

Talking About Type

A brief review of the features that distinguish one type design from another, the "anatomy" of types, the general classifications of type families, and how to identify type faces

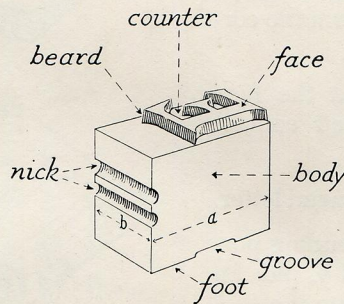


FIG. 1—A foundry-cast type has these distinctive features. Single types cast on Monotype or Thompson Casters are similar but have only one nick. Foundry types have one or more nicks, depending on the design.

The Language of Type

THE TECHNICAL LANGUAGE of type is spoken by type designers, matrix manufacturers, type founders, typographers and by the various persons in publishing, printing, and advertising who are in contact with these specialists. Some of their words are unique to this art, such as "serif" and "swash." But much of our type terminology gives specialized meaning to normal English words and phrases. Type has "shoulder," "face," and "beard." We speak of "base-line," "bowl," and "finial."

But this type language is not standardized nor widely used. An artist member of a recent jury for the N. W. Ayer Awards in Newspaper Printing said: "All I know about type design is that some of the letters have wiggles on them." Thus, for a mutual understanding of conversations and reports, both among Linotype people and with the technicians whom they meet, it seems helpful to review the whole subject briefly. Such a summary can omit most of the historic background, despite its interest. But it must include the simple fundamentals which are mostly familiar to everyone in the typographic world.

The Type Image

PRINTED IMAGES are the one purpose of type, produced in many thousands of designs and sizes by Linotype, Intertype, Ludlow, Monotype, foundry type, and the various new processes and mechanisms. These images will be discussed and classified in their characteristics of design.

The printed type image results, in the letterpress process, from the impression of an inked surface on a sheet of paper. By the typewriter process, the impression is hammered through silk or paper ribbon against the paper. In any of the photo-reproduction processes the type image is transmitted by light rays that affect a light-sensitive surface. But for any process or mechanism the nature of the type image remains a problem of type design. The selection of type faces for any process or machine should vary in choice and character only with the purpose of the printed matter itself. But the mechanical limitations of a process or a machine may restrict the available number and variety of its type faces. That will be discussed in other sections of the Manual dealing with Graphic Arts Processes.

Thus the design features of type faces and their composition in clean and legible style become a starting point common to all methods of typesetting and to all processes of printing. In the present technical deficiencies of some of the new methods it is important to recognize their effect on type and to be able to discuss such details in the language of type.

Physical Features of Type

LET US BEGIN with a piece of foundry type, whose features, as the pioneer printing medium, have been inherited by the products of machines and special processes. A foundry type, shown in Fig. 1, has:

face—the printing surface which receives a film of ink from a roller and transmits it to form the corresponding type image on paper.

counter—the areas within and around the face which are depressed to prevent their contact with the ink roller.

beard—the slightly tapered sides of the metal letter.

shoulder—space provided for the descending portions of such letters as g, j, p, q, and y, plus an additional amount of space to separate the successive lines of type images when set solid.

body—the cast block of type metal whose dimensions are *a*: the body size of the type, as 36-pt.; and *b*: the “set” or line-wise width as determined by the type character. The “height to paper” or bottom-to-top dimension is .918 inch (in U.S.A. and certain other countries, varying in still others.)

nick—one or more depressions, cast horizontally across the body to facilitate identification in setting.

foot—the precisely squared base of the type upon which it must stand firmly and squarely to produce a clean impression.

groove—a channel across the foot, line-wise, produced with the removal of the “sprue” or remaining bit of metal from the casting process.

Linotype Slugs

WHILE a foundry type is cast in a mold from a matrix as a single unit, a Linotype slug is cast as a bar of type metal from a complete line of assembled matrices and spacing material. It carries a number of type characters but its physical description utilizes most of the terms that apply to foundry type. As sketched in Fig. 2, the Linotype slug has *face*, *counter*, *beard*, *shoulder*, *body*, (no nick), and *foot*, (no groove). It also has:

ribs—vertical protuberances of metal, slightly raised from the side of the slug in body sizes through 14-pt., and much more definitely formed on larger bodied recessed, heading, and display slugs. Ribs are automatically trimmed when the slug is ejected from its mold, to assure pre-determined body dimensions.

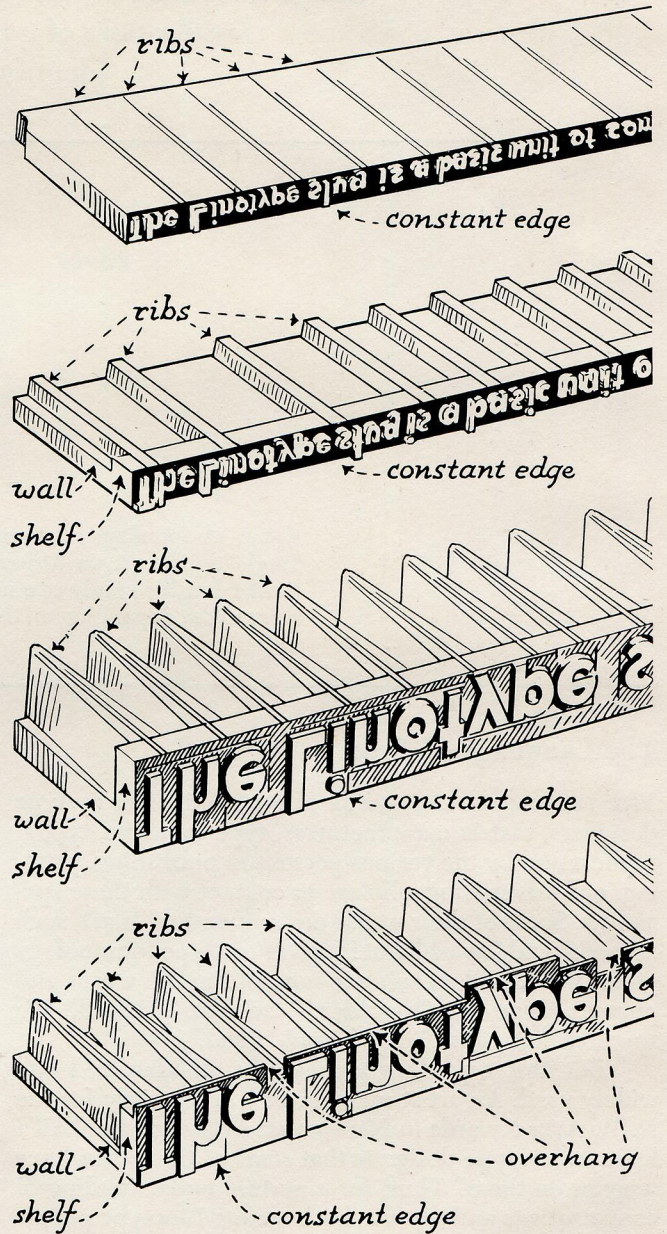


FIG. 2—Linotype slugs have many descriptive terms in common with foundry type. They have no nick or groove, but added terms include *ribs*, *wall*, and *constant side*. Illustrated are a 14-pt. solid slug, an 18-pt. recessed slug, a 36-pt. display slug, and a 24-point advertising slug with 36-pt. overhang characters.

constant side—at the top of the line of composed letters.

wall—the solid portion of a recessed slug, on the constant side, from which the ribs protrude.

shelf—the solid portion, above the ribs, of a recessed or display slug. The shelf forms the base of the type characters.

overhang—the protruding portion of a slug carrying large characters cast to extend over supporting blank spaces on one or more adjacent slugs.

(Intertype slugs have similar characteristics and terminology, though the details of molds vary from Linotype. Intertype slugs can usually be identified by their rib and shelf formation.)

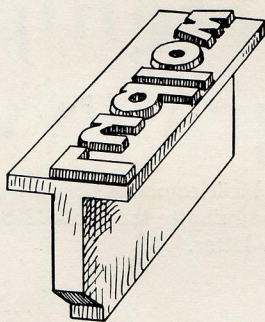


FIG. 3—Ludlow slugs are all T-shaped, with one standard 12-pt. centered wall on sizes above 12-pt., or 6-pt. on the smaller sizes.

Ludlow Slugs

THE WALL, or vertical portion of Ludlow slugs (Fig. 3), forms the base of their characteristic T-shaped mass, in sizes of 14-pt. upward, most used on this machine. The wall has a 12-pt. body (sometimes 6-pt.) and the upper shelf, with its composed line cast from hand-set matrices, is centered on the wall.

Monotype

THE SINGLE TYPES, small and large, produced on Monotype casters, have the general features of foundry type except that only one nick is formed by Monotype molds.

The Design Features of Type

THESE COMMENTS are restricted to types for printing in the English language, although many of the hundreds of languages and dialects composed on the Linotype use English language types plus accented and other special characters.

The standard basic patterns of letter design for the English language are those of the so-called roman alphabet and its variations, as exemplified in its CAPITALS, SMALL CAPITALS, lower-case or “minuscule” forms, *ITALIC CAPITALS*, and *italic lower-case*. That assortment forms the most frequently used font of matrices on a Linotype. The same basic patterns, made heavier in **Bold Face** and in **Bold Face Italic**, are likewise in general use.

Throughout these and other variations in current types run the basic letter shapes that have been standardized as “the skeletons of letter forms” through five centuries of printing. These skeletons will be quickly recognized as shown in Fig. 4, which is set in Linotype Metrothin.

Space here permits no discussion of the origin of our letter shapes. The story of their early beginnings as hieroglyphics or “idea forms” among the very ancient Egyptians, of the making of a phonetic or “sound-representing” alphabet by the Phoenicians, of its further adaptation later by the Greeks and ultimate adoption by the Romans—all these many centuries of the development of writing and printing comprise a fascinating history. But, for our present purposes, we start with the basic roman alphabet skeleton shapes, upon which have been formed all of our reading habits in modern times. How these forms have been draped and adorned to grow into an almost infinite variety of type designs is our immediate subject.

The manner of building up the basic shapes has been determined almost entirely by the early tools of writing and carving letters, used long before the invention of movable types.



FIG. 4—The basic shapes to be found within all normal roman, gothic and sans serif faces, including many novelty types. As shown here they are 36-pt. Linotype Metrothin, with alternate characters a and g.

The Influence of Tools

MANY CENTURIES before Gutenberg, letters were made with a chisel-shaped reed or quill. Manuscript scrolls and books, in wide variety, are still available for study of this stage of type development. Today, we have wide pens for lettering uses with which we can observe the early influences on letter forms. When such a pen is held in conventional writing position, its movements produce

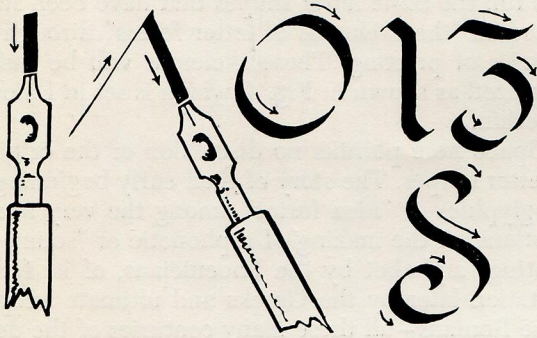


FIG. 5—Modern lettering pens produce the same variations in thin and thick strokes as the writing tools used by ancient scribes for writing manuscript books.

a wide line with a down-stroke and a thin line on an up-stroke. Curves become smooth graduations from thin to heavy. Note Fig. 5.

If we "write" or letter the basic shapes of our roman alphabet with one of these wide pens, held in normal position, we get the results sketched in Fig. 6. Note how the thin and heavy strokes, automatically produced by the pen, are essentially the thin and heavy strokes of our normal type faces.

Thus have the centuries of manuscript writing given us the second basic characteristic of our normal roman types. The basic shapes (first noted) take on a basic alternation of thin and heavy strokes when weight and substance are added to the skeleton forms.

This thin-and-heavy principle is so fundamental that any type-sensitive person is really offended by an attempt to design a novelty type or lettering forms with alternations of thick and thin that do not conform to these pen-written origins. (See "Novelty Types," p. 14.)

In Fig. 6, the basic letter shapes of Fig. 5 have been written with a wide pen and purposely made without any finishing touches at the ends of the letter strokes. Note the alternation of thick and thin which comes automatically with the position of the pen.

By contrast with the incomplete bareness of the letters in Fig. 6, the two styles sketched in Fig. 7 utilize finishing strokes or "serifs." In the manuscript writing of the early centuries before printing, the writers ("calligraphers" is the technical name) used various handlings of the reed or quill pen to make their letter forms more

complete and decorative. Figs. 6, 7, and 8 were drawn with the same pen, held in the same general position.

The many styles of manuscript writing contributed to the later designing of types. When Gutenberg's efforts started the era of printing, about 1450 A.D., the



FIG. 6—When the basic roman shapes are made with a wide pen the results are similar to the above. No finishing touches were added to any letter.



FIG. 7—The addition of pen-made serifs or finishing strokes to the roman forms of Fig. 6, with an added line of the informally written forms which became the basis of our italic and cursive types.



FIG. 8—The same wide pen makes the more decorative but less readable forms (to our eyes) which characterized the manuscript writing of the Goths (or Germanic people). In terms of architectural design these letters are called "gothic" but we printers, for many years, have applied the word gothic to a wide variety of types which are mostly sans serif. The letters shown above are called, in printers' terms, Old English or Black Letter.

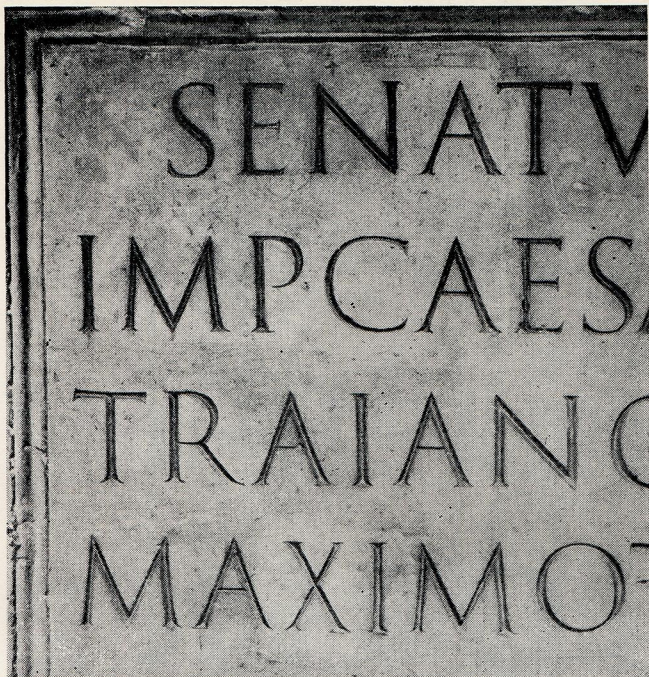


FIG. 9—A portion of a stone-carved inscription on the base of the Trajan Column, Rome, erected about 114 A.D. The letters are about five inches high.

scribes of the Germanic countries, whose work he sought to imitate, were writing manuscript books in what we now call "text" or "black-letter." Two such styles, one more compact, but both done with the same pen, are shown in Fig. 8.

While Gutenberg, in 1450, imitated with his first types the black-letter of his environment, just a few years later, about 1480, the first true roman type face was designed and produced in Italy, by Nicolas Jenson. Again the influence of the calligraphers determined the designing of the type, but another factor became equally important. That was the technique of cutting letters in stone.

During the preceding centuries, the early hieroglyphics that decorated the walls of Egyptian buildings were followed by the more formal carving of letters on stone. The structures that marked the architectural achievements of classic Greece, but especially the public buildings and triumphal arches built by the Romans when Rome ruled the world—were often decorated and distinguished by beautifully designed and carved lettering. Similarly carved (but rarely so well designed) inscriptions are used today on our public buildings and more formal business structures. Less elaborate but more "typographic" uses of stone-carved letters featured

the tablets of stone and marble used through historic and modern times in burial places to commemorate personages. Note Fig. 9.

The reason for this comment on carved letters is that they have left an important mark on the designs of roman type forms. In the highest development of inscriptional roman capitals, the terminals of practically all strokes were finished off with delicate cross-cuts gracefully merging into the strokes. In Fig. 10 we show the single vertical stroke of a capital I. The dotted lines represent the terminal cross-cuts at top and bottom. The finished results are shown in the capital R in Fig. 10. These spurs, now called serifs, were utilized by the very first designers of roman type faces. Serifs serve to finish and define the terminals of strokes; they counteract the predominantly vertical feeling of letter forms, as well as subtly lead the eye horizontally from one letter to another, combining the several letters of a word into a single unit of reading material.

Thus the influence of ancient tools and techniques on modern type design summarizes in

1. the alternation of thick and thin strokes throughout our normal roman faces, from the scribes' reed or quill pen; and
2. the finishing serifs on most of our types, partly from writing but more formally from stone carving.

For the more detailed discussion of the characteristics of types, however, we need to recognize a number of technical words and phrases.

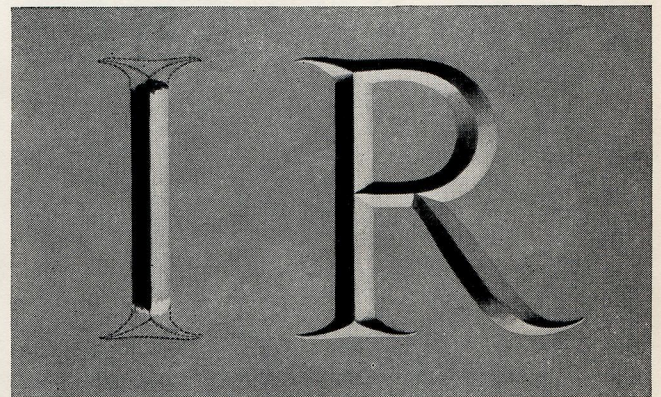


FIG. 10—Showing an unfinished capital I, with dotted lines indicating how the chisel will be driven in from the sides to form finishing serifs as shown on the capital R. The R shows how curved strokes graduate from thin to thick, preserving the pen-written heritage in these incised letters.

The Terminology of Letter Forms

cap-line
mean-line
base-line

a E stem K hairline stem

d ascender descender p head foot L

a arc of the stem u w apex vertex A

ean counter: as shaded GH C k arms of the letter T Y

bowl-circular bowl-oval axis O H A e bars cross strokes t f

circular bowl biased stress D oval bowl vertical stress O

FIG. 11—Descriptive words and phrases which cover various parts, shapes, and relationships of letter forms.

oval bowl biased stress g link or neck g oval bowl vertical stress

ega loops* may have irregular shapes aek

J Q R y K & tail of the letter

acute nick p q obtuse nick spine S

FIG. 12—Continues the illustration of the terminology of type design.

hairline serifs n B In slab serifs

cupped serifs u H Yn bracketed serifs

hooked head v j a a hooked foot finial

E bracketed beak on arms G spurred beak on arms

r ball terminal C sheared terminals t acute terminal

Q swash tail R swash letter kern

FIG. 13—Various kinds of serifs and letter terminals and finials.

The Terminology of Letter Forms

TO MEET the need for a better and a uniform understanding of the descriptive words and phrases in talking about type, we have adapted the following section from a booklet issued in 1949 by the Department of Printing Management, Carnegie Institute of Technology. In our further discussions of type faces these descriptive words will be used as the standard vocabulary of type design and manufacture. The Linotype sales representative will use them in his reports and correspondence about type faces.

To illustrate each of these items in our type terminology, type characters used in Figs. 11, 12, and 13 have been selected among familiar Linotype faces. They have been reproduced here by photo-engraving from proofs (mostly of 60-pt. sizes) with descriptive wording and dotted line indications sketched in.

Most of the words and phrases explain themselves in connection with their illustrations, but the following more detailed comment may be of occasional reference value. These definitions have been arranged alphabetically for convenience. The figures in parentheses refer to figure numbers of the illustrations.

acute nick (12)—occurs at juncture of stem and bowl of b, d, p, and q, when the angle thus formed is less than 90°.

acute terminal (13)—the finished top of the stem of t in certain designs.

apex (11)—the angular juncture of stems and hairlines at the top of the characters A, M, N, W, Z, w, and z.

arc of the stem (11)—the curved portion of the stems of a, h, m, n, and u.

arms (12)—the projecting portions of the letters C, G, K, T, Y, c, k, and y.

ascender (11)—the portion of certain lower-case letters which extends above the mean-line, as in b, d, f, h, k, l, and t.

axis (11)—an imaginary line which would bisect the symmetrical design of a letter O or its corresponding application to other round letters.

ball terminal (13)—the finishing element on certain designs of a, c, g, and r.

bars (12)—closed horizontal strokes in A, H, and e.

base-line (11)—the line on which stand both the capitals and the lower-case letters, the figures, punctuation points, etc. This line is raised substantially from the actual bottom of the slug or foundry type body to provide space for the descenders of certain letters.

beak (13)—the outer portion of arms and serifs of such letters as E, F, G, T, and Z.

biased stress (11-12)—occurs in round letters whose axis is tilted from the vertical.

bowl (11)—the fully rounded portion of the forms C, D, G, O, Q, a, b, c, d, g, o, p, and q. May be circular or oval as the design determines.

bracketed beak (13)—occurs when bracketed serifs are a basic characteristic of the type, on letters E, F, G, T, and Z.

bracketed serifs (13)—formed by filling in the angle between the serif and the letter stroke.

cap-line (11)—establishes the line for the top of letters which meet it squarely, like E, or with firm serifs, like I or K. The round capital letters, C, G, O, Q, and S, extend slightly above the cap-line so that they may appear to be the same height as the square letters. These round letters drop slightly below the base-line for the same reason. Pointed letters, A, M, N, V, W, v, and w, in most designs also carry their pointed portions slightly beyond the base- or cap-line for the optical effect.

counter (11)—the enclosed or partly enclosed areas of letter forms, as shaded in the illustration.

cross strokes (12)—short strokes across the stem in f and t.

cupped serifs (13)—formed with curved or cupped shapes at the head and foot of certain characters.

descender (11)—the portion of lower-case letters which drops below the base-line in characters g, j, p, q, and y.

foot (11)—the bottom portion of letters at the base-line.

finial (13)—a finishing touch on a letter, curved or variously shaped, as on top of f, g, r, a.

hairline (11)—the light stroke or element of a type character, corresponding to the up-stroke of the lettering pen as shown in Figs. 5 and 6.

hairline serifs (13)—serifs so thin and straight as to be literally or almost hairline in nature.

head (11)—the top portion of letters at the cap-line.

hooked terminal (13)—a hook-shaped finishing stroke, at the foot of such letters as a, j, t, and numerous italic characters in many designs.

kern (13)—part of a type character which projects beyond the body of the type.

link (12)—the stroke connecting the bowl and loop of lower-case g. Sometimes called the *neck*.

loop (12)—rounded shape in certain roman and italic characters which is neither circular nor pure oval in form.

mean-line (11)—often called the *waist-line*, marks the top of most lower-case letters (except the ascending letters).

neck (12)—the stroke connecting the bowl and loop of lower-case g. Sometimes called the *link*.

obtuse nick (12)—occurs at juncture of stem and bowl of b, d, p, and q when the angle thus formed is more than 90°.

sheared terminal (13)—occurs in certain designs in C, G, and S to maintain harmony of design with serif forms.

slab serifs (13)—straight squared serifs, commonly the thickness of the main strokes.

spurred beak (13)—occurs in certain designs when serifs or finial touches produce the effect of a spur.

stem (11)—the heavy stroke of a letter corresponding to the down-stroke of a lettering pen, as shown in Figs. 5 and 6.

stress (11)—the gradation in curved letters from thin to thick, as shown in Figs. 5 and 6.

swash (13)—freely flourished design derived from pen writing.

tail (12)—the downward oblique stroke of letters J, K, Q, R, &, j, and y.

terminal (13)—finishing touch on certain letters where a typical serif will not serve.

vertex (11)—the angular juncture of stems and hairlines at the bottom of the characters M, N, V, W, V, Z, v, w, and z.

vertical stress (11-12)—occurs in round letters whose axis is perpendicular to the base-line.

Variations Within a Type Family

IN THE SUBTLE variations of the basic elements of type faces we find that certain characteristics may change without altering the general family traits of design.

Changes in the thickness of the letter strokes, affecting the quality we call "weight," alone mark the differences in the four weights of the Metro family, as shown in Fig. 14.

When a type design includes serifs, two or more weights modify both the thickness of the letter strokes and the weight or bulk of the serifs. But the basic shapes, both of the letter forms and of the serifs, remain identical. They enable us to recognize the type by name and by its weight classification. Still further variation may occur without loss of family resemblances when letter shapes are compressed or extended. Among current Linotype faces the extreme examples of these variations within a general family grouping occur in the Bodoni family, Fig. 15.

Our further discussions of type faces and their classifications will embody the principles of the basic shapes—that carry on through our established reading habits; the alternation of thick and thin strokes—that come from writing tools; and the serifs and other forms that finish the individual letters.

Those are the components of type design. Any face may include all these basic elements, or certain faces may omit one or more of them. Some gothic or sans

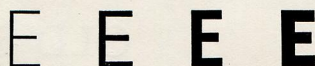


FIG. 14—Changes in weight of stroke alone differentiate the four weights of Linotype Metro, shown here in 30-pt. Metrothin, Metrolite, Metromedium, and Metroblack.



FIG. 15—Changes in weight plus changes in width of forms, without altering other characteristics, occur in the larger type families. Shown here are 30-pt. Linotype Bodoni Book, Bodoni, Bodoni Bold, Bodoni Bold Condensed, Poster Bodoni, and Poster Bodoni Compressed.

Having now briefly studied the various elements that produce different effects in type design, we need some further approach to consider and discuss type faces in the aggregate.

The Importance of Reading Habits

IT MUST be remembered that our reading habits have come down to us through many centuries. First through clay tablets and inscriptions; then with manuscripts and scrolls written on papyrus, skins, and paper; and then through five centuries of printing have the civilized peoples of the world transmitted their reading habits from one generation to another. These habits restrain type design because our types must, first of all, be readable. Thus any fantasy of design in a new type that retards reading with unfamiliar shapes or details becomes a handicap to the use (and sale) of that type.

Only types used primarily to attract attention (and *not* to be read in the mass) can affect tricks and stunts in design—as discussed under “Novelty Types.”

serif faces (such as Metro and Spartan) have no alternations of thick-and-thin, nor have they serifs or finials. But the many body types, designed for sustained reading in books and periodicals, contain all the elements we have discussed.

So type design today has become a skilled and very precise manipulation and control of these simple basic factors. That is the reason why hundreds and thousands of artists and sign-painters can make good letters—but very, very few men can design good type faces.

The Classification of Types

TO IDENTIFY AND COMPARE the hundreds of different types produced and used today, we need some system of broad classification. Writers and typographers do not wholly agree on such groupings, but the following are generally accepted and understood. With each group we show details of a Linotype face that is typical of such classification. An accompanying block of that type permits comparison of the mass effects.

VENETIAN The earliest roman type, cut by Nicolas Jenson in Venice, in the 15th century, comes down to us in Linotype Cloister. Types in this group have sturdy weight, with less contrast in stems and hairline; their serifs are thick, bracketed, and rounded.

Falk

From Patterns of Linotype Cloister

Faik

From Patterns of Linotype Garamond No. 3

OLD STYLE—FRENCH Typical of the French influence on types is the Linotype Garamond No. 3, with more grace in design; still substantial in weights of letter elements, with bracketed serifs. Other faces in this group are the Granjon and Estienne.

OLD STYLE—DUTCH-ENGLISH In this group Caslon Old Face is typical. More rugged, well-weighted stems, and bracketed serifs contrast with lighter French influences. Other faces classed thus are Janson and Old Styles, Nos. 1, 3, 7 and Original Old Style.

Fak

From Patterns of Linotype Caslon Old Face

Fak

From Patterns of Linotype Baskerville

TRANSITIONAL Changing trends in types cut in the latter part of the 18th century kept some of the character of the Old Styles but added a note of freedom. Linotype Baskerville is typical, as also are Scotch Roman and Century Expanded.

Fak

From Patterns of Linotype Bodoni Book

MODERN The most typical modern types, by Bodoni, over a century and a half old, are still called modern. Thin flat serifs, light hairlines, heavier stems, and circular ball terminals are characteristic. Other Linotype faces are Modern Numbers 1, 16, and 21.

SQUARE SERIFS Outgrowth of earlier designs called "antique" these faces have square-cut serifs, with the weights of elements nearly uniform, and strongly geometrical in design. Memphis Medium is typical.

Fak

From Patterns of Linotype Memphis Medium

Faik

From Patterns of Linotype Spartan Medium

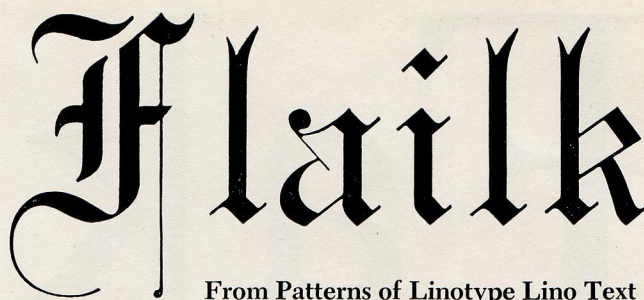
SANS SERIFS cover the big group of so-called "Gothics" plus the more recent designs like this Linotype Spartan. This class, with many styles of utilitarian faces, is very extensive. Linotype Metro was an earlier contribution.

CONTEMPORARY type design today has largely thrown off the influence of historic periods. Designers may use the best factors of all ages to achieve a new note without loss of readability. This Linotype Electra is an excellent example—but "contemporary" faces include a wide variety of styles often not to be placed in other categories.

Faik

From Patterns of Linotype Electra Bold

Text and Black Letter are lineal descendants of Germanic forms that inspired Gutenberg. Faces in this group have scant use today. This face is Lino Text.



From Patterns of Linotype Lino Text



From Patterns of Linotype Lino Script

Scripts and Cursives in the direct imitation of formal hand-writing and of steel- and copper-engraved calligraphic forms have been an incidental of type making for centuries. This Lino Script is one of the few machine examples. Most of the script types are not well-adapted to machine cutting.

NOVELTY TYPES as stunts in the design of type have been tried throughout the years. Shaded, or outline, or letters formed of ribbons, types to imitate a third dimension—these tricks all class as novelty type faces. This is Narciss.



From Patterns of Linotype Narciss

MANY older typographers, still practising today, were well-schooled in the classification of type faces. They had been taught that faces from the various groups should not be mixed in one job. Particularly was it forbidden to mix old style and modern faces. But today's philosophy is much broader, with type combinations determined by the taste (or the whim) of the layout man. Thus any type classifications serve the Linotypeman largely for talking type with his more technical customers, for writing about type in reports and correspondence, and as an approach to identifying unknown faces. The latter problem occurs frequently, leading us to specimen books.

Type Specimen Books

LINOTYPE people must know as much about competing type faces as they do about competing machines. That involves study of the specimen books of Intertype, Monotype, Ludlow, and the American Type Founders (ATF in the trade). These books, for the field forces, are available at the Agencies, and all Linotypemen should obtain them from friendly customers and keep them at home for study and reference.

Among the specimen books of the five type-making companies (excluding a few smaller users of casting machines who cast and peddle type), there is considerable

variety of arrangement. Indeed a trade movement, demanding that the manufacturers standardize their specimen books, has been refused largely because such books make it imperative to continue a style once established.

It is wise for the Linotypeman to know the several companies' specimen books by general content and arrangement to enable him to help any customer who may be conducting a type-face search. Of course the ultimate aim of such cooperation is to carry the search into the Linotype book. But often such problems require first the identification of a face, either from its name or from a printed specimen. Then, if it chances to be a design cut by several companies, the completion of the identification may become tough indeed. (More about that later.)

In general, the several specimen books have the same functions in common. They show:

The name of the face, with usually a number and a code word.

One or more specimen lines in each size available, usually with words in caps and in lower case; sometimes shown both solid and leaded.

A showing of all characters furnished in a font, usually shown in one size only, about 18-pt. ATF indicates size of font by "18A, 36a," etc.

Alphabet length—Lower case. Linotype, Intertype and Ludlow show this on the specimen pages. Monotype tabulates it in the front of their book. ATF ignores such data.

Number of characters to 1 pica—Intertype only shows this, on specimen pages. Linotype's copy-fitting tables, in the big book or supplement, may be used for this data very easily. Monotype has tables in forematter of their book which include this item.

Figure widths. Given by Linotype and Intertype only.

Technical data. Special for each company, on how matrices run in Linotype and Intertype magazines; or matrix case and keyboard arrangements for Monotype; also data on alignments, special characters, etc.

Indexing of Specimen Books

WHEN making a hasty search for a face whose name is known but not the manufacturer, familiarity with index schemes is helpful (and it impresses the customer, if he happens to be looking). For the several books, they are:

Linotype (of course you know)

The big book duplicates in front and in back:

1. Alphabetical index of Linotype Faces. (Get used to certain grouped titles such as Lining and Jobbing Faces, Greeting Card and Social Printing Faces—not thoroughly cross indexed.)
2. Numerical index of Border Matrices, with cross reference to identical designs in Border Slides.
3. Numerical index of Border Slides, with cross reference to identical designs in Border Matrices.
4. Index of Triangle Numbers—to identify Linotype matrices (otherwise unknown).

The Supplement (1949) carries:

1. In front, alphabetical index of faces shown in the supplement.
2. In back, alphabetical index combining both the supplement and the big book. (A-P-L and certain obsolete faces have been omitted.)
3. Indexes on Triangle Numbers and Decorative Material.

"Linotype Faces—One-Line Specimens" (issued in 1950):

1. Table of General Contents, on p. v, front of book.
2. Index to Faces and Sizes, p. 221 *et seq.* at back of book.

This Index is full of typographic information.

Intertype:

"The Book of Intertype Faces," Loose-leaf (issued about 1938), same size and general format as the Linotype big book:

1. Index in back of book, alphabetical by face names and folios.
2. Comparative table of Interchangeable Faces, listing faces they claim to be identical with similar Linotype faces, same as in their 1948 One-line Book.

One-line specimen book (1948)—Condensed Book No. 4:

1. In front, Contents Table.
2. In front, Index of Faces, alphabetical.
3. In front, alphabetical listings of faces, showing sizes available.

4. In back, "Comparative Matrix Marks of Interchangeable Faces," grouped by point-sizes and in sequence of Intertype face numbers.

Important—this table shows the *Linotype* faces (by triangle number only, shown as 14-13, 24-169, etc.) which Intertype claims to be interchangeable with their faces as listed. This list shows Bell Gothic (which they cut without permission) but does not show Ionic 5 (likewise cut without observing the decencies).

Ludlow:

"Type Faces," Loose-leaf (undated).

Divided into sections numbered 1 to 18.

Inside front cover and end paper lists faces alphabetically and by Section Number.

Forematter contains Table of Contents giving Section Numbers and Faces in each. Also carries table of Ludlow Face Numbers, each numbered, followed by Face Name and Section Number in the book.

Condensed book "Some Ludlow Faces":

In front, Numerical Index by Face Numbers, also alphabetical Index by Face Names.

Monotype:

(Long subject to adverse comment because they once identified their faces by number only. Now they have both names and numbers—the trade is still confused.)

Large, loose-leaf book—contains specimen pages arranged alphabetically by type face names. Pages carry no folios.

In front: Alphabetical list giving face name, series number, and whether for keyboard, display, or giant caster.

In front: Tables of technical data on set widths, matrix case and keyboard arrangements, etc.

American Type Founders:

"Book of American Types" (1941)

In front: Alphabetical index of faces with page numbers.

"The Omnibus of Type Faces"

EVERY fieldman who talks and sells type needs this convenient tool for identifying type faces. It was compiled by the editors of "Production Yearbook," shows in 30

pages some 1100 specimen lines of as many different faces. The specimen is the name itself (thus not many letters are shown), with companion italic, if any. Code data show the manufacturer and range of sizes made. The absence of complete alphabet showings sometimes limits the usefulness of this check list. But its general value keeps it in every sales kit. The 1948 edition omits certain faces shown in the 1940 edition—wise to keep both. The 1950 edition changes the title of these specimens to "Composite Type Face Directory." This edition also contains a wide variety of related typographic data.

Identifying Display Types

PARTICULARLY useful in the Omnibus are the groupings headed "Type Resemblances" (at the back of each edition). These permit a quick check for identification by comparison with groups of similar cuttings of such widely produced faces as the many sans serifs like Linotype Spartan, the several square serifs like Memphis, and the various Baskervilles, Bookmans, Caslons, Garamonds, Old Styles, Scripts, etc., etc. In checking an unknown face it thus becomes a first step to recognize its general characteristics in terms of the previously listed classifications. Is it an Old Style? a Modern? a Sans Serif? a Contemporary Face? a Script? an Outline?—and so on.

Novelty Types

BECAUSE literally hundreds of foundry faces have been cut merely for something different and novel in design, the Linotype representative is occasionally puzzled by a request to identify some unusual type that a customer is using or has been requested to procure. Such questions occur most frequently in specialty plants, such as the printers of names on Christmas cards, or the producers of paper products and stationery with personalized imprinting. When names are to be produced by the thousand their composition becomes an important element of production cost. The specialty printers rejoice in the economies of Linotype—they cash in on quadder-equipped machines—but too often they want novelty faces for which we otherwise have an impossibly limited market.

Often a specimen of such a face—a script or brush design, or something else "fancy"—will be shown to the Linotypeman with the question "My customer wants this—what is it?" Then the Omnibus of Type Faces is most convenient, beginning with the "Type Resemblances" section. When that doesn't reveal the clue then a more protracted search of specimen books may be needed.

Linotype people need to follow all type face announcements, European and American, just as fashion promoters watch each other's activities. Advertising

typographers and the specialty plants are usually the first to request such new faces on the Linotype. While fieldmen are expected to report promptly *all requests* for new faces, the broad philosophy of reasonable demand may be quoted directly to the inquiring customer on such occasions: it costs many thousands of dollars to produce on Linotype matrices a single size of a new face. Thus the demand must be substantial and sufficiently widespread to justify the first investment in drawings, patterns, and punches.

Again there may be a question of legal design protection, although American patent and copyright laws usually provide protection on merely the name of a type. The American courts have ruled that the traditional roman alphabet is so basic that a mere variation of its details is not original design. Its name may be registered but anybody can approximate or duplicate its design. A very few, quite distinctive designs (for instance, ATF Lydian) are protected by design patent—but type producers in this country usually ignore such effort at exclusive control. Quite different is the situation in the European countries where patent laws and the recognition of designers' rights are more explicit.

Linotype has "played the game" in accordance with prevailing understandings among the manufacturers, though there has never been a formal agreement to recognize design rights in this country. During the NRA period, 1933-35, an approach to such understanding (during an effort to form a Code) provided for a company's individual ownership of a new design for a period of five years. Thereafter any other company might reproduce it without liability. But that was merely "talking about type"—it never became either a law or an understanding. Meantime the duplications of cuttings go on apace, sometimes by direct collaboration (as with ATF and Linotype cuttings of Cloister, Cheltenham, and the final cutting of Garamond), and again without recognition of rights (as in Intertype's cutting of Ionic 5, Bell Gothic, et al).

Identifying Body Types

THE FOREGOING suggestions and conditions covering display types or head letter are less effective when an unknown body type is brought forth for identification. When a customer exhibits a clipping or proof of a block of type, with a request for full identification—name, point size, and manufacturer—then the going may become very tough. While some people are gifted with "type sensitivity" and a special instinct for the minute details that control such recognition, others (including many members of type producing organizations) haven't that special gift. Naturally a Linotype fieldman will cultivate it to the limit of his own adaptability.

The general approach to an identification question that cannot be solved readily involves a procedure al-

most as elaborate as the routine of a criminal investigation. The following steps are typical in the more puzzling cases:

1. *Appraise the probable relationship of the printed specimen to the original type*—
 - a. Is it thickened by heavy impression or perhaps by wear?
 - b. If a news face, has it been printed direct from type (as on a Duplex) or has it been stereotyped and thereby shrunk somewhat?
 - c. May it have been electrotyped or molded in rubber or plastic? (Not easy to judge!)
 - d. Was it printed by offset or gravure, with possible effect on its image?

The probable answers to these questions must thereafter be kept in mind in comparing the printed sample with specimens of types.

2. *Fix in mind the "color" or mass effect of the type sample*, to make such general comparison with type specimens, always allowing for the factors outlined in the foregoing.
3. *In what general classification is the unknown sample?* Is it a Modern, an Old Style, etc.?
4. *Note the general letter shapes*—

Is the lower case small or large as compared to the caps?

Are the cap forms full, extended, or condensed?

Are the bowls circular or oval? With vertical or with a biased stress?

5. *Is it apparently an Intertype or Linotype face, or a Monotype or foundry face?* A word or two in italic will sometimes reveal the Linotype or Intertype origin—or the formation of non-kerning l.c. "f." Monotype may show a slight kern and foundry still more, in comparing the various cuttings.
6. *With the foregoing data in mind*, will a quick check of the Omnibus give the answer? Otherwise a deliberate search through the various specimen books comes next, using all the foregoing break-down in groupings to isolate the general nature of the unknown face.
7. *When a probable identification has been made*—then comes need for a final minute check, always with a pocket magnifier. If the sample clipping or proof can be mutilated (or a piece of it cut) then, with shears or a sharp knife, cut cleanly down through several lines vertically, and also cut a line of the type characters horizontally, about midway between the base-line and the

mean-line. These cut portions can then be laid against the specimen of type which appears to be the answer.

By comparing individual characters, where cut, laid over the identical characters of the type specimen, the magnifying glass will usually reveal any discrepancies of detail.

Remember that a line-for-line comparison, vertically, will vary with either leading or shrinkage due to plate-making. Also the horizontal comparison may involve the same factor.

Under the glass, compare the caps for serif formation, such as E, F, T, M, and W.

Note the length of bars and relative position of bars on E, F, and H.

Compare M, N, V, and W for apex and vertex details.

In the lower-case forms compare the more irregular letters, such as a, e, g, k, s, and y.

Compare b, d, p, and q for serif treatment and details of acute or obtuse nicks.

8. *Look out for "mixtures."* Sometimes caps of one face are used with lower case of another, i.e. Caslon Old Face caps with Old Style No. 7 lower case. (Bruce Rogers first did that.) Spartan lower case with Metro caps have also been noted. Such mixtures can become extremely perplexing—they suggest the wisdom of checking caps and lower case independently if any suspicion appears.

Typographic Accessories

MANY different uses of type for varying languages and special purposes have necessitated the cutting of literally thousands of characters, other than the normal alphabets, to be made and stocked in matrix form. All these accessories are well illustrated in the Linotype specimen books and their uses are variously discussed in several items of Linotype printed matter.

Particularly to be studied is the general information on matrices printed in the forematter of the big specimen book and of the "One-Line Specimens" book, recently distributed throughout the trade.

We need not here repeat the content of other Linotype publications on these subjects. But in "talking type"—particularly in plants doing book work, scientific composition, and like specialized work—there are certain additional points worth mastering among sales and agency people.

More important typographic accessories include:

Accents—the distinctive marks placed over, under, or through letters to show the position, nature, or stress of the sounds they represent.

Decorative material and rules—for borders, boxes, and spots of decoration, some plain or geometric, others designed in styles for corresponding classifications of type faces.

Figures—in many designs and sizes. In the big red book their showing requires 51 pages. With their special uses in tables, advertising, etc., they are the subject of a separate section in this Sales Manual.

Foreign faces—the various faces for other languages than English which are either wholly different from our roman characters (as Arabic) or which combine certain distinctive characters with some of the roman characters (as Greek or Russian). These showings occupy some 63 pages in the big red book.

Fractions—equally varied in scope with Figures, and needing 43 pages for their showing in the big book, they are discussed in the Figures section of this Manual.

Linotype leaders—in various styles designed to meet differing mechanical and typographical conditions.

Ruled form matrices—for miscellaneous form composition.

Special characters—for such purposes as astronomical, ecclesiastical, mathematical composition, etc.

Spaces—used to supplement spacebands in virtually all kinds of Linotype composition.

Accents

WITH the five hundred or so different accented letters of the roman alphabet, caps and lower case, we can compose on the Linotype nearly a thousand of the wide world's languages and dialects. Our authorities for the design and form of accents, and for their usage in composition, are the various scholarly associations of the linguists and philologists. These groups of learned professors and scholars maintain contact between universities and libraries throughout the world, exchanging findings and opinions (all languages, like our own English, are subject to changes in expression and form). Linotype, for many years, has retained philologists of the highest standing to guide our production of linguistic material in matrix form.

In the typographic handling of accents we should re-emphasize here the precautions to be observed in

planning the use of accents on capital letters—notably the high-cap mold requirement. Take for example the following words in French:

DU MÉTAL DES CARACTÈRES

The above line is cast with high-cap accents, thus retaining the full size of the accented characters. But this requires the special high-cap mold to provide the added space on the constant edge of the slug which is occupied by the accents. Such a mold changes the aligning point of the matrices and makes it necessary to cast a given size on a body two points larger than standard up to 14-pt. and some 4 points larger on display faces.

The alternative is to use low-cap accents, which are normally supplied to avoid the necessity for the special mold, unless the order specifies high-cap characters. But low-cap accents necessitate reducing the height of the letter sufficiently to make room for the accent within the constant edge of the slug. The result is shown in the following line (to be compared with the previous example of high-cap accents):

DU MÉTAL DES CARACTÈRES

It will be noted that a particular typographer will be reluctant to use low-cap accents on a job containing many words in capitals to be accented. However, in a style combining upper and lower case, the lack of top alignment on accented capitals is not so objectionable. For example:

L'Âne Élémentaire

In the ordering of accent matrices the special Accent Order Blank is an absolute *must*—any attempt to describe or sketch them is bound to cause confusion. The order blank identifies each accent with its actual design and a corresponding number. But, in talking about accents in a book manufacturing plant, certain frequently used accents may be referred to by name, and the sales representative should know at least the following identifying names:

| | |
|----------------------------|---------------------------|
| <i>acute</i> á é ó ú | <i>grave</i> à è ò ù |
| <i>circumflex</i> â ê ô û | <i>tilde</i> ã ã õ ù ñ |
| <i>cedilla</i> ç | <i>diaeresis</i> ä ë ö ü |
| <i>short vowel</i> ä ë ö ü | <i>long vowel</i> ā ē ō ū |

(The accented characters shown above comprise only a few of the various characters thus accented—these merely show the given accent in place over a familiar letter form.)



HARMONIZES WITH FAIRFIELD

(a)



**BUT NOT
WITH
SPARTAN
BLACK**

(b)



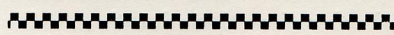
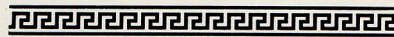
THIS WITH BODONI BOLD

(c)



NOT GOOD
WITH
MEMPHIS
LIGHT

(d)



(e)

OKAY WITH
SANS SERIFS
Or with
SQUARE
SERIFS

FIG. 16—Examples of right and wrong combinations of decorative material with various type faces. In (a) are 24-pt. Borders, Nos. 1616 R and L, 2-pt. Rule, No. 402, with 14-pt. Fairfield. Specimen (b) combines, incorrectly, the 24-pt. Border, No. 1616 R with 14-pt. Spartan Black caps. In (c) we have 12-pt. Border No. 1271 with 14-pt. Bodoni Bold. In (d) the same border is incorrectly used with Memphis Light. In (e) we have borders of geometrical nature, 12-pt. Nos. 1421, 1270; 6-pt. Nos. 1317, 1404; and 3-pt. No. 1568—typical designs suitable for combination with square serif and sans serif types.

Decorative Material and Rules

IN THE FORM of matrix slides and unit matrices, Linotype's resources for the decorative treatment of typography are wide and varied. While present-day practices place far less emphasis on decoration than did the earlier years of Linotype Typography, there are still countless uses for the rules, borders, dashes, and bits of free ornament in Linotype's extensive assortments.

In the big red book pp. 1081-1086 are highly informative in their suggestions for the uses and methods of composition for rule borders and built-up borders and free ornament. We cannot attempt here to summarize the principles governing the use of decoration as practiced by typographic designers, layout specialists, and the fast disappearing all-round "job compositor" who planned his own typography. The skillful use of decorative material is essentially such a specialty. But the good taste that may develop through the study of sound typography may establish a certain instinct in this detail.

The Linotypeman should be able to offer a modest degree of help to the "ignorant" customer in the selection of decorative material to harmonize with any specified type faces. But he must be equally quick to sense a customer's possibly superior knowledge in these matters.

To achieve a pleasant relationship between type faces and decoration perhaps the most important factor is that of "texture"—to have the decoration comprised of lines and dots similar to those that form the type characters. The illustrations in Fig. 16, showing both right and wrong combinations, may help toward the appreciation of this principle. But it must be realized that there are infinite variations in the possible combinations—there's where the designer's ingenuity and taste come in.

It must also be remembered, too, that such relationships between type faces and decoration are immediately affected by the number of printings. When type and decoration print in black only it is vital that rules, borders or decorative spots shall not outweigh or overshadow the type matter. But when the decorative elements are in a second color, then their details may be subdued by the lightness of the color. With lighter tints almost any weight of decoration may be used, but with stronger colors care must still be given to the selection of harmonious textures.

Figures and Fractions:

WHILE this subject is so extensive that a separate section is devoted to it, we may note two significant aspects of figures in talking about type. The first is the distinction between *old style* and *modernized* figures. The following lines compare the two designs:

H m y 1 2 3 4 5 6 7 8 9 0
H m y 1 2 3 4 5 6 7 8 9 0
H m y 11 22 33 44 55 6 77 8 99 00

Old style figures are still another heritage from the manuscript-writing backgrounds of type design. Because the scribes made them that way so did the early typesetters. We have no record of the exact reason for modernizing the figures but may readily assume that the printers found the lack of alignment of old style figures both unsightly and a handicap to legibility. For instance:

| | |
|-------|-------|
| 12365 | 12365 |
| 82376 | 82376 |
| 22845 | 22845 |

The change to full alignment, top and bottom, was first made in England in 1785* and for a time the old style design was virtually discarded, reappearing about 1843. Careful typographers, planning composition wherein many figures occur in the body-matter, insist on old style figures to preserve even texture. Note the contrast of the following lines:

The number of aircraft had risen from 11,000 in 1938 to more than 100,000 in 1949. Last year 16,500,000 persons flew 9,000,000,000 miles. Their safety factor was 185,000 to 1.

The number of aircraft had risen from 11,000 in 1938 to more than 100,000 in 1949. Last year 16,500,000 persons flew 9,000,000,000 miles. Their safety factor was 185,000 to 1.

The second significant factor in figures is their harmony of design with their related faces, in weight of strokes and in serif formation. Every figure specimen in the big book carries a name of a corresponding type face. This means, normally, that the customer calls for any supplementary figure matrices to be in the same type faces he is using. But frequently, in display work especially, he may want contrasts of weight as well as size. Then a deliberate change in type face relationship becomes a problem in selection to maintain a harmoni-

*"Type for Books and Advertising"—Eugene M. Ettenberg, Van Nostrand.

ous relationship. For instance, big display figures in Bodoni Bold would not go well with a type dress in various sizes of the Memphis family. For that problem, if the customer wanted a contrasting face, the big sans serif figures would go well.

The other aspects of the sale and uses of figures and fractions are considered in that special section of this Manual.

Foreign Faces

IN the U.S.A. and Canada Linotype representatives encounter sales questions on foreign faces primarily in plants producing native-language periodicals for the foreign-born population groups. Certain book plants and a limited number of polyglot printers, specializing in foreign languages, comprise most of the remainder of this small but complex market for Linotype products.

With the emphasis on Americanization, plus other factors affecting all newspapers, there has been a considerable shrinkage in recent years in the numbers of foreign language papers. For the United States, in 1949, "Editor & Publisher Year Book" lists a total of 74 "principal foreign language dailies." Among these 25 are printed in New York City. The languages used for the 72 papers total 22, all of them available on the Linotype except Chinese and Japanese. The breakdown by languages follows:

| | | | |
|-----------|----|------------|---|
| Arabic | 1 | Japanese | 3 |
| Armenian | 2 | Jewish | 6 |
| Chinese | 10 | Lithuanian | 4 |
| Croatian | 1 | Polish | 9 |
| Czech | 5 | Portuguese | 1 |
| Finnish | 4 | Russian | 2 |
| French | 3 | Serbian | 1 |
| German | 7 | Slovak | 1 |
| Greek | 2 | Slovenian | 1 |
| Hungarian | 3 | Spanish | 8 |
| Italian | 4 | Ukrainian | 2 |

Circulations vary from 1,600 (Japanese) to 95,000 (Jewish). The latter is the New York Jewish Daily Forward, whose plant is wholly owned by its staff and includes 14 Linotypes and 2 Intertypes.

Polyglot printers are few in number. With them all, Linotype has maintained close contact, not only in the development of the matrix equipment for various languages but sometimes using them for laboratory purposes and for setting occasional specimens. The International Press, New York City (5 Linotypes), and the J. H. Furst Co., Baltimore (7 Linotypes), have been particularly cooperative in these matters.

The full technical and linguistic aspects of foreign languages are much too involved to be considered "standard equipment" for Linotype salesmen. Pages 819

through 886 in the big book, plus the Accents on pp. 892-892a represent the merchandise phase of Linotype activities in this field, as of the period 1930-1940. Other languages, aside from those shown in the book, are available in matrix form or can be adapted. The Numerical List of Keyboard Diagrams, F Section, SBI, covers the more important languages composed either with accented characters and roman faces or with the foreign faces discussed herein.

Greek composition may require either a relatively simple matrix equipment for newspaper and job printing or a more elaborate font of matrices for the classical Greek used in textbooks or scholarly works. This language, in either style, carries a mechanical requirement for the addition of the Greek Attachment to any Linotype which is to produce this composition. There are so many more characters in Greek, with many accents, that the familiar two-letter principle does not apply throughout the Greek font. The keyboard diagrams show how the 90-channel magazine has been adapted to these conditions. The Greek Attachment provides key-button control of the assembler, beside the keyboard on the Linotype, to determine the regular or auxiliary position of the Greek matrices when they are cast.

Typographically, the book designers have been particularly pleased with Linotype Porson Greek (pp. 821-823). This cutting has been provided with the full variety of accented characters required by classical Greek. It is also a basic design that goes well with various roman book faces.

German. Newspapers and other printing in the German language were more important in this country before the two World Wars. The German faces shown on pp. 833-838 carry no special technical questions on their sale or use.

Russian. The variety of faces, shown on pp. 839-854, reflects the period in international affairs when the Russian market was being cultivated. The U. S. Government had recognized the U.S.S.R. and American industries were encouraged to develop any Russian possibilities—hence the considerable emphasis on Russian faces in our big book. Meantime, in addition to claiming the original invention of the Linotype the Russians have altered or cancelled the usage of various characters in the traditional Russian alphabet. We have the current data on the new Soviet Russian, but have little use for it at present. . . . This comment may provide the answer for an inquiring customer.

Hebrew as cut for the Linotype is a simplification of the classic ancient Hebrew. As used in the Jewish newspapers it corresponds more directly to the so-called Yiddish dialect of Hebrew. Since this language reads

from *right to left*, corresponding changes are necessary in the Linotype to produce slugs in proper sequence with this reversed reading characteristic. The Hebrew Galley provides the essential mechanism, delivering the slugs on the galley in reverse position from normal English composition. Hebrew matrices are punched in reverse position also as an essential element in the whole process of reversal.

Oriental Faces. A number of varied racial groups in the Near East and Far East are represented by the faces given one-line showings on pp. 879-881. None of them has any basic relationship to the roman alphabet. The cutting of such a face for the Linotype is broadly limited in possibility by the total number of different characters needed and by their adaptability to the brass widths on matrices that can be practicably handled in standard magazines.

The Devanagari is *not* a language but a basic form of notation used for various languages and dialects in the countries we formerly knew as India. Devanagari is some three thousand years older than our roman alphabet. Close examination of matter set in Devanagari might lead to the belief that its complicated characters are 5 or 6 picas wide. Not so, however, as it was found that the single horizontal line, passing through groups of unit characters could be cut completely through the sidewalls of the matrices. Thus what appears to be one character 5 or 6 picas wide is actually cast with several unit matrices which blend together with the combining line. The solution of that problem and the analysis of the repeating forms that could be housed in Linotype magazines made possible this rather extraordinary development.

A Phonetic Alphabet as shown and explained on pp. 883-886 is largely of significance to linguists, dictionary editors, etc. But there has been considerable use of these "sound-depicting" characters in establishing written and printed expression for various Indian tribes in the South West and in Mexico. Among other languages not shown in the big book, because of very limited use, is the Linotype cutting of the Navajo language, based on the Metro design. That series, running on a Model 32 in the U. S. Indian School, at Phoenix, Arizona, was used for a series of Navajo-English text books for this largest of the surviving Indian tribes. This is typical of the wide adaptation of Linotype's resources to linguistic needs.

What About Chinese? That question often is asked in the field as a possibility for Linotype. Back in the 20's a few Chinese characters were punched on Linotype matrices, but based on a sort of Chinese "short-hand" developed by a Chinese scholar at Columbia University.

The plan might have worked but involved too much learning of the short-hand system to be acceptable in China. The trade heard about it and the story still bobs up occasionally that the Linotype will compose Chinese.

Actually the minimum font of Chinese type (as used in the Chinese newspapers) contains about 6,000 different characters—far beyond the capacity of Linotype or any existing machine. Imagine a keyboard with 6,000 characters! But for the expression of more formal and scholarly Chinese writings upward of 25,000 different characters are involved. While studies of other methods of composition have been made, some of them with incidental publicity, at the present time any mechanization of Chinese typography remains a problem in research.

Japanese is a somewhat simpler language in numbers of characters needed. But the same general linguistic and economic problems that apply to Chinese also affect the language of Nippon.

Ruled Form Matrices and Tabular Composition

THE MATRIX material bearing on forms and tables, occupying pp. 894-900 of the big book, will be clear to the reader who has a printer's understanding of this subject. Otherwise these technicalities of typesetting must be observed "in action" and studied in principle by the layman to acquire any comprehension of this phase of Linotype's activities. The study of the Ruled Form data in our book, "Linotype Keyboard Operation," will provide many of the details of Linotype procedures in this field. But the trade frequently combines Linotype composition with the product of other machines on such work.

It has often been said that the craftsman who is most adept at form and tabular work is also the best mathematician in the plant. This is because a well-planned and properly composed form or table, with its possible multiplicity of boxes and parallel lines locking up true and square, is the successful outcome of many pre-calculations. It represents both a typographic problem, to plan the required typematter within the allotted spaces, and a mathematical problem to define the blocks of space with the proper weights of rules, plus frequently a mass of evenly spaced blank ruled lines for writing. The experienced compositor, however, will say that there is a definite system to it, based on careful planning and measurements.

The large variety of forms used for business routine has caused this field to become increasingly served by specialized form printers. Sales books and restaurant checks are familiar examples of simple ruled form printing that are used in tremendous quantities. Apart from the specialty plants, however, every commercial printer has an occasional ruled form or table to handle, while

newspapers and periodicals, as well as book plants handle various kinds of tabulated material which must be composed in these special styles.

We must note the general difference between printed forms, such as sales checks, and "pen-ruled" forms, such as the page of a ledger or other account book. The latter, with vari-colored horizontal and vertical lines, has traditionally been the product of a pen-ruling machine—plus a printing procedure for any necessary words in type. But increasing costs and the use of various processes have considerably cut down the use of pen-ruling which is a slow and cumbersome procedure, normally a sub-department of a bindery.

Many large blank forms today, including accounting book leaves, are printed by offset lithography because that process permits elaborate ruling to be done by draftsman's methods. Only the typematter requires conventional composition (and in this field there is extensive use of the modern typewriters, such as IBM and Vari-Typer).

The fields of ruled form and tabular composition were claimed in the early years of Monotype as their special dish. When such forms are composed entirely of type material the Monotype system of individual units, all related in unit dimensions, makes it easy to claim a working advantage. One of their principal sales arguments today is their facility in these specialties.

But, from the beginning, the Linotype advantage in working costs has caused continued studies of various special molds and matrix equipments to handle such work. Some have been produced through Linotype, others as independent offerings, and Linotype has continued to make progress in this competitive field. Today, among the big specialty form manufacturers, such as Standard Register Co. (Dayton, Ohio) and Moore Business Forms, Inc. (Niagara Falls, N. Y. and Emeryville, Calif.) there is a constantly increasing use of Linotypes with a corresponding decrease in use of Monotypes.

The form printers have been difficult to handle in terms of Linotype service, because of their mixing of Linotype, Monotype, and strip material from Elrod, etc. If these various machines are permitted by local plant machinists to deviate from standards in height-to-paper, body dimensions, or printing quality of face, then make-up and presswork problems result. This is particularly true in these plants as they turn to the use of rubber plates. In earlier days they stereotyped forms in small curved plates for tiny, high-speed web presses. Today they are adapting rubber plates to these machines, with a consequent emphasis on absolute accuracy. If slugs are off standard immediately enter questions of responsibility as between various machines, the maintenance thereof, the type metals in use, etc., etc.

The Linotype salesman having such a plant in his territory soon learns the full significance of being "in the middle" as a business ambassador. Each such case

has its local angles, best learned "in the file," and no general comment can be made beyond the comforting observation that the use of Linotype equipment in this field continues to expand. Such a plant may well be classified as the salesman's mental and technical gymnasium wherein he gets thorough periodical work-outs for all his business tact and technical knowledge.

Linotype Leaders

PROBABLY no other matrix accessory in typography has been more intensively studied than Linotype leaders. The results are well summarized on p. 153 of the "One-Line Specimens" book and demonstrated on p. 154.

These latter-day developments out of punctuating periods and hyphens have become vital in a variety of composition. In newspapers they are part of box scores, weather reports, market reports, etc. Telephone directories and similar listings and miscellaneous indexes, tabulations and the like depend upon these broken or dotted lines to carry the eye across a line.

In each field and by every process leaders have been a problem in presswork. In newspaper pages leaders, sometimes exaggerated in stereotyping, have often "punched through" on the press. This may hurt the readability of text matter on the reverse page, and frequently it disfigures an advertisement, thereby causing acute pain in business relations with the advertiser. Sometimes press blankets have been injured by leaders.

These problems have been relieved by punching Newspaper Leaders .005" shallow. For extreme conditions the Newspaper Radial Leaders were designed, which, in addition to being .005" shallow, are made with a rounded or dome-shaped surface to avoid punching and blanket damage. Every newspaper mechanical executive watches his leaders—and today Linotype can meet his needs, whatever may be his printing conditions.

For the book and commercial printers, Linotype's recognition of leader problems brought the Universal Leaders, in various designs, punched .003" shallow. These meet average conditions, though there are cases in which fussy typographers call for leaders in the other classifications. In all first quality printing the clean, even-toned appearance of leaders is a basic requirement—they must neither vary in appearance nor show an excess impression on the reverse side of the sheet.

Today an ever-increasing amount of Linotype composition is proofed for offset or gravure reproduction. Such proofs are usually pulled on precision presses such as those made by Vandercook. Leaders, to produce proper results with this procedure, *must* be type-high—in other words, Regular Leaders. The shallow leaders fail to show on the precision proof presses except, perhaps, in patches in the more open places.

All the foregoing considerations are responsible for the seven classifications of Linotype Leaders and Leader-Aligning Dashes, with a total of 21 designs (dots, hyphens, or dashes in variations) which are available in a number of body alignments.

These comments will produce no "leader experts" among the Manual readers, but they do emphasize the basic command in writing up a matrix order: SPECIFY THE KIND OF LEADERS. The order blanks are so designed that it's difficult to ignore this detail—but the Order Department will tell you that many people do overlook it.

Universal Special Characters

FROM p. 887 through 892b of the big book, we find showings of a great miscellany of typographic accessories. These specimen pages have been carefully compiled, with convenient classifications. They require no technical comment beyond the data printed on each page—we have dealt separately with the subject of Accents.

Some of these Special Characters, such as Chemical, Mathematical, Time Table and Tariff, Superior and Inferior Characters, frequently involve special techniques of composition which the salesman may be called upon to discuss. Some of the answers are to be found in the pages of "Linotype Keyboard Operation." Lacking a sure answer, the salesman should send in such questions, when conditions permit, since the Typographic Development Library and files at Brooklyn are full of examples of Linotype composition in works dealing with mathematical expressions, chemical formulae, genealogical tables, and many other complicated subjects. The use of these resources, with covering comment and advice, has helped replace Monotypes in more than one plant.

A need for any Special Characters not shown should of course be referred, promptly, because there are numerous existing characters at Brooklyn (previously made for some special purpose, but unclassified) which may contain the answer. Otherwise, under normal conditions, a character may be manufactured at reasonable cost. Often such action may save the customer a much heavier expenditure for engraving, electrotyping, etc., to meet such a requirement.

Spaces

THESE are necessities rather than accessories in good typography. But experience in introducing Linotypes into the superlatively fussy plants of advertising typographers has shown that many composing-room people are not acquainted with the full flexibility of Linotype spacing. They may know about spacebands and still not realize that there are *five* thicknesses. They realize that

three sizes of spaces run in the magazine, and perhaps judge spacing conditions by those widths—em, en or figure, and thin space. But very often they are quite unaware of the twelve different thicknesses of steel hair spaces, beginning at a quarter-point.

One Monotype-equipped ad typographer made a big play on his "generous equipment of copper and brass thin spaces on every makeup frame." Those foundry type spaces are respectively one-half and one point in thickness. The Linotype hair spaces begin at one-quarter point and proceed, decimally, .0035 – .007 – .008 – .010 – .012 – .014 – .015 – .016 – .018 – .020 – .021 – .022 – surely an ample provision for the most careful spacing niceties, and an aid to special tabular problems.

Competitively, one of the continuing arguments with Monotype through the years, has been on fitting and spacing of type. In their specimen book, as currently issued, they show an example of "slug composition" with a parallel column of the same lines set in Monotype. They state that the slug specimen is from "a current trade magazine." The reproduction is very poor, apparently by zinc etching, but the original slug composition is named as "9-pt. Bodoni," set 13½ picas wide. Actually it is Linotype Bodoni Book (Intertype has no 9-pt.). Against it they show 9-pt. Monotype Bodoni No. 175 (missing the match because they have a Bodoni Book). The faces compared have approximately the same alphabet length (114 pts. for the Linotype and 115.5 pts. for the Monotype). But the operator who set the "trade magazine" item saw fit to do a lot of hand spacing, with many words opened up with hair spaces which might readily have gone back into the previous line. Thus a careful operator on the Monotype was able to save *one* line in re-setting.

But there's a bit of dirty billiards in this competition in the further detail that the Linotype composition is 9 on 11-pt. slug (full) whereas the Monotype is set 9 on 10. Placing the two bits of composition even at the head, they mark the difference in length "this space is saved." Superficially it looks like a saving of *two* lines whereas it's actually only *one* line, and any good Linotype operator would have duplicated the Monotype result. This is a surviving item of earlier Monotype competition in which they "barred no holds" in the old days. Fortunately, the discriminating typographer, who might be following through on the close-fitting argument, should be quick to spot this deceptive presentation. Certainly a bit of assistance by a Linotype salesman would be quite in order!

Monotype's play on fitting and their ability to vary the set width for any face may be noted at this point. They do it mechanically, on the caster, by using a "wedge" wider or narrower than the standard for that face. Thus they can make the characters actually touch each other, tightening up, or have a letter-spaced appearance in opening out. Our answer is that a type face

has only one proper set width, and that is very carefully determined when it is designed and fitted. To tighten up or to loosen up the fitting of a face *inevitably hurts its legibility*. The mere coincidence of a mechanical factor which permits flexibility may be a handicap to good printing rather than an aid. Letter-spacing, for a few words or lines in display composition, is of course legitimate. But Monotype's claims for flexibility fitting should be emphatically answered in terms of the readability of type, a factor which should not be subject to the whims of a local typographer.

A further argument against Monotype is their rigid limitation in type design to the fixed widths of their matrix case rows. Every character in the font must be controlled in set width by its position in those rows. A Linotype face is much more flexibly designed with respect to the "brass widths" of the individual characters. That has been demonstrated when Monotype reproduced Linotype Granjon, which they sadly emasculated by set-width limitations and by "refinements" in the recutting.

"Typographic Refinements"

THAT phrase, which is illustrated in "Linotype Keyboard Operation" and other publications, covers a number of type face developments, made over a period of years. They began with a series of logotypes made to meet the desires of book printers. As shown below, these logotypes were made by punching certain letters together on one matrix to reduce the objectionable white space at the base of such characters as F, T, V, W, and Y.

These logotypes, made in the necessary variety in combinations of vowels and period with the capitals, were likewise acclaimed by advertising typographers. The logotypes overcame objections to the non-kerning characteristics of Linotype faces. But the very particular nature of fine book composition and of the blocks of body matter used in the most carefully composed advertisements called for other modifications of the normal two-letter Linotype font. The resulting typographic refinements have been so successful that fussy art directors and others with prejudices about methods of composition have been unable to distinguish between Linotype and foundry type settings.

One of the recognized printers of fine books, Fred Anthoensen, says in his book, "Types and Bookmaking" (Portland, Maine—The Southworth-Anthoensen Press—1943): "Great credit is due Mergenthaler Linotype Company for the development of punch cutting and letter fitting and the perfection of new standards of manufacture, the combination of which has made machine composition comparable in quality with hand work. Among these are the series of logotype letter combinations, permitting the casting of the full-kerning 'f' in both roman and italic and the 'thin' italic fonts for fine book work."

These characters and other related modifications are shown in the following examples.

Two-Letter Logotypes. These characters eliminate the more open combinations of letters and punctuation which leave "holes" in carefully spaced, compact composition. Many good book plants use these as well as the ad shops. They include:

F. P. Ta To Tr Tu Tw Ty T. Va Ve Vo V. Wa

We Wi Wo Wr W. Ya Ye Yo Y.

F. P. Ta To Tr Tu Tw Ty T. Va Ve Vo V. Wa

We Wi Wo Wr W. Ya Ye Yo Y.

fa fe fo fr fs ft fu fy ffa ffe ffo ffr ffs ffu ffy f,

f. f. ff, ff. ff.

fa fe fo fr fs ft fu fy ffa ffe ffo ffr ffs ffu ffy f,

f. f. ff, ff. ff. f ff

One-Letter Roman Logotypes, Spec. No. 5. These one-letter roman matrices would normally be used only in connection with the one-letter italics, and one-letter italic logotypes, shown below. The italics designed for two-letter matrices are necessarily more extended than the one-letter italics. Thus, to use two-letter roman and italic matrices together with one-letter italics would result in a definite wrong-font appearance. These one-letter logotypes include:

fa fe fo fr fs ft fu fy ffa ffe ffo ffr ffs ffu ffy f,

f. f. ff, ff. ff. f ff

One-Letter Italic Logotypes. These also relate to the use of the one-letter italic lower case, including the characters:

FA PA TA VA WA YA Th Wh

One-Letter Italic, Spec. No. 5. Designed to provide more compact set widths for the italic lower case which otherwise is somewhat extended when adapted to the width of the corresponding roman characters:

abcdefghijklmnopqrstuvwxy

One-Letter Italic Logotypes, Spec. No. 5. These logotypes are based on the more compact design of the one-letter italic lower case:

f af aff ef eff hf if iff kf lf mf nf of off pf rf

sf tf uf uff yf If Of Off

True-Cut Small Caps, Spec. No. 5. These were designed partly to establish set widths independent of two-letter combinations, also to make these special small caps somewhat higher, against the lower case, than the normal waist-line-high small caps:

ABCDEFGHIJKLMN**OP**QRSTUVWXYZ

The specimen books show in what faces and sizes these various typographic accessories are available. Their use, in plant operations, varies considerably. When only a few such characters are used they are kept entirely on a sorts basis. But the first advertising typographer to install this equipment (Kurt H. Volk Co., New York) used a combination of main and auxiliary magazines on mixer machines, to keep as many of these "refinement" matrices as possible on the keyboard. Thus

each main magazine had its companion auxiliary, with special keyboard diagrams.

If these added complications sound abnormally costly (as they do against average composition) then we must note that Kurt Volk employed one of the best accounting outfits to determine his costs. He was still able to cut his previous billing rates (by hand composition) so substantially that his competitors were compelled to follow his example and install similar Linotype equipment.

Any salesman, encountering a need for the use of this material, should get comment from the Director of Typographic Development if time permits. The handling of these various special cuttings, whether as sorts or on the keyboard, becomes a special problem wherein Brooklyn's experience will be invaluable.

