman and italic, both of which derive from Roman capitals and Carolingian minuscules. Humanist letterforms show the clear trace of a broadnib pen held by a right-handed scribe. They have a *modulated* stroke and a *humanist axis*.

Humanist Axis An oblique stroke axis reflecting the natural inclination of the writing hand. See pp 12–15.

Inline A letter in which the inner portions of the main strokes have been carved away, leaving the edges more or less intact. Inline faces lighten the color while preserving the shapes and proportions of the original face. *Outline* letters, on the other hand, are produced by drawing a line around



the outsides of the letters and removing the entire original form. Outline letters, in consequence, are fatter than the originals and have less definition. Castellar, Smaragd and Romulus Open are examples of inline faces.

IPA International Phonetic Association. An organization of linguists founded in 1886. The IPA alphabet is a set of phonetic symbols, diacritics and tonemarks, widely used but – like any scientific system – subject to constant refinement and modification. (A widely used alternative is the phonetic system of the American Anthropological Association.)

ISO International Organization for Standardization, headquartered in Geneva. An agency for international cooperation on industrial and scientific standards. Its membership consists of the national standards organizations of more than one hundred countries.

Italic A class of letterforms more cursive than roman but less cursive than script, first developed in Italy during the fifteenth century.

Justify To adjust the length of the line so that it is flush left and right on the measure. Type in the Latin alphabet is commonly set either justified or *FL/RR* (flush left, ragged right).

Kern Part of a letter that extends into the space of another. In many alphabets, the roman *f* has a kern to the right, the roman *j* a kern to the left, and the italic *f* one of each. As a verb, to kern means to alter the fit of certain letter combinations – *To* or *VA*, for example – so that the limb of one projects over or under the body or limb of the other.

Lachrymal Terminal See *teardrop terminal*.

Lead [Rhyming with *red*] Originally a strip of soft metal (lead or brass) used for vertical spacing between lines of type. Now meaning the vertical distance from the baseline of one line to the baseline of the next. Also called *leading*.

Lettrine Literally, 'a large letter.' Synonym for *versal*.

Ligature Two or more letters tied into a single character. The sequence *ffi*, for example, forms a ligature in most Latin text faces.

Lining Figures Figures of even height. Usually synonymous with *titling figures*, but some lining figures are smaller and lighter than the uppercase letters.

Logogram A specific typographic form tied to a certain word. Example: the nonstandard capitalizations in the names e.e. cummings, ΠαπαΓραφ, TrueType and WordPerfect.



Lowercase Figures Text figures.

m/3 A third of an em: e.g., 4 pt in 12 pt type; 8 pt in 24 pt type.

Measure The standard length of the line; i.e., column width or width of the overall textblock, usually measured in picas.

Mid Space A space measuring *m/4*, a fourth of an em.

Modulation In relation to typography, modulation means the usually cyclical and predictable variation in width of the stroke. In monochrome (unmodulated) letterforms like Frutiger, the stroke is always fundamentally the same width. In a face such as Bembo or Centaur, the stroke is based on the trace of a broadnib pen, which makes thin cross strokes and thicker pull strokes. When letters are written with such an instrument, modulation automatically occurs.

Monotonic Modern Greek orthography uses only one of the old tonic accent marks, the acute, along with an occasional diaeresis. (Greek has often, in fact, been written and sometimes typeset in this way, but the practice did not become official until 1982.) Fonts designed for setting only modern Greek are known as monotonic. Compare *polytonic*.

Mutton An *em*. Also called *mutton quad*.

Negative Leading Leading – that is to say, line space – smaller than the body size. Type set 16/14, for example, is set with negative leading.

Neohumanist Recent letterforms that revive and reassert *humanist* principles are called neohumanist.

Nut An *en*.

Old-Style Figures A poor but common synonym for *text figures*.

Orthotic A class of Greek scripts and types that flourished in Western Europe between 1200 and 1520, revived in the early twentieth century. Orthotic Greeks are noncursive and usually bicameral. In other words, they are analogous to the roman form of Latin script. Both caps and lower case are usually upright. Serifs, when present, are usually short, abrupt and unilateral. The geometric figures of circle, line and triangle are usually prominent in their underlying structure. Victor Scholderer's New Hellenic is an example.

Pi Font A font of assorted mathematical or other symbols, designed to be used as an adjunct to one or more text fonts.

Pica A unit of measure equal to 12 *points*. Two different picas are in common use. (1) In traditional printers' measure, the pica is 4.22 mm or 0.166 inch: close to, but not exactly, one sixth of an inch. This is the customary British and Ameri-

can unit for measuring the length of the line and the depth of the textblock. (2) The PostScript pica is precisely one sixth of an inch. (Note: the continental European counterpart to the pica is the *cicero*, which is 7% larger.)

Piece Fraction A fraction (such as $\frac{9}{32}$) that is not included in the font and must therefore be made on the spot from separate components.

Point (1) In traditional British and American measure, a point is one twelfth of a *pica*, which makes it 0.3515 mm, or 0.01383 inch. In round numbers, there are 72 points per inch, or 28.5 points per centimeter. (2) In continental Europe a larger point, the Didot point, is used. The Didot point (one twelfth of a *cicero*) is 0.38 mm or 0.01483 inch. In round numbers, there are 26.5 Didot points per centimeter, or 67.5 per inch. (3) Many photosetters and most digital typesetting devices, as well as the PostScript and TrueType computer languages, round the point off to precisely $\frac{1}{72}$ inch and the pica to precisely $\frac{1}{6}$ inch.

Polytonic Classical Greek has been set since the fifteenth century with an array of tonic accents and other diacritics inherited from the Alexandrian scribes. These diacritics – acute, grave, circumflex, rough breathing, smooth breathing, diaeresis and iota subscript – are used singly and in a variety of combinations. Modern Greek retains only the acute and an occasional diaeresis. Greek fonts equipped with the full set of accents are accordingly known as polytonic Greeks, and modern Greek fonts as *monotonic*. Monotonic text can of course be set with a polytonic font, but not the other way around.

Quad An *em*. Also called *mutton quad*.

Ranging Figures Figures of even height. Synonymous with *lining figures*. Ranging figures are usually *titling figures*, but some ranging figures are smaller than the uppercase letters.

Raster Digital grid. See *hint*.

Rationalist Axis Vertical axis, typical of Neoclassical and Romantic letterforms. See pp 12–13. Compare *humanist axis*.

Reflexive A type of *serif* that concludes the stroke of the pen, but implies a continuation of the text. Reflexive serifs are typical of roman faces, including the face in which these words are set. They always involve a sudden, small stoppage and reversal of the pen's direction, and more often than not they are *bilateral*. See also *transitive*.



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Resolution In digital typography, resolution is the fineness of the grain of the typeset image. It is usually measured in dots per inch (dpi). Laser printers, for example, generally have a resolution between 300 and 1200 dpi, and typesetting machines a resolution significantly greater than 1200 dpi. The resolution of the conventional television set is only about 50 dpi, and the resolution of most computer screens is less than 100 dpi. But other factors besides resolution affect the apparent roughness or fineness of the typeset image. These factors include the inherent design of the characters, the skill with which they are digitized, the *hinting* technology used to compensate for coarse *rasterization*, and the type of film or paper on which they are reproduced.

Rotunda A class of *blackletter* types. See page 250.

RR Ragged right, which is to say unjustified.

Sanserif From the earlier English forms *sans serif* and *sans surryphs*, without serifs: synonymous with *unserifed*.

Serif A stroke added to the beginning or end of one of the main strokes of a letter. In the roman alphabet, serifs are usually *reflexive* finishing strokes, forming unilateral or bilateral stops. (They are unilateral if they project only to one side of the main stroke, like the serifs at the head of T and the foot of L, and bilateral if they project to both sides, like the serifs at the foot of T and the head of L.) *Transitive* serifs – smooth entry or exit strokes – are usual in italic.

There are many descriptive terms for serifs, especially as they have developed in roman faces. They may be not only unilateral or bilateral, but also long or short, thick or thin, pointed or blunt, abrupt or adnate, horizontal or vertical or oblique, tapered, triangular, and so on. In textures and some frakturs, they are usually *scutulate* (diamond-shaped), and in some architectural scripts, such as Eagle-feather and Tekton, the serifs are virtually round.

(Not all type historians agree that the word *serif* should be used in relation to italic letters. But some term is necessary to denote the difference between, for example, Bembo italic and Caspari italic. In this book, the former is described as a serifed italic, the latter as unserifed.)

Sidehead A heading or subhead set flush left (more rarely, flush right) or slightly indented. Compare *crosshead*.

Slab Serif An abrupt or adnate serif of the same thickness as the main stroke. Slab serifs are a hallmark of the so-called

egyptian and clarendon types: two groups of Realist faces produced in substantial numbers since the early nineteenth century. Memphis, Rockwell and Serifa are examples. A more recent example is PMN Caecilia.

Slope The angle of inclination of the stems and extenders of letters. Most (but not all!) italics slope to the right at something between 2° and 20°. Not to be confused with *axis*.

Solid Set without additional *lead*, or with the line space equivalent to the type size. Type set 11/11 or 12/12, for example, is set solid.

Sort A single piece of metal type: therefore a letter in one particular style and size. In the world of digital type, where letters have no physical existence until printed, the word *sort* has been partially displaced by the word *glyph*. A glyph is a version – a conceptual, not material, incarnation – of the abstract symbol called a character. Thus, z and ꝛ are different glyphs (in the same face) for the same character.

Stem A main stroke that is more or less straight, not part of a bowl. The letter *o* has no stem; the letter *l* consists of stem and serifs alone.

Swash A letterform reveling in luxury. Some swash letters carry extra flourishes; others simply occupy an abnormally large ration of space. Swash letters are usually cursive and swash typefaces therefore usually italic. True italic capitals (as distinct from sloped roman capitals) are usually swash. (*The Capitals in this Sentence are Examples.*) Hermann Zapf's Zapf Renaissance italic and Robert Slimbach's Poetica are faces in which the swash can be extended to the lower case.

Teardrop Terminal A swelling, like a teardrop, at the end of the arm in letters such as a, c, f, g, j, r and y. This feature is typical of typefaces from the Late Renaissance, Baroque and Neoclassical periods, and is present in many recent faces built on Baroque or Neoclassical lines. Examples: Jannon, Van Dijck, Kis, Caslon, Fournier, Baskerville, Bell, Walbaum, Zapf International, Galliard. Also called *lachrymal terminal*. See also *ball terminal* and *beak terminal*.

Textblock The part of the page normally occupied by text, or the page minus its standard margins.

Text Figures Figures – 1 2 3 4 5 6 – designed to match the lowercase letters in size and color. Most text figures are ascending and descending forms. Compare *lining figures*, *ranging figures* and *titling figures*.

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M	M	M
3	4	5

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Textura A class of *blackletter* types. See page 250.

Thick Space A space measuring $m/3$, a third of an em.

Thin Space In letterpress work, a space measuring $m/5$, a fifth of an em. In computer typesetting, sometimes understood as $m/6$. Compare *mid space* and *thick space*.

Three-to-em One-third em. Also written $m/3$.

Titling Figures Figures – 123456 – designed to match the uppercase letters in size and color. Compare *text figures*.

Transitive A type of serif which flows directly into or out of the main stroke without stopping to reverse direction, typical of many italics. Transitive serifs are usually unilateral: they extend only to one side of the stem. See also *reflexive*.

Type Size See *body size*.

U&lc Upper and lower case: the normal form for setting text in the Latin, Greek and Cyrillic alphabets, all of which are now *bicameral*.

Unicameral Having only one case – like the Hebrew alphabet and many roman titling faces. Compare *bicameral*.

Versal A large initial capital, either elevated or dropped. Also called *lettrine*.

Weight The darkness (blackness) of a typeface, independent of its size. See also *color*.

Whiteletter The generally light roman letterforms favored by humanist scribes and typographers in Italy in the fifteenth and sixteenth centuries, as distinct from the generally darker *blackletter* script and type used more persistently north of the Alps. Whiteletter is the typographic counterpart to Romanesque in architecture, as blackletter is the counterpart to Gothic.

White Line A line space.

Word Space The space between words. When type is set FL/RR, the word space may be of fixed size, but when the type is *justified*, the word space must usually be elastic.

x-height The distance between the baseline and the midline of an alphabet, which is normally the approximate height of the unextended lowercase letters – a, c, e, m, n, o, r, s, u, v, w, x, z – and of the torso of b, d, h, k, p, q, y. The relation of x-height to cap height, and the relation of x-height to length of *extenders*, are two important characteristics of any *bicameral* Latin typeface. See also *baseline*, *cap height* and *eye*.

APPENDIX C: TYPE DESIGNERS

A biographical index of designers important to typographic history, and of all those doing important work in the present day, would be a book in itself. The following list is little more than a cross-reference to important designers whose work is mentioned elsewhere in this book.

LUDOVICO DEGLI ARRIGHI (c. 1480–1527) Italian calligrapher and designer of at least six chancery italic fonts. Frederic Warde's Vicenza and Arrighi (the italic companion to Centaur) are based on one of his faces. Monotype Blado (the italic companion to Poliphilus) is a rough approximation of another.

ANTOINE AUGEREAU (c. 1490–1534) Parisian punchcutter and printer. Author of several text romans and at least one Greek. Along with his contemporary Simon de Colines, Augereau defined the style of French typography later identified with the name of his most famous apprentice, Claude Garamond. This activity came to an end when he was hanged and his corpse was publicly burnt, on Christmas Eve of 1534, for printing a psalm without permission.

RICHARD AUSTIN (c. 1765–1830) English punchcutter producing Neoclassical and Romantic faces. He cut the original Bell type, the first Scotch Roman, and the original version of Porson Greek. W.A. Dwiggin's Caledonia is based primarily on Austin's work.

JOHN BASKERVILLE (1706–1775) English calligrapher, printer and businessman. Designer of a series of Neoclassical romans, italics and one Greek. Most of the faces sold in his name are based on his work and some resemble it closely. His punches are now at the University Library, Cambridge, and the St Bride Printing Library, London. A set of original matrices, formerly in Paris, is now in the Frutiger Foundry, Münchenstein, Switzerland.

LUCIAN BERNHARD (1885–1972) German immigrant to the USA. Painter, poet, industrial designer and typographer. Author of a large number of roman faces, distinguished by their long extenders. These were cut and cast primarily by ATF and Bauer.

Stone Type Foundry, Palo Alto. A digital foundry established in 1991 by Sumner Stone. It issues faces designed by the proprietor.

Tetterode. See *Amsterdam Foundry*.

Typoart, Dresden. A metal foundry formed in the 1950s by nationalizing the existing operations of Schelter & Giesecke and Schriftguss. It is important also for its castings, during the twentieth century, of original designs by its artistic director, Albert Kapr. The surviving typographic material is now at WMD, Leipzig.

URW (*Unternehmensberatung Karow Rubow Weber*), Hamburg. Established as a software firm in 1971, URW was diverted into digital typography by Peter Karow, a physicist excited by typography, who joined it in 1972. It was the original developer of the Ikarus system (a predecessor of PostScript) for digitizing type. It issued a large number of historical revivals as well as original faces by Hermann Zapf, Gudrun Zapf-von Hesse, and others. The firm entered receivership in 1995. Its library has since been distributed by a corporate successor known as 'URW++.'

Victoria Foundry, Koropi, Attika. A metal foundry, still in operation, casting chiefly nineteenth- and early twentieth-century Greek faces.

Johannes Wagner, Ingolstadt. A metal foundry established at Leipzig in 1902 by Ludwig Wagner and relocated to Ingolstadt in 1949 by his son Johannes. It has acquired matrices from Berthold, Johns, Weber and other foundries, and continues to cast type.

Weber Foundry, Stuttgart. A metal foundry that issued original faces by Georg Trump and others. In 1971 it was absorbed by the Wagner Foundry, Ingolstadt.

WMD (*Werkstätten und Museum für Druckkunst*), Leipzig. A working typographic museum founded in 1994 by Eckehart Schumacher-Gebler. Its large stock of typographic material includes original punches and matrices by Johann Christian Bauer, Lucian Bernhard, Jakob Erbar, Albert Kapr, Paul Renner, Jacques Sabon and many others.

Y&Y, Concord, Mass. A digital foundry specializing in fonts and system software for the setting of mathematics and scientific texts. It has issued original designs by Charles Bigelow, Kris Holmes and Hermann Zapf.

APPENDIX E: RECAPITULATION

Page

1.1.1	<i>Typography exists to honor content.</i>	17
1.1.2	<i>Letters have a life and dignity of their own.</i>	18
1.1.3	<i>There is a style beyond style.</i>	19
1.2.1	<i>Read the text before designing it.</i>	20
1.2.2	<i>Discover the outer logic of the typography in the inner logic of the text.</i>	20
1.2.3	<i>Make the visible relationship between the text and other elements (photographs, captions, tables, diagrams, notes) a reflection of their real relationship.</i>	21
1.2.4	<i>Choose a typeface or a group of faces that will honor and elucidate the character of the text.</i>	22
1.2.5	<i>Shape the page and frame the textblock so that it honors and reveals every element, every relationship between elements, and every logical nuance of the text.</i>	23
1.2.6	<i>Give full typographic attention even to incidental details.</i>	24
2.1.1	<i>Define the word space to suit the size and natural letterfit of the font.</i>	25
2.1.2	<i>Choose a comfortable measure.</i>	26
2.1.3	<i>Set ragged if ragged setting suits the text and the page.</i>	27
2.1.4	<i>Use a single word space between sentences.</i>	28
2.1.5	<i>Add little or no space within strings of initials.</i>	30
2.1.6	<i>Letterspace all strings of capitals and small caps, and all long strings of digits.</i>	30

page 31	2.1.7	<i>Don't letterspace the lower case without a reason.</i>
32	2.1.8	<i>Kern consistently and modestly or not at all.</i>
35	2.1.9	<i>Don't alter the widths or shapes of letters without cause.</i>
35	2.1.10	<i>Don't stretch the space until it breaks.</i>
36	2.2.1	<i>Choose a basic leading that suits the typeface, text and measure.</i>
37	2.2.2	<i>Add and delete vertical space in measured intervals.</i>
39	2.2.3	<i>Don't suffocate the page.</i>
39	2.3.1	<i>Set opening paragraphs flush left.</i>
39	2.3.2	<i>In continuous text, mark all paragraphs after the first with an indent of at least one en.</i>
40	2.3.3	<i>Add extra lead before and after block quotations.</i>
41	2.3.4	<i>Indent or center verse quotations.</i>
42	2.4.1	<i>At hyphenated line-ends, leave at least two characters behind and take at least three forward.</i>
42	2.4.2	<i>Avoid leaving the stub-end of a hyphenated word, or any word shorter than four letters, as the last line of a paragraph.</i>
42	2.4.3	<i>Avoid more than three consecutive hyphenated lines.</i>
43	2.4.4	<i>Hyphenate proper names only as a last resort unless they occur with the frequency of common nouns.</i>
43	2.4.5	<i>Hyphenate according to the conventions of the language.</i>
43	2.4.6	<i>Link short numerical and mathematical expressions with hard spaces.</i>
43	2.4.7	<i>Avoid beginning more than two consecutive lines with the same word.</i>

2.4.8	<i>Never begin a page with the last line of a multi-line paragraph.</i>	page 43
2.4.9	<i>Balance facing pages by moving single lines.</i>	44
2.4.10	<i>Avoid hyphenated breaks where the text is interrupted.</i>	44
2.4.11	<i>Abandon any and all rules of hyphenation and pagination that fail to serve the needs of the text.</i>	44
3.1.1	<i>Don't compose without a scale.</i>	45
3.2.1	<i>Use titling figures with full caps, and text figures in all other circumstances.</i>	46
3.2.2	<i>For abbreviations and acronyms in the midst of normal text, use spaced small caps.</i>	48
3.2.3	<i>Refer typographic disputes to the higher courts of speech and thinking.</i>	49
3.3.1	<i>Use the ligatures required by the font, and the characters required by the language, in which you are setting type.</i>	50
3.3.2	<i>If you wish to avoid ligatures altogether, restrict yourself to faces that don't require them.</i>	52
3.4.1	<i>To the marriage of type and text, both parties bring their cultural presumptions, dreams and family obligations. Accept them.</i>	53
3.4.2	<i>Don't use a font you don't need.</i>	55
3.4.3	<i>Use sloped romans sparingly and artificially sloped romans more sparingly still.</i>	56
3.5.1	<i>Change one parameter at a time.</i>	60
3.5.2	<i>Don't clutter the foreground.</i>	60
4.1.1	<i>Make the title page a symbol of the dignity and presence of the text.</i>	61

page 61	4.1.2	Don't permit the titles to oppress the text.
62	4.1.3	Set titles and openings in a form that contributes to the overall design.
63	4.1.4	Mark each beginning and resumption of the text.
64	4.1.5	If the text begins with a quotation, include the initial quotation mark.
65	4.2.1	Set headings in a form that contributes to the style of the whole.
65	4.2.2	Use as many levels of headings as you need: no more and no fewer.
68	4.3.1	If the text includes notes, choose the optimum form.
68	4.3.2	Check the weight and spacing of superscripts.
69	4.3.3	Use superscripts in the text but full-size numbers in the notes themselves.
69	4.3.4	Avoid ambiguity in the numbering and placement of endnotes.
70	4.4.1	Edit tables with the same attention given to text, and set them as text to be read.
71	4.4.2	Avoid overpunctuating lists.
71	4.4.3	Set lists and columns of figures to align flush right or on the decimal.
72	4.4.4	For text and numerals alike, choose harmonious and legible tabular alignments.
72	4.5.1	Leave adequate space at the beginning and end of every publication.
73	4.5.2	Give adequate space to the prelims.

4.5.3	Balance the front and back matter.	page 73
5.1.1	To invoke the inscriptional tradition, use the midpoint.	75
5.1.2	Use alphabetic symbols and diacritics that are in tune with the basic font.	76
5.1.3	In heads and titles, use the best available ampersand.	78
5.1.4	Consider even the lowly hyphen.	78
5.2.1	Use spaced en dashes – rather than em dashes or hyphens – to set off phrases.	80
5.2.2	Use close-set en dashes or three-to-em dashes between digits to indicate a range.	80
5.2.3	Use the em dash to introduce speakers in narrative dialogue.	81
5.2.4	In lists and bibliographies, use a three-em rule when required as a sign of repetition.	81
5.2.5	Use the virgule with words and dates, the solidus with split-level fractions.	81
5.2.6	Use a dimension sign instead of a serifed x when dimensions are given.	82
5.2.7	Use ellipses that fit the font.	82
5.2.8	Treat the punctuation as notation, not expression, most of the time.	83
5.3.1	Use the best available brackets and parentheses, and set them with adequate space.	84
5.3.2	Use upright (i.e., “roman”) rather than sloped parentheses, square brackets and braces, even if the context is italic.	85
5.4.1	Minimize the use of quotation marks, especially with Renaissance faces.	86

page 87	5.4.2	<i>Position quotation marks consistently in relation to the rest of the punctuation.</i>
87	5.4.3	<i>Omit the apostrophe from numerical plurals.</i>
88	5.4.4	<i>Eliminate other unnecessary punctuation.</i>
88	5.4.5	<i>Add punctuation, or preserve it, where it is necessary to meaning.</i>
89	5.5.1	<i>Use the accents and alternate sorts that proper names and imported words and phrases require.</i>
90	5.5.2	<i>Remap the font driver and keyboard to suit your own requirements.</i>
93	6.1.1	<i>Consider the medium for which the typeface was originally designed.</i>
93	6.1.2	<i>When using digital adaptations of letterpress faces, choose fonts that are faithful to the spirit as well as the letter of the old designs.</i>
94	6.1.3	<i>Choose faces that will survive, and if possible prosper, under the final printing conditions.</i>
94	6.1.4	<i>Choose faces that suit the paper you intend to print on, or paper that suits the faces you wish to use.</i>
95	6.2.1	<i>Choose faces that suit the task as well as the subject.</i>
95	6.2.2	<i>Choose faces that can furnish whatever special effects you require.</i>
96	6.2.3	<i>Use what there is to the best advantage.</i>
98	6.3.1	<i>Choose a face whose historical echoes and associations are in harmony with the text.</i>
99	6.3.2	<i>Allow the face to speak in its natural idiom.</i>

6.4.1	<i>Choose faces whose individual spirit and character is in keeping with the text.</i>	page 99
6.5.1	<i>Start with a single typographic family.</i>	102
6.5.2	<i>Respect the integrity of roman, italic & small caps.</i>	103
6.5.3	<i>Consider bold faces on their own merits.</i>	103
6.5.4	<i>Choose titling and display faces that reinforce the structure of the text face.</i>	105
6.5.5	<i>Pair serified and unserified faces on the basis of their inner structure.</i>	105
6.6.1	<i>Choose non-Latin faces as carefully as Latin ones.</i>	106
6.6.2	<i>Match the continuity of the typography to the continuity of thought.</i>	111
6.6.3	<i>Balance the type optically more than mathematically.</i>	112
6.7.1	<i>Add no unnecessary characters.</i>	114
6.7.2	<i>Add only characters that are visually distinct.</i>	114
6.7.3	<i>Avoid capricious redefinition of familiar characters.</i>	116
6.7.4	<i>Don't mix faces haphazardly when specialized sorts are required.</i>	116
6.8.1	<i>Choose your library of faces slowly and well.</i>	117
8.3.1	<i>Choose inherently satisfying page proportions in preference to stock sizes or arbitrary shapes.</i>	160
8.3.2	<i>Choose page proportions suited to the content, size and ambitions of the publication.</i>	161
8.3.3	<i>Choose page and column proportions whose historical associations suit your intended design.</i>	161

- page 163 8.4.1 *If the text is meant to invite continuous reading, set it in columns that are clearly taller than wide.*
- 163 8.4.2 *Shape the textblock so that it balances and contrasts with the shape of the overall page.*
- 165 8.5.1 *Bring the margins into the design.*
- 165 8.5.2 *Bring the design into the margins.*
- 165 8.5.3 *Mark the reader's way.*
- 166 8.5.4 *Don't restate the obvious.*
- 166 8.6.1 *Use a modular scale if you need one to subdivide the page.*
- 177 8.8.1 *Improvise, calculate, and improvise some more.*
- 177 8.8.2 *Adjust the type and the spaces within the textblock using typographic increments, but rely on free proportions to adjust the empty space.*
- 178 8.8.3 *Keep the page design supple enough to provide a livable home for the text.*
- 193 9.5.1 *If the text will be read on the screen, design it for that medium.*
- 194 9.5.2 *Check the type at every stage.*
- 195 9.5.3 *Follow the work to the printer.*
- 196 9.6.1 *Consult the ancestors.*
- 197 9.6.2 *Look after the low- as well as the high-technology end.*
- 201 10.1.1 *Call the type by its proper name if you can.*

APPENDIX F: FURTHER READING

Typography is an ancient and polylingual enterprise, and the recent literature on digital typography is vast. Much of that literature is, however, highly technical, and much is quite remarkably superficial. This short list includes only a selection of the more important works available in English.

F.1 GENERAL HISTORY & PRINCIPLES

- Anderson, Donald M. *The Art of Written Forms*. New York. 1969.
- Bennett, Paul A., ed. *Books and Printing: A Treasury for Typophiles*. Cleveland. 1951.
- DeFrancis, John. *Visible Speech: The Diverse Oneness of Writing Systems*. Honolulu. 1989.
- Degering, Hermann. *Lettering*. New York. 1965.
- Gaur, Albertine. *A History of Writing*. London. 1984.
- Gelb, I.J. *A Study of Writing*. 2nd ed. Chicago. 1963.
- Gray, Nicolette. *A History of Lettering*. Oxford. 1986.
- . *Lettering as Drawing*. 2 vols. Oxford. 1970. Reprinted as one vol., 1971.
- Kenney, E.J. *The Classical Text: Aspects of Editing in the Age of the Printed Book*. Berkeley. 1974.
- Knuttel, Gerard. *The Letter as a Work of Art*. Amsterdam. 1951.
- Meggs, Philip B. *A History of Graphic Design*. New York. 1983.
- Morison, Stanley. *Politics and Script*. Oxford. 1972.
- . *Selected Essays on the History of Letter-forms*. 2 vols. Cambridge, UK. 1981.
- Vervliet, H. D. L., ed. *The Book through 5000 Years*. London. 1972.

F.2 SCRIBAL ROOTS

- Avrin, Leila. *Scribes, Script and Books: The Book Arts from Antiquity to the Renaissance*. Chicago & London. 1991.
- Diringer, David. *The Hand-Produced Book*. London. 1953. Reprinted as *The Book Before Printing*, New York. 1982.
- Jeffery, Lillian K. *The Local Scripts of Archaic Greece*. 2nd ed. Oxford. 1990.