6

6.1 TECHNICAL CONSIDERATIONS

6.1.1 *Consider the medium for which the typeface was originally designed.*

Typographic purists like to see every typeface used with the technology for which it was designed. Taken literally, this means that virtually all faces designed before 1950 must be set in metal and printed letterpress, and the majority must be set by hand. Most typographers apply this principle in a more relaxed and complex way, and settle for preserving something rather than everything of a type's original character.

On the technical side, several things can be done to increase the chance that a letterpress typeface will survive translation to digital composition and offset printing.

6.1.2 *When using digital adaptations of letterpress faces, choose fonts that are faithful to the spirit as well as the letter of the old designs.*

Letterpress printing places the letterform *into* the paper, while offset printing lays it on the surface. Many subtle differences result from these two approaches to printing. The letterpress adds a little bulk and definition to the letter, especially in the thin strokes, and increases the prominence of the ends of thin serifs. Metal typefaces are designed to take advantage of these features of letterpress printing.

On the offset press – and in the photographic procedures by which camera-ready art and offset printing plates are prepared – thin strokes tend to get thinner and the ends of delicate serifs are eaten away. In a face like Bembo, for instance, offset printing tends to make features like the feet of i and l, and the heads and feet of H and I, slightly convex, while letterpress printing tends to make them slightly concave.

Faces designed for photographic manipulation and offset printing are therefore weighted and finished differently from letterpress designs. And adapting a letterpress face for digital composition is a far from simple task.

Ili

Digital fonts poorly translated from metal originals are sometimes too dark or light or blunt throughout, or uneven in stroke weight, or faithless in their proportions. They sometimes lack text figures or other essential components of the original design. But digital translations can also be *too faithful* to the original. They sometimes neglect the subtle adjustments that the shift from three-dimensional letterpress to two-dimensional offset printing requires.

Technical Considerations

6.1.3 *Choose faces that will survive, and if possible prosper, under the final printing conditions.*

Bembo and Centaur, Spectrum and Palatino, are subtle and beautiful alphabets, but if you are setting 8 pt text with a laser printer on plain paper at 300 dpi, the refined forms of these faces will be rubbed into the coarse digital mud of the imaging process. If the final output will be 14 pt text set directly to film at 3000 dpi, then printed by good offset lithography on the best coated paper, every nuance may be crystal clear, but the result will still lack the character and texture of the letterpress medium for which these faces were designed.

Some of the most innocent looking faces are actually the most difficult to render by digital means. Optima, for example – an unserifed and apparently uncomplicated face – is constructed entirely of subtle tapers and curves that can be adequately rendered only at the highest resolutions.

Faces with blunt and substantial serifs, open counters, gentle modelling and minimal pretensions to aristocratic grace stand the best chance of surviving the indignities of low resolution. Amasis, Caecilia, Lucida, Stone and Utopia, for example, while they prosper at high resolutions, are faces that will also survive under cruder conditions lethal to Centaur, Spectrum, Linotype Didot or almost any version of Bodoni.

6.1.4 *Choose faces that suit the paper you intend to print on, or paper that suits the faces you wish to use.*

Most Renaissance and Baroque types were made to be pressed into robust, lively papers by fairly robust means. They wilt when placed on the glossy, hard-surfaced sheets that came into vogue toward the end of the eighteenth century. Most Neoclassical and Romantic types, on the other hand, were designed to require smooth papers. Rough, three-dimensional papers break their fragile lines. Geometric Modernist types such as Futura, and overhauled Realist types such as Helvetica, can be printed on rough and smooth papers alike, because they are fundamentally *monochrome*. (That is to say, the stroke is nearly uniform in width.) But the aura of machine precision that emanates from a type like Futura is reinforced by a smooth paper and contradicted (*or* counterbalanced) by a paper that feels homespun.

These historical categories are summarized on pp 12–15 and explored in greater detail in chapter 7.

6.2 PRACTICAL TYPOGRAPHY

6.2.1 *Choose faces that suit the task as well as the subject.*

You are designing, let us say, a book about bicycle racing. You have found in the specimen books a typeface called Bicycle, which has spokes in the O, an A in the shape of a racing seat, a T that resembles a set of racing handlebars, and tiny cleated shoes perched on the long, one-sided serifs of ascenders and descenders, like pumping feet on the pedals. Surely this is the perfect face for your book?

Actually, typefaces and racing bikes are very much alike. Both are ideas as well as machines, and neither should be burdened with excess drag or baggage. Pictures of pumping feet will not make the type go faster, any more than smoke trails, pictures of rocket ships or imitation lightning bolts tied to the frame will improve the speed of the bike.

The best type for a book about bicycle racing will be, first of all, an inherently good type. Second, it will be a good type for books, which means a good type for comfortable long-distance reading. Third, it will be a type sympathetic to the theme. It will probably be lean, strong and swift; perhaps it will also be Italian. But it is unlikely to be carrying excess ornament or freight, and unlikely to be indulging in a masquerade.

6.2.2 *Choose faces that can furnish whatever special effects you require.*

If your text includes an abundance of numerals, you may want a face whose numerals are especially well designed. Palatino, Pontifex, Trump Mediäval and Zapf International, for example, all

recommend themselves. But if you prefer three-quarter-height lining numerals, your options include Bell, Trajanus and Weiss.

If you need small caps, faces that lack them (such as Frutiger, Méridien and Syntax) are out of the running. But if you need a range of weights, faces such as Centaur and Spectrum are disqualified instead. If you need a matching phonetic face, your choices include Lucida Sans, Stone and Times Roman. If you need a matching Cyrillic, you might choose Minion, Lazurski, Lucida, Officina or Futura. And for the sake of a matching sanserif, you might choose Charlotte, Legacy, Lucida, Officina, Scala or Stone. These matters are explored in more detail in chapter 10, which discusses individual typefaces.

Special effects can also be obtained through more unorthodox combinations, which are the subject of §6.5.

6.2.3 *Use what there is to the best advantage.*

If there is nothing for dinner but beans, one may hunt for an onion, some pepper, salt, cilantro and sour cream to enliven the dish, but it is generally no help to pretend that the beans are really prawns or chanterelles.

When the only font available is Cheltenham or Times Roman, the typographer must make the most of its virtues, limited though they may be. An italic, small caps and text figures will help immensely if they can be added, but there is nothing to be gained by pretending that Times Roman is Bembo or Cheltenham is Aldus in disguise.

As a rule, a face of modest merits should be handled with great discretion, formality and care. It should be set in modest sizes (better yet, in one size only) with the caps well spaced, the lines well leaded, and the lower case well fitted and modestly kerned. The line length should be optimal and the page impeccably proportioned. In short, the typography should be richly and superbly *ordinary*, so that attention is drawn to the quality of the composition, not to the individual letterforms. Only a face that warrants close scrutiny should be set in a form that invites it.

Using what there is to best advantage almost always means using less than what is available. Baskerville, Helvetica, Palatino and Times Roman, for example – which are four of the most widely available typefaces – are four faces with nothing to offer

Baskerville roman
and its italic

Helvetica roman
and its oblique

Palatino roman
and its italic

Times New Roman
and its italic

Baskerville is an English Neoclassical face designed in Birmingham in the 1750s by John Baskerville. It has a rationalist axis, thoroughgoing symmetry and delicate finish.

Helvetica is a twentieth-century Swiss revision of a late nineteenth-century German Realist face. The first weights were drawn in 1956 by Max Miedinger, based on the Berthold Foundry's old Odd-job Sanserif, or Akzidenz Grotesk, as it is called in German. The heavy, unmodulated line and tiny aperture evoke an image of uncultivated strength, force and persistence. The very light weights issued in recent years have done much to reduce Helvetica's coarseness but little to increase its readability.

Palatino is a lyrical modernist face with a neohumanist architecture, which is to say that it is *written*, not drawn, and that it is based on Renaissance forms. It was created in 1948 by Hermann Zapf.

Times Roman – properly Times *New* Roman – is an historical pastiche drawn by Victor Lardent for Stanley Morison in London in 1931. It has a humanist axis but Mannerist proportions, Baroque weight, and a sharp, Neoclassical finish.

The traditional account of the origin of Times Roman is given here, but it is currently a subject of hot dispute. Mike Parker has argued in detail that the roman was designed in the USA by Starling Burgess as early as 1904. See Parker, "Starling Burgess, Type Designer," *Printing History* 31/32 (1994): 52–108.

one another except public disagreement. None makes a good companion face for any of the others, because each of them is rooted in a different concept of what constitutes a letterform. If the available palette is limited to these faces, the first thing to do is choose *one* for the task at hand and ignore the other three.

Historical Considerations

6.3 HISTORICAL CONSIDERATIONS

Typography, like other arts, preys on its own past. It can do so with the callousness of a grave robber, or with the piety of unquestioning ancestor worship. It can also do so in thoughtful, enlightened and deeply creative ways.

Roman type has been with us for more than five centuries. Its root components – the roman upper and lower case, basic analphabetic symbols, and the arabic numerals – have been with us for much longer yet. There are typographers who resolutely avoid using any typeface designed in an earlier era, but even they must learn something of how the older letterforms functioned, because the ancient forms are living in the new. Typographers who willingly use the old faces, and who wish to use them intelligently, need to know all they can learn about the heritage they enjoy.

6.3.1 *Choose a face whose historical echoes and associations are in harmony with the text.*

Any contemporary North American library will furnish examples of typographic anachronism. There are books on contemporary Italy and on seventeenth-century France set in typefaces such as Baskerville and Caslon, cut in eighteenth-century England. There are books about the Renaissance set in faces that belong to the Baroque, and books about the Baroque set in faces from the Renaissance. To a good typographer it is not enough merely to avoid these kinds of laughable contradictions. The typographer seeks to *shed light* on the text, to generate insight and energy, by setting every text in a face and form in which it actually belongs.

It is not that good typographers object to mixing centuries and cultures. Many take delight in doing so – especially when they have no other choice. A text from ancient Athens, for example, cannot be set in an ancient Athenian version of roman type. A face designed in North America in the 1990s may well

be used instead. Texts from seventeenth-century France or eighteenth-century England also might be set perfectly well in faces of recent design. But a face that truly suits an historical text is likely to have some fairly clear historical content of its own. There is no typeface *equally suited* to texts from Greek antiquity, the French Baroque and the English Neoclassical period – though faces equally *unsuited* to each of them abound.

The historical affiliations of individual typefaces are discussed in chapters 7 and 10.

Choosing and Combining Type

6.3.2 *Allow the face to speak in its natural idiom.*

Books that leap historical boundaries and mix historical subjects can pose complex and exciting typographic problems. But often, if a text calls for a Renaissance type, it calls for Renaissance typography as well. This usually means Renaissance page proportions and margins, and an absence of bold face. It may also mean large Renaissance versals, Renaissance style in the handling of quotations, and the segregation of roman and italic. If the text calls for a Neoclassical type, it likewise often calls for Neoclassical page design. When you undertake to use an historical typeface, take the trouble to learn the typographic idiom for which it was intended. (Works of reference that may be useful in solving particular problems are listed in appendix F, page 327.)

6.4 CULTURAL & PERSONAL CONSIDERATIONS

6.4.1 *Choose faces whose individual spirit and character is in keeping with the text.*

Accidental associations are rarely a good basis for choosing a typeface. Books of poems by the twentieth-century Jewish American poet Marvin Bell, for example, have sometimes been set in Bell type – which is eighteenth-century, English and Presbyterian – solely because of the name. Puns of this kind are a private amusement for typographers. But a typographic page so well designed that it attains a life of its own must be based on something more than an inside joke.

Letterforms have character, spirit and personality. Typographers learn to discern these features through years of working first-hand with the forms, and through studying and comparing the work of other designers, present and past. On close in-

spection, typefaces reveal many hints of their designers' times and temperaments, and even their nationalities and religious faiths. Faces chosen on these grounds are likely to give more interesting results than faces chosen through mere convenience of availability or coincidence of name.

Cultural and Personal Considerations

If, for example, you are setting a text by a woman, you might prefer a face designed by a woman. Such faces were rare or nonexistent in earlier centuries, but there are now many to choose from. They include Gudrun Zapf-von Hesse's Alcuin, Carmina, Diotima and Nofret; Elizabeth Friedländer's Elizabeth; Kris Holmes's Sierra, Lucida and Kolibri; Kris Holmes's and Janice Prescott Fishman's Shannon; Carol Twombly's Charlemagne, Lithos, Nueva and Trajan; Zuzana Ličko's Journal; Cynthia Hollandsworth's Hiroshige and Tiepolo, and Ilse Schüle's Rhapsodie. For some purposes, one might also go back to the work of Elizabeth Colwell, whose Colwell Handletter, issued by ATF in 1916, was the first American typeface designed by a woman.

But perhaps a text by a French author, or a text dealing with France, might best be set in a French typeface, without regard to the gender of author or designer. The choices include Garamond, Jannon, Mendoza, Méridien, Vendôme and many others, but even this abbreviated list covers considerable range. Garamond – of which there are many recent revivals – was designed in sixteenth-century Paris. It owes much to Italian forms and belongs to the world of Renaissance Catholicism. Jannon is equally elegant but nonconformist. It belongs to the Reformation rather than the Renaissance, and its designer, Jean Jannon, was a French Protestant who suffered all his life from religious persecution. Vendôme, designed by François Ganeau, is a witty twentieth-century face much indebted to Jannon. Mendoza, designed in Paris in 1990, goes back to the tough humanist roots from which Garamond sprang. Méridien, from the 1950s, is more in touch with the secular spirit of twentieth-century Swiss industrial design, yet it includes a regal, even imperious, upper case and a very crisp and graceful italic. These five different faces invite additional differences in page design, paper, and binding as well as different texts, just as different musical instruments invite different phrasings, different tempi, different musical modes or keys.

Even nations such as Greece and Thailand, which have alphabets of their own, share in a multinational tradition of type

Garamond roman
and its italic

Jannon roman
and its italic

Mendoza roman
and its italic

Méridien roman
and its italic

Vendôme roman
and its oblique

Choosing and Combining Type

Stempel Garamond is the Stempel Foundry's replica of a text roman and italic designed by Claude Garamond (*c.* 1490–1561). (Compare the reproductions of some of Garamond's actual type on page 74.)

Monotype 'Garamond' 156 is a revival of a type designed by Jean Jannon (1580–1658), the greatest typecutter of the French Baroque. Jannon's type was once misidentified as Garamond's and is still often sold under his name.

Mendoza is a recent design by José Mendoza y Almeida. Méridien, by Adrian Frutiger, and Vendôme, by François Ganeau, are both products of the 1950s. Ganeau – who worked as a painter, sculptor and set designer more than as a typographer – based Vendôme on Jannon's letters, but moved them playfully in the direction of French Neoclassicism.

design. Nevertheless, some typefaces seem more redolent of national character than others. Frederic Goudy, for example, is widely regarded as the most ebulliently American of all American type designers. The sensitive typographer would not choose one of Goudy's faces to set, let us say, the text of the Canadian or Mexican constitution.

Cultural and Personal Considerations

This subject is a lifelong study, and for serious typographers it is a lifelong source of discovery and delight. Here it is pursued at greater length in chapter 10. Appendix C (page 299) is a cross-indexed list of type designers.

6.5 THE MULTICULTURAL PAGE

Consistency is one of the forms of beauty. Contrast is another. A fine page, even a fine book, can be set from beginning to end in one type in one size. It can also teem with variety, like an equatorial forest or a modern city.

6.5.1 *Start with a single typographic family.*

Most pages, and most entire documents, can be set perfectly well with only one family of type. But perhaps the page confronting you requires a chapter title, two or three levels of subheads, an epigraph, a text in two languages, block quotations within the text, a couple of mathematical equations, a bar graph, several explanatory sidenotes, and captions for photographs and a map. An extended type family, such as Legacy, Lucida or Stone, may provide sufficient resources even for this task. Another possibility is Gerard Unger's comprehensive series known as Demos, Praxis and Flora – which is a family with no surname to unite it. Each of these series includes both roman and italic in a range of weights, matching serifed and unserifed forms, and other variations. If you restrict yourself to faces within the family, you can have variety and homogeneity at the same time: many shapes and sizes but a single typographic culture. Such an approach is well suited to some texts, poorly suited to others.

You can also, of course, mix faces at random, by drawing them out of a hat.

Between these two extremes is the wide arena of thoughtful mixing and matching, in which the typographic intelligence often does its most creative work and play.

6.5.2 *Respect the integrity of roman, italic & small caps.*

It has been the normal practice of type designers since the middle of the sixteenth century to offer text faces in the form of a matched triad, consisting of roman, italic and small caps. Because some of these marriages are more successful than others, it is wise to examine the roman and the italic both separately and together when choosing a text face.

Choosing and Combining Type

There are several celebrated instances in which an italic designed by one artist has been happily and permanently married to another designer's roman. These matches always involve some redrawing (and the face that is most heavily redrawn is almost always the italic, which is the subsidiary and 'feminine' font in post-Renaissance typography). There are also instances in which a roman and its italic have been designed by the same artist many years apart. But casual liaisons, in which the roman of one family is paired momentarily with the italic of another, have little hope of success. Mixing small caps from one face with full caps from another is even less likely to succeed.

If you use type strictly in the Renaissance manner, treating the roman and italic as separate but equal, not mixing them on the line, you may find that greater latitude is possible. Jan van Krimpen's Lutetia italic mixes well with his later Romanée roman, for example, if the two are not too intimately combined. One is visibly more mature than the other, but they are close in color and structure, and they are patently the work of the same designer.

6.5.3 *Consider bold faces on their own merits.*

The original boldface printing types are the blackletters used by Gutenberg in the 1440s. For the next two centuries, blackletter fonts were widely used not only in Germany but in France, Spain, the Netherlands and England. (That is why blackletter fonts are occasionally sold in the USA as 'Olde English.')

Boldface romans, however, are a nineteenth-century invention. Bold italic is even more recent, and it is hard to find a successful version designed before 1950. Bold romans and italics have been added retroactively to many earlier faces, but they are often simply parodies of the original designs.

Before using a bold weight, especially a bold italic, ask your-

self whether you really need it at all. If the answer is yes, you may want to avoid type families such as Bembo, Garamond or Baskerville, to which bold weights have been retroactively added but do not in fact belong. You might, instead, choose a twentieth-century family such as Méridien, Nofret or Utopia, in which a range of weights is part of the original design.

If your text face lacks a bold weight, you may also find an appropriate bold close by. Hermann Zapf's Aldus, for example, is a twentieth-century family on the Renaissance model, limited to roman, italic and small caps. But Aldus is a close cousin of the same designer's Palatino family, which does include a bold, and Palatino bold sits reasonably well with Aldus text.

a aardvark; **b** balloon; **3** thruppence

Aldus roman with Palatino bold

Equally interesting results can often be obtained by reaching much farther afield. The normal function of boldface type is, after all, to contrast with the roman text. If the bold is used in small amounts, and bold and roman are not too intimately combined, a difference in structure as well as weight may be an asset. Under these conditions, a typographer is free to choose both roman and bold on their own merits, seeking basic compatibility rather than close genetic connection.

c coelacanth; **d** daffodil; **4** Franciscan

Sabon roman with Zapf International bold

A text might be set in Sabon, for example, with Zapf International as a titling face and Zapf International bold for subheads and flags. Structurally, these are very different faces, with very different pedigrees. But Sabon has the calm and steady flow required for setting text, while Zapf International's vitality makes it a good face for titling – and this vitality persists even in the boldest weights. Most of the bold fonts structurally closer to Sabon, on the other hand, look splayed and deformed.

Fifteenth-century typographers – Nicolas Jenson for example – rarely mixed fonts except when mixing languages. They loved an even page. Bold roman is therefore an appendage they did happily without. If, nevertheless, you were using one of the

fine text faces based on Jenson's single roman font and wanted to embellish it with bold, you might consider using Jenson's kind of bold. The only dark faces he cut were blackletters.

Elève elephant; **fool** filibuster; **lvi** phytogenic

Bruce Rogers's Centaur (here 16 pt) with Karlgeorg Hoefer's San Marco (12 pt). Centaur is based on the roman that Nicolas Jenson cut at Venice in 1469. San Marco is based on the rotundas he cut there in the 1470s.

6.5.4 *Choose titling and display faces that reinforce the structure of the text face.*

Titling faces, display faces and scripts can be chosen on much the same principles as bold faces. Incestuous similarity is rarely a necessity, but empathy and compatibility usually are. A geometrically constructed, high-contrast face such as Bauer Bodoni, beautiful though it may be, has marginal promise as a titling face for a text set in Garamond or Bembo, whose contrast is low and whose structure is fundamentally calligraphic. (Bodoni mixes far more happily with Baskerville – of which it is not a contradiction but rather an exaggeration.)

6.5.5 *Pair serifed and unserifed faces on the basis of their inner structure.*

When the basic text is set in a serifed face, a related sanserif is frequently useful for other elements, such as tables, captions or notes. In complicated texts, such as dictionary entries, it may also be necessary to mix unserifed and serifed fonts on the same line. If you've chosen a family that includes a matched sanserif, your problems may be solved. But many successful marriages between serifed and unserifed faces from different families are waiting to be made.

Frutiger Méridien Univers

Suppose your main text is set in Méridien – a serifed roman and italic designed by Adrian Frutiger. It would be reasonable to look first of all among Frutiger's other creations for a related sanserif. Frutiger is a prolific designer of types, both serifed and unserifed, so there are several from which to choose. Univers is

his most widely used sanserif. But another of his unserifed faces – the one to which he gave his own name – is structurally much closer to Méridien and works handsomely as a companion.

Hans Eduard Meier's Syntax is a sanserif much different in structure from either Frutiger or Univers. It is based on serifed Renaissance forms like those of Garamond. It works well with such faces as Stempel or Adobe Garamond, or with Sabon, another descendant of Garamond, designed by Meier's contemporary and countryman, Jan Tschichold.

If your choice falls on a more geometric sanserif, such as Futura, a Renaissance roman will hardly suffice as a serifed companion. Many romans based on the work of Bodoni, however, breathe much the same spirit as Futura. They aspire not to calligraphic motion but to geometric purity.

Gabocse escobaG
Gabocse escobaG
Gabocse escobaG

Syntax and Minion, above; Futura and Berthold Bodoni, center; Helvetica and Haas Clarendon, below.

6.6 MIXING ALPHABETS

6.6.1 *Choose non-Latin faces as carefully as Latin ones.*

Mixing Latin letters with Hebrew or Arabic is, in principle, scarcely different from mixing roman with blackletter or serif with sans. Different though they look, and even though they read in different directions, all these alphabets spring from the same source, and all are written with similar tools. Many structural similarities underlie the obvious differences. A book involving more than one alphabet therefore poses some of the same questions posed by a bilingual or polylingual book set entirely in Latin letters. The typographer must decide in each case – after studying the text – whether to emphasize or minimize the differences. In general, the more closely different alphabets are mixed, the more important it becomes that they should be close in color and in size, no matter how superficially different in form.

The Latin, Greek and Cyrillic alphabets are as closely related in structure as roman, italic and small caps. (And in most Cyrillic faces, the lower case is close in color and shape to Latin small caps.) Random marriages of Latin and Greek, or Latin and Cyrillic, look just as ungainly and haphazard as random combinations of roman, italic and small caps – but excellent sets of related faces have developed, and a few homogeneous polyglot families have been designed.

Plato and Aristotle both quote
the line of Parmenides that says
πρώτιστον μὲν Ἔρωτα θεῶν μητίσατο
πάντων: "The first of all the gods to
arise in the mind of their mother was
PHYSICAL LOVE."
Греки боготворили природу и
завещали миру свою религию, то
есть *философию и искусство*, says a
character named Shatov in
Dostoevsky's novel *Demons*: "The
Greeks deified nature and bequeathed
to the world their religion, which is
philosophy and art."

Robert Slimbach's Minion roman, italic and small caps, with upright and cursive Minion Cyrillic and a prototype version of Minion Greek.

The text on this page is set in ITC Mendoza 10/13 with 12 pt GFS Neo Hellenic lower case and 11.5 pt Neo Hellenic caps. On the facing page, the roman and italic are Figural 10/13; the Greek is 10.5 pt GFS Porson. (The original edition of Cornford's book, printed in 1912, was set in the curious combination of Century Expanded and Porson Greek.)

ΦΥΣΙΣ AS THE SOUL / THE SOUL AS ΓΝΩΣΙΣ. The second proposition of Thales declares that the All is alive, or has Soul in it (τὸ πᾶν ἔμψυχον). This statement accounts for the mobility of φύσις. Its motion, and its power of generating things other than itself, are due to its life (ψυχή), an inward, spontaneous principle of activity. (Cf. Plato, *Laws* 892c: φύσιν βούλονται λέγειν γένεσιν τὴν περὶ τὰ πρῶτα· εἰ δὲ φανήσεται ψυχὴ πρῶτον, οὐ πῦρ οὐδὲ ἀήρ, ψυχὴ Δ' ἐν πρώτοις γεγενημένη, σχεδὸν ὀρθότατα λέγοιτ' ἄν εἶναι διαφερόντως φύσει.)...

It is a general rule that the Greek philosophers describe φύσις as standing in the same relation to the universe as soul does to body. Anaximenes, the third Milesian, says: οἷον ἡ ψυχὴ ἡ ἡμετέρα ἀὴρ οὖσα συγκρατεῖ ἡμᾶς, καὶ ὅλον τὸν κόσμον πνεῦμα καὶ ἀὴρ περιέχει. "As our soul is air and holds us together, so a breath or air embraces the whole cosmos."[1]...

The second function of Soul – knowing – was not at first distinguished from motion. Aristotle says, φαμὲν γὰρ τὴν ψυχὴν λυπεῖσθαι χαίρειν, θαρρεῖν φοβεῖσθαι, ἔτι δὲ ὀργίζεσθαί τε καὶ αἰσθάνεσθαι καὶ διανοεῖσθαι· ταῦτα δὲ πάντα κινήσεις εἶναι δοκοῦσιν. ὅθεν οἰηθείη τις ἂν αὐτὴν κινεῖσθαι. "The soul is said to feel pain and joy, confidence and fear, and again to be angry, to perceive, and to think; and all these states are held to be movements, which might lead one to suppose that soul itself is moved."[2] Sense-perception (αἴσθησις), not distinguished from thought, was taken as the type of all cognition, and this is a form of action at a distance.[3]

1 Frag. 2. Compare Pythagoras' "boundless breath" outside the heavens, which is inhaled by the world (Arist., *Phys.* 213b22), and Heraclitus' "divine reason," which surrounds (περιέχει) us and which we draw in by means of respiration (Sext. Emp., *Adv. Math.* vii.127).

2 *De anima* 408b1.

3 *De anima* 410a25: Those who make soul consist of all the elements, and who hold that like perceives and knows like, "assume that perceiving is a sort of being acted upon or moved and that the same is true of thinking and knowing" (τὸ Δ' αἰσθάνεσθαι πάσχειν τι καὶ κινεῖσθαι τιθέασιν· ὁμοίως δὲ καὶ τὸ νοεῖν τε καὶ γιγνώσκειν).

All such action, moreover, was held to require a continuous vehicle or medium, uniting the soul which knows to the object which is known. Further, the soul and its object must not only be thus linked in physical contact, but they must be *alike* or *akin*....

It follows from this principle that, if the Soul is to know the world, the world must ultimately consist of the same substance as Soul. Φύσις and Soul must be homogeneous. Aristotle formulates the doctrine with great precision:

ὅσοι δ' ἐπὶ τὸ γινώσκειν καὶ τὸ αἰσθάνεσθαι τῶν ὄντων, οὗτοι δὲ λέγουσι τὴν ψυχὴν τὰς ἀρχάς, οἱ μὲν πλείους ποιοῦντες, ταύτας, οἱ δὲ μίαν, ταύτην, ὥσπερ Ἐμπεδοκλῆς μὲν ἐκ τῶν στοιχείων πάντων, εἶναι δὲ καὶ ἕκαστον ψυχὴν τούτων, λέγων οὕτως

γαίῃ μὲν γὰρ γαῖαν ὀπώπαμεν, ὕδατι δ' ὕδωρ,
αἰθέρι δ' αἰθέρα δῖαν, ἀτὰρ πυρὶ πῦρ αἴδηλον,
στοργῇ δὲ στοργήν, νεῖκος δέ τε νείκεϊ λυγρῷ.

τὸν αὐτὸν δὲ τρόπον καὶ Πλάτων ἐν τῷ Τιμαίῳ τὴν ψυχὴν ἐκ τῶν στοιχείων ποιεῖ· γιγνώσκεσθαι γὰρ τῷ ὁμοίῳ τὸ ὅμοιον, τὰ δὲ πράγματα ἐκ τῶν ἀρχῶν εἶναι.

"Those who laid stress on its knowledge and perception of all that exists, identified the soul with the ultimate principles, whether they recognized a plurality of these or only one. Thus, Empedocles compounded soul out of all the elements, while at the same time regarding each one of them as a soul. His words are,

With earth we see earth, with water water,
with air bright air, ravaging fire by fire,
love by love, and strife by gruesome strife.

"In the same manner, Plato in the *Timaeus* constructs the soul out of the elements. Like, he there maintains, is known by like, and the things we know are composed of the ultimate principles...."[4]

4 *De anima* 404b8–18.

The texts on this and the facing page are adapted from F. M. CORNFORD'S *From Religion to Philosophy: A Study in the Origins of Western Speculation* (London, 1912). Some of the Greek quotations have been extended, and some have been moved from the footnotes into the main text. This makes Cornford's prose seem more pedantic and less lucid than it really is, but it poses a harder test for the type and at the same time permits a more compact typographic demonstration.

These lines are from §5 of Anna Akhmatova's В сороковом году.

Но я предупреждаю вас,
But I'm warning you,
Что я живу в последний раз.
this is my last existence.
Ни ласточкой, ни кленом,
Not as a swallow, not as a maple,
Ни тростником и ни звездой ...
not as a cat-tail and not as a star ...

The words of Anna Akhmatova in the letters of Vadim Lazurski. The type is Lazurski Cyrillic with its companion roman.

Greek letters, like Greek words, are used for many purposes in non-Greek-speaking countries. Physicists and fraternity members, astronomers and novelists have raided the old alphabet for symbols. Because of their frequent use in mathematics and technical writing, a grab-bag of Greek letters lurks somewhere in nearly every digital typesetting system. α, β, γ, θ, π, Ω (alpha, beta, gamma, theta, pi, cap omega) and their brethren are usually housed, with other mathematical symbols, in a ghetto called the pi font. But setting Greek *text* with such a font is not a thankful task. Pi fonts lack the breathing marks and accents used in the classical language, and even the two simple diacritics (acute and diaeresis) that survive in modern Greek; and some pi fonts include only ten Greek caps – Γ Δ Θ Λ Ξ Π Σ Φ Ψ Ω – because the others – A B E H Z I K M N O P T Y X – have familiar roman forms, though not in every case the same phonetic value.

A text that includes even a single Greek quotation calls for a Greek text font rather than a pi font. A text font will include not only the full alphabet but matching punctuation and all the monotonic (modern) or polytonic (classical) diacritics. It will include two forms of lowercase sigma (ς, used at the ends of words, and σ, used everywhere else), and three iota subscripts, positioned to fit beneath the three long vowels with which they

are used (ᾴ, ῇ, ῳ, for example). With luck, the font may also include a sensible kerning table and a rational keyboard layout. This is a lot to ask from an industry in which there is, officially, no culture other than commerce and no purpose except monetary gain. It is a lot to ask, but not by itself enough. In Greek as in any other alphabet, *the face must suit the text.* It must also suit the context, which is likely to be roman and italic.

Choosing and Combining Type

There may be 50,000 fonts of type for the Latin alphabet now on the market in digital form. These comprise some 6000 families. Perhaps two per cent of them are truly useful for text work – but a hundred families of type is still a very generous number, and the available text faces cover a wide stylistic range. With a little scrounging, one can turn up several dozen digital fonts of Greek – but again, only a small percentage of these have any real potential for text work. It is therefore often best to choose a Greek font *first,* and then a roman and italic to go with it, even when only a few Greek words or a single Greek quotation is present in the text you are going to set.

Two Greek text fonts with eminent credentials – Victor Scholderer's New Hellenic, designed in 1927, and Richard Porson's Porson, designed in 1806 – are shown, in their digital incarnations, on pages 108 & 109. Porson's Greek was first commissioned by Cambridge University Press, but it became in the twentieth century the favorite Greek at Oxford, while Scholderer's New Hellenic became the favorite Cambridge Greek. New Hellenic in particular has an eminent Renaissance pedigree further discussed in chapter 10.

6.6.2 *Match the continuity of the typography to the continuity of thought.*

A text composed in a single dialect may be full of leaps and holes, while a text that hops and skips through several languages and alphabets may in fact be tracing a path that is perfectly smooth. The continuity, or lack of continuity, that underlies the text should as a rule be revealed, not concealed, in the cloth the typographer weaves.

An author who quotes Greek or Hebrew or Russian or Arabic fluently and gracefully in speech should be permitted to do likewise on the page. Practically speaking, this means that when the alphabets are mixed, they should be very closely balanced both in *color* and in *contrast.*

abyohi ἄβγοθι *abyohi*
abyohi ἄβγοθι *abyohi*
abyohi ἄβγοθι *abyohi*

Victor Scholderer's New Hellenic paired with José Mendoza's Mendoza (above), with Peter Matthias Noordzij's Caecilia (center) and with Adobe Jenson (below). Mendoza is a face with very low contrast (the thicks and thins are nearly the same). New Hellenic and Caecilia have an unmodulated stroke – in other words, no contrast at all. New Hellenic and Adobe Jenson have stylistic compatibility of a different kind. Both stem from the work of Nicolas Jenson, who in 1469 cut the father of this roman and in 1471 the grandfather of this Greek.

Flow and *slope* are other factors to consider, especially when balancing Latin and Greek. Many Greek text faces (the Porson and Didot Greeks for example) are structurally comparable to italics. That is, they are cursive. Some of them are upright nonetheless (like the Didot), and some (like the Porson) slope. When roman, italic and Greek are combined on the page, the Greek may be upright like the roman, or it may harmonize with the italic in flow and slope. It may also stand aloof, with a gait and inclination of its own.

6.6.3 *Balance the type optically more than mathematically.*

Two other factors of importance when types sit side by side are their *torso* (x-height) and *extension*. When a long-limbed Greek is paired with a short-limbed Latin, the difference will stand out. Large disparities in x-height are far more obvious still. In metal, this is a harsh typographic constraint. In the digital medium, it is easy to match the torso of any Greek face to that of any Latin face exactly, through microscopic adjustments in size. But an optical, not mathematical, match is the goal. Classical Greek, beneath its cloud of diacritics, needs more room to breathe than roman type. And when setting Greek in footnotes, the minimum practical size is the size at which the accents are still legible.

abyohi ἄβγοθι *abyohi*
abyohi ἄβγοθι *abyohi*
abyohi ἄβγοθι *abyohi*

Above: The Greek of Richard Porson paired with W. A. Dwiggins's Electra. *Center*: Didot Greek paired with Adobe Caslon. *Below*: The Bodoni Greek of Takis Katsoulides paired with the Esprit roman and italic of Jovica Veljović. Electra italic and Porson Greek both have a slope of 10°, while the Caslon italic slopes at 20°. Porson, with its rationalist axis, also has a structural kinship to Electra. The Didot Greek, though Neoclassical in form, is closer in color to Caslon. Katsoulides's more playful Bodoni Greek is closer both in structure and in spirit to Esprit.

The type on page 109 looked fine when it was first roughed out, using bald Greek letters identical in x-height to the roman. When the bald sorts were replaced with accented letters, the Greek was still mathematically correct but optically too large. Balance was restored by shrinking the Greek from 11 to 10.5 pt. The x-height of the type is (as usual in a Neoclassical text face) only about two fifths of the body size. The difference in x-height between 10.5 and 11 pt type is accordingly two fifths of half a point. That is roughly 70μ, which is less than 0.003". Not much, but enough to unbalance or balance the page.

6.7 NEW ORTHOGRAPHIES

No writing system is fixed. Even our ways of writing classical Latin and Greek continue to change, along with our ways of writing and spelling such rapidly mutating languages as English. But many languages old to speech are new to writing, and many have not yet decided their literate form.

In North America, for example, Navajo, Hopi, Tlingit, Cree, Ojibwa, Inuktitut and Cherokee, among others, have evolved quite stable writing systems, in which a substantial printed literature has accrued. But many Native American languages are still being written in different ways by every scholar and student who

happens by. Some, like Tsimshian and Kwakwala, already possess a considerable written literature, but in cumbersome scripts that even scholars have ceased to use.

Typographers must generally confront these problems piecemeal. Alphabets are often created by fiat, but it is usually in tiny increments that real typographic style evolves.

New Orthographies

6.7.1 *Add no unnecessary characters.*

Colonial expansion has carried the Arabic alphabet across the north of Africa and much of southern Asia, Cyrillic script across the north of Asia, and the Latin alphabet around the world. For better or for worse, most of those learning to read and write in newly literate languages are exposed to writing in a colonial language first. For readers and typographers alike, the basic Latin, Cyrillic or Arabic alphabet is therefore often the easiest place to start, and the fewer additional symbols required the better. The dream of a common language, imposed upon many minority cultures, has proven for most to be a nightmare. But in a world where there are hundreds of ancestral and classical languages and literatures instead of one or two, prayers for renewed diversification often entail the dream of a common script.

> Wa'giên sq!ê'ñgua lā'na hîn sā'wan, "K!wa la t!āla'ñ ł gia'ɫītclîn."
>
> Wagyaan sqqinggwa llaana hin saawan, "Kkwa lla ttaalang hl gyadliittsin."

A sentence in the Haida language, in the earliest (1901) standard orthography and a more recent, simplified version. In the first, glottalized consonants are marked by exclamations and long vowels by macrons. In the second, both are notated by doubling. (Translation: *Then the one in the bow said, 'Let us take it aboard.'*)

6.7.2 *Add only characters that are visually distinct.*

The texture of the typographic page depends not only on how the type is designed, set and printed, but also on the frequency of different letters. Latin looks smoother than English (and much smoother than German) because it uses fewer ascending and descending letters, no accented characters, and (in the hands of most editors) very few caps. Polynesian languages – Maori and Hawaiian, for example – which are long on vowels and short on consonants, compose into a texture even creamier than Latin, and require an even smaller alphabet.

Most languages need more, not fewer, consonants than the basic Latin alphabet provides. There may be (as in Haida and Tlingit) four forms of *k*, or (as in the Khoisan languages of southwest Africa) 36 different clicks – and if each is lexically significant, each needs a distinctive typographic form.

Vowels are fairly easy to elaborate when need be; except for the y, they have no extenders. Navajo, for example, involves twelve forms of a – a, aa, ą, ąą, á, áá, áa, aá, ą́, ą́ą́, ą́ą, ąą́ – all easily distinguished. Typographically, it would be no problem to add another dozen forms.

In the Navajo alphabet (*saad bee 'áł'íní*), long vowels are written double and nasal vowels are written with an ogonek. High tone is marked with an acute. Long high vowels carry two acutes, one on each vowel. Long falling vowels carry an acute on the first vowel only, long rising vowels carry an acute on the second vowel only. Glottalized consonants are followed by apostrophes.

Consonants are not quite so easy to ramify, precisely because so many of them have extenders. Typographically deficient forms therefore often crop up. Lakota, for example – the language of the Teton Sioux – requires two forms of *h*. Stephen Riggs, who published the first Lakota dictionary and grammar in 1852, chose to mark the second form with an overdot: *ḣ*. This character, which is still used by many native speakers and some scholars, is easily mistaken for *li*. More recent Lakota spelling replaces the dotted *h* with an *x*. This is easier to set, but more importantly, it is harder to misread.

In the Tlingit language, spoken and written in southern Alaska, northern British Columbia and the Yukon, underscores are used to mark uvular consonants, which is fine for k̲ and x̲, but not so fine for g̲. A form like ġ or ǧ or g̃, though less consistent, is more compact and, once again, harder to misread.

The desire for consistency was not the only factor that led earlier linguists to write g̲ instead of ǧ. The Tlingit alphabet was developed, like many early twentieth-century writing systems, using only the keyboard of a North American typewriter. Recent Tlingit publications are typeset with computers using modified fonts of Palatino or Stone, but the iron metaphor of the typewriter has not yet loosed its hold.

Elsewhere in the world, the mechanical typewriter and letterpress are still economically viable and socially prestigious tools – and this need not prevent new alphabet design. The Pan Nigerian face shown overleaf was cut and cast commercially for hand composition in 1983. Mechanical typewriters using a monospaced version of the font entered production in 1985.

New Orthographies

Pan Nigerian alphabet designed in 1983 by Hermann Zapf, in collaboration with Victor Manfredi. This normalizes the missionary orthographies that have been used for Hausa, Igbo, Yoruba, Edo, Fulfulde and several other Nigerian languages.

6.7.3 *Avoid capricious redefinition of familiar characters.*

Mayan languages have been written in roman script since the 1550s, but more than one orthography remains in use. Perhaps the oldest, based on the manuscript tradition of the *Popol Vuh*, uses the numerals 3 and 4 and the digraphs 4h and 4, [*including* the comma] to write several glottalized consonants. The Quiché words for sun and moon, for example, can be written *k'ih* and *ic'*, or *kkih* and *icc*, or *3ih* and *i4*, and the word for blood can be written *quit'z* or *quittz* or *qui4*,. In the final case – but not in any of the others – the comma is part of the word and not a mark of punctuation.

Though it is not as picturesque as Mayan hieroglyphs, this alphanumeric script appeals to some scholars and amateurs, perhaps because of its very strangeness. Typographically, it begs for clarification, either through the creation of unambiguous new symbols or through reversion to plain old roman letters (which is now a common practice).

6.7.4 *Don't mix faces haphazardly when specialized sorts are required.*

ʔaƛ'aqə́m is Upper Chehalis, meaning *you will emerge*; ɪntə-næʃənl̩ fənɛrɪks (*international phonetics*) is English.

If a text involves setting occasional words such as ʔaƛ'aqə́m or ɪntə-næʃənl̩ fənɛrɪks, it is best to plan for them from the beginning. Two standard phonetic alphabets are in use: the international (IPA) and the American. But the extra characters involved have been cut for only a few faces. (Lucida Sans, Stone and Times Roman are examples. Stone phonetic – which is used here – exists in both serifed and unserifed forms.) The typographer therefore has two choices: to set the entire text in a face for which

matching phonetic characters are available, so that phonetic transcriptions can enter the text transparently and at will; or to set the main text in a suitably contrasting face, and switch to the phonetic font (along with its matching text font, if required) each time a phonetic transcription occurs.

If contrasting faces are used for phonetic transcriptions and main text, each entire phonetic word or passage, not just the individual phonetic characters, should be set in the chosen phonetic face. Patchwork typography, in which the letters of a single word come from different faces and fonts, is a sign of typographic failure. Forms such as 'Θraētona' and 'Usaδan,' sometimes used to represent the script of ancient languages such as Avestan, are typographically problematic because they mix two alphabets *within a single word*. Such mixtures rarely succeed unless all the fonts involved have been designed as a single family. (This is the case here, where a unified Latin and Greek are used.)

Choosing and Combining Type

6.8 BUILDING A TYPE LIBRARY

6.8.1 *Choose your library of faces slowly and well.*

Some of the best typographers who ever lived had no more than one roman font at a time, one blackletter and one Greek. Others had as many as five or six romans, two or three italics, three blackletters, three or four Greeks. Today, the typographer can buy fonts by the thousand on compact discs, and use the telephone to download thousands more: more fonts than any human could use, yet never a complete selection.

With type as with philosophy, music and food, it is better to have a little of the best than to be swamped with the derivative, the careless, the routine.

The stock fonts supplied with software packages and desktop printers are sometimes generous in number, but they are the wrong fonts for many tasks and people, and most of them are missing essential parts (small caps, text figures, ligatures, diacritics and important analphabetics).

Begin by buying one good face or family, or a few related faces, with all the components intact. And instead of skipping from face to face, attempting to try everything, stay with your first choices long enough to learn their virtues and limitations before you move on.