The Product to Be Sold

LINOTYPE'S END PRODUCT is the Printed word, whose style is determined by the unlimited variety of Linotype matrices, while Linotype machines are the means of composition.

In the many divisions of the graphic arts world, and in the wide variety of plants and processes, words printed on paper are common to all. Thus, among the many kinds of mechanical equipment in varying plants, from the big rotary presses of metropolitan newspapers to the little clam-shell jobber of a country plant, the Linotype sets type for all. It is the most widely used mechanism in the printing world and its product speaks hundreds of languages in the infinite variety of periodicals, books and commercial printing that keep the world informed.

The Printed Word Needs Many Kinds of Type

TO MEET the demands of printing and publishing at home and abroad, Linotype's production and stocks of matrices total thousands of sizes and designs. These include over a million individual type characters, each a separate item of design, manufacture and stock. Each type letter, figure, point, or special character on its familiar piece of precisely processed brass must be duplicated in the hundreds or thousands of matrices that meet its demand by the trade. Thus, by simple arithmetic, the resulting stocks of Linotype matrices total many millions.

While the type matter composed with these matrices is basic in virtually all kinds of printing, the problem of composing so many kinds of matter on the Linotype machine requires a number of variations in the machine itself. Thus, we have the line of standard models for these several purposes.

Production needs, as well as typographic variations, have caused the building of Linotypes whose primary function is to compose:

1. Simple body matter;
2. Mixed matter, combining several faces in one line;
3. Display or head-letter, either as a major product or through auxiliary mechanism;
4. The combined functions of 1, 2, and 3 in one machine;
5. All of the foregoing on machines equipped for 42-pica measure instead of the 30-pica line.

We Sell Both a Product and a Continuing Service

WITH THE NECESSARY variety of Linotype machine models, and with the broad possibilities for choice or preference in the many uses of type faces, the Linotype salesman's responsibility goes far beyond the closing of an order and the delivery of the specified equipment. He must first diagnose the immediate need, make the best specification of machine and type faces to fill the need (frequently in competition), and also anticipate his customer's probable future uses of the equipment and the possible growth of his plant.

Having first established respect for his ability to appraise and fill such needs, the Linotypeman must thus build customer relationships ahead in terms of type composition satisfaction over the long haul. Then his continuing calls, from time to time, will be based on his customer's confidence in the salesman's judgment as a typographic counsellor, back of whom stand the vast resources of Linotype.

During the years of World War II, Linotype salesmen were designated in their true technical capacity as "composing-room engineers." Such is the broader nature of the Linotypeman's responsibility to his customer. In no other graphic arts service (in ink, paper, plate making, or in other machinery fields) is the salesman's function more technically detailed or extended through so many kinds of printed product. With infinite variations in the setting of type and the several alternative means of setting it on the several standard Linotype models, this vital element of typographic engineering in the field is one essential factor for customer satisfaction that the Company must literally build into its field representatives.

Factory, home offices and sales agency are back of the salesman to provide the product, the business routine, the essential mechanical service and maintenance facilities, and the detailed information which is the basis of a comprehensive Sales Aid program. But the first-hand, detailed knowledge of the customer's plant, the diagnosis of his type requirements and the analysis of his machine needs to produce effective and economical composition are the major responsibility of the Linotypeman. It is this important and unique function, with the challenge of competition frequently crackling around him, that the true salesman enjoys.

Competition—Yesterday and Today

OVER THE YEARS, Linotype's competitive problems have grown and changed with the impact of the processes, and with the envy and inspiration of Linotype's outstanding success, both technically and financially.

Competition, in these discussions, will be carefully weighed and studied in all the phases of product, service and sales activities. In the broad aspects of product and process, Linotype itself was a technological novelty when it came along to replace hand composition. Over the years, competition affecting Linotype's sales activities has had these major phases:

1. Linotype (from 1886) competed with hand composition;
2. Monotype (from 1890) gained a foothold against Linotype, particularly in book work, letter, periodical, and tabular composition, to some degree in non-distribution display—eventually to be matched by improved Linotype faces and today seriously handicapped also by excessive costs of operation;
3. Intertype (from 1913) entered Linotype's immediate field, and today is the only survivor of various slug-casting keyboard machines, all inspired by Linotype's success;
4. Automatic or semi-automatic mechanisms (such as Teletypesetter, from 1925) to speed up the Linotype's output or to use less-skilled operators;
5. Typewriter preparation of type matter for process reproduction (from 1918), first from standard typewriters, now a field for specially designed machines more closely imitating normal, justified type—the basis of so-called "cold type" methods;
6. Photo-composition (Fotosetter, Lumitype, etc.) conceived first in Europe forty years or more ago and currently studied by many engineers, including Linotype—still unproved methods.

Competition is Both Direct and Indirect

WHEN SUCH PRODUCTS and services as Linotype has featured are preferred for their superior qualities by many users, then competition must be doubly ingenious to win business. Such has been the history of six decades following the introduction of Monotype as the first direct competition in mechanical typesetting. Today's most effective competitor, whose machines were originally merely variations of the basic Linotype mechanisms and whose type faces were similarly "adapted" from others, was compelled from his start in 1913 to use every imaginable effort to bore into the Linotype field.

Surviving earlier chapters of business failure and reorganization, and proceeding into later years of more independent research and manufacture, Intertype has been able to place its products in the field on about 1 to 3 basis against Linotype. We believe that the primary reason is to be found in the oft-repeated assertion, "Competition is the life of trade." Their use of that argument among printers and publishers has been known to us as the direct basis of more than one important Intertype order. Their careful nursing of the feeling that the trade should have more than one source of manufacture, service, and new development has done more to establish Intertype than the occasional preferences for their mechanical features or the friendships they have cultivated among buyers.

Our answer to such arguments against "monopoly" has been that Linotype never abused its unique, solitary status; that we didn't set exorbitant price levels during twenty-seven years of our "monopoly"; that we always maintained ample service to our users; that we constantly studied the needs of the trade for improved methods—twelve models of Linotype had been developed and marketed before the first Intertype was made; that the graphic arts field, in terms of basic economy, is too small to support two such similar services in terms of the most economical operation of manufacture, supplies, and service at the lowest possible prices; that duplication of research, development, manufacture, and field coverage must inevitably be paid for by the users of the product.

These sales discussions consider competition as it affects every detail and operating function of our business. Not from Intertype alone, but from process developments and general trends in the graphic arts, come the influences and new ideas that may affect our sales. Your Company works positively to build sales volume by constant study and improvement of its products, by seeking and applying the most effective sales aid and sales promotion methods, and by carefully selecting and training its field representatives.

But your Company would be neglectful, meantime if it were not equally alert to competition in any form and from any source. Every adverse factor in business must be studied, appraised, and made known to all our field forces for their guidance. Thus you will read as much in these papers about these things that may handicap your sales efforts as you will about the ammunition and strategy of sales promotion. Sound knowledge of enemy forces, whereabouts and methods goes far toward the winning of business battles.

You will observe, too, that *from the field* comes much of the information about competitive actions and new developments in trade conditions. The Linotypeman must develop a sensitive reaction and relationship to the normal operations of business in his territory. Then anything abnormal, any new development or un-

usual business item, will immediately "register." In turn, his prompt and comprehensive report of any such matters will enable his Agency and the Executive Offices to maintain the broadest picture of trade conditions as the basis of overall sales strategy and a helpful guide for research in anticipating trade trends.

Consideration of General Linotype Functions

FROM LINOTYPE MATRICES, composed on the Linotype and housed therein, come the slugs that form the printed word. From more than a million different type characters in matrix shape come the infinite varieties of printing in many hundreds of languages.

Thus, in considering what kind of Linotype machine is best adapted to meet a given printing problem, we think of it as providing efficient housing for the necessary assortment of matrices, to assemble these matrices in composed lines, to cast the right body and length of slugs, and to return each matrix to its housing.

These fundamental functions are common to all Linotypes—each assembles, casts and distributes its matrices. But the many kinds of printing problems to be met with our million-plus kinds of matrices have necessitated variations in the capacity and in certain principles of the machines. These printing requirements, challenging engineering ingenuity to meet them, have evolved several variations of the basic Linotype. These differing machines have long been known as "Models."

Some times the trade wonders "Why so many models?" Linotypemen know the answer lies, first in the appraisal of printing needs, second in the engineering skills to meet such needs, and third, in the wide variety of these needs. Actually, there aren't many *different* models. The basic factors of variation in our machine models occur in:

1. Housing matrices—that means magazines;
2. Assembling matrices—performed by keyboard, etc.;
3. Casting slugs—molds, their disk, and ejecting mechanism;
4. Distributing matrices.

Any problem in printing, in any of the hundreds of languages produced on the Linotype, can be analyzed in terms of the above basic factors. An elaborate newspaper composing equipment of a hundred machines, or a single machine for a country plant is first thought out in these terms. Thus, the approach to any equipment problem in Linotype's field is:

1. Matrices? What faces and characters must be provided to accomplish the printed result?
2. Assembly? How shall the selected matrices be run on the keyboard?
3. Slugs? What body sizes are involved and in what lengths of lines?
4. Distribution? Is the product largely straight matter or does it involve mixing?

Housing Matrices requires differing characteristics in the magazines. Variations in sizes from 4 point through a full 36 point or a condensed 60 point call for different widths of magazines. The number of matrices of each character needed calls for longer or shorter magazines. Frequency of use may give them a supplemental relationship that places them in auxiliary magazines. All these variables reduce to:

a. 90-channel magazines—carrying working fonts of normal body types from 4 point through 18 or 24 point;
b. 72-channel magazines—for display sizes through normal 36-point faces;
c. 34-channel auxiliary magazines for supplementary assortments.

These three basic kinds of magazines are further varied in width and in either full-length or half-length construction. Earlier Linotype models carried other styles of magazines—so we must always consider the magazine factor in selling supplies for equipment now in use.

To carry these various sizes and styles of magazines, our standard line of Linotypes divides into these major groups:

1. The body-matter machines—carrying 90-channel magazines in both widths;
2. The display machines—carrying the wide-standard or the 72-channel magazines;
3. The text-and-display (or "two-in-one") machines, carrying both 72- and 90-channel magazines.

The three machine groups each include auxiliary models, being the basic machine plus one to four auxiliary magazines. The basic machine may likewise carry from one or two to four main magazines.

Thus, having resolved a proposed type equipment into the different kinds and numbers of matrices, and then into the magazines essential to carry them, we continue into the question of basic machines needed by determining:

1. How many faces should be constantly available on the machine, in main and in auxiliary magazines, ready for use without change?
2. How many faces can be carried, with secondary availability, stored in magazines on racks?

Assembling Matrices, the second of our basic machine variables, is a keyboard function. For 90-channel magazines, the keyboard must actuate 90 escapement mechanisms. If the machine carries only 72-channel magazines,

or on a machine carrying both 90- and 72-channel magazines, the keyboard also functions with the 72 escapements, leaving 18 keys inoperative.

If the basic magazine plan calls for auxiliaries, then corresponding auxiliary machine models will be required, having a separate auxiliary keyboard and related auxiliary features.

While these keyboard principles are simple, the big variation in printing styles and in languages used have called for the development of over 200 different arrangements of the keyboards, in the placing of type characters.

Casting Slugs calls for many possible variables in that portion of the Linotype. Slug bodies range from 4 to 45 points. Slug lengths are 30 to 42 picas, or any desired lesser length. To meet these variations and to provide for different combinations of matrices (as in food-store advertising) we currently list 39 kinds of molds. Either four or six molds may be carried on the machine as needed.

Any Linotype can be equipped to cast up to 45-point slug body, but the remaining functions of the machine are more directly related to the sizes, styles and purposes of the matrices to be housed, assembled and distributed after casting.

Distribution, in its simplest form, carries the matrices along the bar whose slots, matching the teeth on the matrices, determine their proper return to their own channels in the magazine.

Thus, a single-distributor Linotype performs with one magazine (or one main and one auxiliary magazine) in operating position. If the machine carries up to four main or auxiliary magazines, each magazine may be placed in operating position as desired. But the matrices must be distributed back into that magazine before another can be brought into operation.

Multiple (or plural) distribution provides additional bars so that matrices may be distributed into more than one magazine simultaneously. In certain earlier models of Linotypes as many as four distributor bars were used, with provision for assembling matrices from four corresponding magazines. But modern practice has found it preferable to limit the plural-distributor to two bars and assembling from two corresponding magazines (also two related auxiliary magazines when needed).

With plural distribution *mixed composition* becomes practicable, as in this line, wherein we have roman, *italics,* SMALL-CAPS and **bold face,** ***with bold italics,*** from two magazines.

* * * *

Having now considered the general Linotype functions and the effect of variables, let's look at the standard models that make up the Linotype Line.

The Linotype Line

NEITHER this unit, nor others, are written to supplant the SDB in any sense. Rather they supplement some of its sections. This Unit draws together facts about our own and comparative competitive machines and their features in a manner intended to permit intelligent consideration of the product.

Experience in talking with Linotype (and Intertype) users, years of research in basic principles and the development of new approaches to the problem of producing better printing slugs have made the Linotype of today. Improvements will continue as research and experience point the way in Linotype Leadership.

Model 5 For straight matter composition and in plants where the simplest Linotype is sufficient for the work to be done, Model 5 is recommended. It is a single-magazine, single-distributor Linotype, with one standard 90-channel magazine. It has no raising device and cannot be built up into a multiple-magazine machine. Aside from such limitations, it compares with our Model 31. 90-channel standard magazines from all current models, excepting Wide-Range, are interchangeable.

Competitive: Model A Intertype and more recently the Model "V." These machines attempt to meet Model 5 in its scope and appeal to the trade. Its 90-channel magazine is identical to all 90-channel Intertype magazines. A comparison of Linotype and Intertype magazines will be found later in this Unit.

Blue Streak Comet The new Blue Streak Comet has been designed to fill two real needs of the printing industry, namely the need for a simple one-or-two magazine straight matter line machine, and the need for a machine capable of producing slugs at high speed in conjunction with the Teletypesetter, and with or without the Self-Quadder. The Blue Streak Comet fills these two needs admirably.

The machine is a two-magazine machine, but could be furnished minus one magazine ~~and escapement, the frame remaining~~. It uses standard 90-channel magazines, mold disk, molds, etc.

Competitive: There is nothing in the Intertype line that will compare with the Comet.

The most recent attempt was the Model "V" originally introduced to compete with our Model 5, and later speeded up without much success. It is a single-magazine machine.

Model 31 For plants where additional faces are constantly needed, ready for the operator, Model 31 offers greater capacity than the Model 5—not in type size, but number of magazines instantly available. It is a four-magazine, single-distributor machine. However, it is

available with either four, three, two or one standard 90-channel magazine. Equipped with elevating mechanism. Non-mixer.

Competitive: Model C Intertype. Supplied either as a four, three, two or one 90-channel magazine machine, its capacity practically matches Model 31. Such Intertype features as compete with Linotype features are discussed later.

Model 32 The addition of auxiliary magazines to Model 31 frequently solves production problems where extra characters or other display matrices are required. Model 32 does this and is the equivalent of Model 31 with auxiliary magazines added. Available with either four, three, two or single 90-channel magazine, plus either four, three, two or one 34-channel auxiliary magazine. Other specifications identical to Model 31, both as to capacity, construction and features.

Competitive: Intertype Csm. ("SM" means side magazines, their terms for auxiliary magazines.) The same comments (as above) apply to Csm as compared with Model C.

Model 29 We offer a mixer, or multiple-distributor Linotype to handle mixed composition and alternation of faces from pairs of magazines—plus continuous distribution. In capacity, Model 29 is the same as Model 31 (which, however, is a single-distributor). Available with either four or two standard 90-channel magazines, or 72/90 (two-in-one) arrangements—two pairs or one pair or one 72- and three 90-channel magazines which permits mixing from the adjacent 72- and 90-channel magazines. Other than being a Mixer, its features are similar to Model 31, as commented on above.

Competitive: Model F Intertype. Just as Model C Intertype claims equality with Model 31, Model F lays claim to matching our Model 29.

Model 30 Plants that find the need of auxiliary magazines to house added characters when mixing (such as scientific or special characters, or extra font capacities) find Model 30 an economical production unit. In the same way that Model 32 compares with Model 31, by the addition of auxiliary magazines, Model 30 adds auxiliaries to Model 29. Mixing from the top pair or bottom pair of auxiliaries with either pair of main magazines can be done as required.

Competitive: Model Fsm Intertype. The Model F Intertype, built with side magazines, the claimed equivalent of Model 30 Linotype.

Model 33 The introduction of our wide-standard magazines, to allow larger sizes of matrices to be keyboarded, became the basis of the series of big machines. In the single-distributor style they are called Wide-Range Linotypes, the simplest of which is Model 33, a four-magazine, text or display Linotype. It may be furnished with wide 90-channel magazines, which are 5¾ inches wider than the standard magazines and will carry matrices through normal 24 point and condensed faces up to 36 point. Or it may be equipped with four wide 72-channel magazines which will accommodate matrices through normal 36 point, as well as full fonts of medium-condensed 42 and 48 point. Both 90-channel and 72-channel magazines are identical in width. But Model 33 is *not* made as a 72/90 (or two-in-one) machine. It is available with four, three, two, or one magazine but best serves its special function when fully equipped.

Competitive: None. (See Model G Intertype vs. Model 35.)

Model 34 The Wide-Range Linotype can be augmented by auxiliaries so that it becomes, when equipped with six-mold disk, as one customer said, "a veritable type foundry." Model 34 is a Model 33 with auxiliaries. Main wide magazines four, three, two or one and auxiliaries from one to four as required. Model 34 can be furnished with either 90- or 72-channel main magazines as specified, but *not* as a 72/90 machine. And it is not a mixer.

Competitive: None. (See Model Gsm Intertype vs. Model 36.)

Model 35 The mixer styles of the big Linotypes are called Wide-Range machines. When display composition requires the mixing of faces from two magazines, our Model 35 stands at the top of the class. It is in every sense a Wide-Range Linotype. Its capacity is the same as Model 33, but it is a multiple-distributor machine. Model 35 is a 72/90 (two-in-one) mixer model display Linotype. Its wide magazines are 5¾ inches wider than standard magazines and both 90-channel and 72-channel magazines are the same width. The 90-channel magazines accommodate normal 24 point and the 72-channel through normal 36 point and larger condensed faces. Model 35 is available either with four or two magazines (two pairs or one pair) and mixing can be done from the upper or lower pairs (when a four-magazine version). Also available as four, or two, main wide-standard 90-channel magazine machine (instead of regular 72/90 machine).

Competitive: Model G Intertype. This machine is built as a mixer, combining their standard-width 90-channel magazine with their wide 72-channel magazine. The latter is 2½ inches narrower than our wide-standard magazine. Mixing is done from upper and lower pairs of magazines (when arranged with four magazines), although Model G can be procured with but one pair of magazines (one standard 90-channel and one wide 72-channel), the same as our Model 35.

Model 36 The most comprehensive machine equipment made by Linotype is Model 36 Wide-Range. It is the equivalent of Model 35 with auxiliaries added. It is a mixer, and like Model 35 is available either with four or two wide main magazines and from one to four auxiliaries. Mixing from upper or lower pairs of main magazines (when four are provided), combined with either pair of auxiliaries (when there are four). Also available as four or two main wide-standard 90-channel magazine machines (instead of regular 72/90 machine).

Competitive: Model Gsm Intertype. This is the Model G Intertype with added auxiliaries. Available either with two main magazines (one standard 90-channel and one 72-channel wide magazine) with one to four auxiliaries, or four main magazines (two pairs as above) with one to four auxiliaries.

The Competition of Ludlow or Monotype With the comments on the Wide-Range Linotypes we have noted the immediately comparable Intertype models. In our sales efforts the direct competition of Intertype is most frequently encountered, but both Ludlow and Monotype must often be combatted. While their material-making equipment (Elrod and Monotype strip-making) is non-competing with Linotype, their composition facilities must be fully appraised as sales factors.

Ludlow, in the newspaper field and in certain commercial plants, competes with our big machines and with any of our display equipment—but never on the composition of body matter.

Monotype, now generally recognized as the more costly to operate, competes with Linotype on body matter only for more complicated composition (tabular work and the like) or through occasional preferences for a Monotype face. Monotype's system of non-distribution handling of display begins with type sizes upward from 18 point. But Linotype's range of sizes up through normal 36 point (or certain 42- and 48-point faces) has caused Monotype to accent their sales effort in bigger sizes, in competition with Ludlow. Thus from 36 point upward through 72 point, on both machines, and with a few banner-line faces and big price figures up to 144 point on the Ludlow, our interest focusses on the Linotype range of sizes. But both Ludlow and Monotype will always try to demonstrate their adaptability to the sizes that we know are best handled on the Linotype keyboard.

On the element of printing quality, Ludlow slugs (often deficient as to clean printing surface) suffice for newspaper needs and for some kinds of job work. Ludlow sells a slug surfacer which smooths the face of the slug and reduces inequalities in height to paper. But it also thickens some of the type face details and increases the danger of smudgy shoulders coming up in print. Ludlow's type faces have been improved in recent years, but in most families they are not identical in design with equivalent Linotype faces.

On competitive printing qualities Monotype no longer claims superiority over Linotype, in body composition, though they once made much of this factor. They make some claims for the use of a harder metal when long runs from type are involved. But the tendency of Monotype spaces to work up during press runs and the added difficulty of handling Monotype in correcting and makeup are well known throughout the trade.

Monotype's display system makes its user virtually a private type foundry—with all its attendant costs. The types are cast individually, must be inspected, then laid in cases. From there on they are handled like foundry type, with all the costs of hand composition—except that, when the form is broken up, the Monotype is dumped like Linotype slugs. Then the cycle repeats and in these days of high and higher costs such type facilities cannot be justified against any flow of copy within the range of the Linotypes.

With less emphasis today on the physical differences or technical advantages of one system versus another, the Linotype salesman finds himself deep in the economic factors that mark the plant he is trying to sell. Today's wage rates have so multiplied the value of any savings in production that investments in equipment become more graphically justified.

The Number of Faces In Regular Use In the newspaper composing room and in many commercial plants, the basic factor in production costs is the total number of faces regularly used. The "perfect" production set-up is to have each one of these faces carried in a magazine on a Linotype, ready for immediate keyboarding. Also the heavy-volume faces, such as news and classified, will be duplicated on enough machines to provide for peak loads.

The "perfect" production set-up can be readily achieved with news, classified, and heads. In these departments the competition comes from Intertype. 95% or more of most newspapers is set on the keyboard in sizes up to 36 point. But the relatively few lines of big type for largest heads, banner lines, and ad display are essential in production—then the introduction of Ludlow or Monotype competition spreads the argument back over the lower sizes.

"Eliminate Hand Composition" is the slogan of cost-conscious newspaper executives (and commercial men, too). "No 18-, 24-, or 30-point lines should ever be hand-set. Get these sizes—and larger sizes where volume runs high—out of cases and put them on keyboards."

We must recognize that both Ludlow and Monotype are strictly in the hand-composition category. Both require hand operations that are slower by far than keyboard composition. While either may claim lower *first*

costs for equipment to set a given number of faces, today's composing-room wages have greatly increased the penalty paid for hand operations. A production saving of 10 or 15% might mean, say, 25 cents an hour per man. Applied to ten men that totals around $5,000 a year for the average one-shift operation, or $10,000 on two shifts. Such figures, properly demonstrated and substantiated, go a long way in the sale of equipment that will make such savings.

One plant executive, whose satisfaction with Wide-Range Linotypes makes him an enthusiastic endorser, says: "Where 18-, 24-, and 30-point sizes are being hand-set" (meaning by Ludlow or Monotype) "in an ad alley employing 15 or more hand compositors, three or four Wide-Range Linotypes, properly equipped and used, will cut that force to a point where the machines will pay for themselves in about three years." That comment bears out the figures quoted in the preceding paragraph.

"But," says this analytical exec, "it's important to recognize that these savings cannot be shown by putting some of the faces in magazines on racks, to be changed every time they are needed. Anyone considering such an installation must think big. In plants getting out 400 or more pages a week, don't figure on two or three of the big machines, but plan a half-dozen or more."

Such planning and such selling must necessarily be built upon analysis. Detailed surveys of faces in use, numbers of lines set by all methods, and flow of copy—all become the material for a presentation of the economical keyboard method of production.

Linotype Features Sell Machines

WHEN ONE DESCRIBES the various Linotype models and their points of similarity or difference, it will be found that much space is devoted to what we call "features." Discussions with prospective buyers usually center here—this point of superiority, that improvement, another safety, and so on. Claims of the competitor produce questions which must be answered. When the Blue Streak Linotype was first offered to the trade, we enumerated many points of superiority. Intertype promptly countered with a list of 101 Intertype features (old and new).

Linotype men must *know:*

their Linotype
its features
their competitor's machine
their competitor's claims
how to equip each Linotype model to produce specific composition
how to create economies by using the right Linotype model

The following columns are devoted to a discussion of Linotype features, so that these objectives may be attained. We start with the keyboard and follow with assembling, casting and distribution. Competition, in the comparable features of Intertype machines, is summarized, item by item, from the studies of our organization and from notes gathered in the industry from machinists and operators who are familiar with both Linotypes and Intertypes, the construction, operation, and maintenance of each.

We proceed through the machine from the first positioning of the magazine to give us the desired size and face. Attachments are discussed later.

Linotype Magazines Two widths of main magazines—the Standard and the Wide-Standard, the latter being used on Wide-Range models, are available in full-length and splits. Wide (34-channel) auxiliaries are uniform on all Linotypes equipped with auxiliaries and these, too, are available in full-length or splits.

Standard magazines are now constructed with brass lower and Linolite upper plates, this method of construction having been adopted during the last war and retained because of the more satisfactory operating results than the full (both plates) Linolite magazines. This decision was made at a slight sacrifice to the weight-saving present in previously made full Linolites, but gave better performance (some users claimed) than for all Linolite.

Details of design of our standard (90-channel) magazine may have changed during the years, but the fact that they are still interchangeable with others on practically all models (except 9's) in the field makes them the most universally used wherever one goes.

Linotype Escapement Through the years the efficient Linotype escapement has proved its fundamentally sound design by trouble-free operation on Linotypes under every conceivable condition, the world over. Whether in the separate escapement assembly or (in the Wide-Range Linotypes) built into the magazine, the Linotype escapement is identical in its design and decidedly superior to Intertype. On the Linotype, the pawls which stop and then release the matrix are designed to move vertically against the path of the matrices. They always present a face that is vertical and positive—no matrices come over the pawls into the assembling elevator because mats in the channel have been hit by those following in distribution. The pawls are rigidly supported by bronze banking bars, which act as shock absorbers for the continual pounding of oncoming matrices, and hold the pawls in exact alignment. The pawls move in a ball-and-socket bearing which insures minimum friction, dependable operation and low maintenance cost.

Competitive: Intertype uses a two-piece, rocker-arm style of escapement for which they claim "simplicity." But this design was used and discarded by Linotype before the first Intertype ever left their

factory. Its major fault is that occasionally mats come over the verge during distribution and fall on into the assembler. When that happens the magazine must be removed and the offending spring or verge be changed. Many operators feel that the Linotype response to keybutton touch is faster and more uniform than on the Intertype.

Of course, all Intertype magazines have built-in escapements—another feature which was forced upon them when they entered the field. We limit the use of built-in escapements to Wide-Range machines (on account of their extreme width).

The relative capacities of the standard Linotype magazine and the regular Intertype magazine are practically alike. But, when it comes to our wide-standard magazine as compared to Intertype's wide magazine (used on Model G), we have an advantage. Ours is some 2½ inches wider at the lower end and will take normal 36-point matrices, thus accommodating wider faces than Intertype. The only radical difference in construction between our standard and wide-standard magazines is the fact that built-in escapements are used.

And now a few words about the use of plastics or other synthetic light materials in magazines. Intertype has made some commotion about their Visilite magazine top plate. It has been a good publicity stunt—if it will stand up under normal usage. The experiments our research department conducted, considerably before Intertype came out with their plastic-top magazine, proved to us that climatic changes and conditions did queer things to plastic plates. And, since we know what warped magazines will do (or not do) to operation, we were forced to the conclusion that dependability was worth more than the slight saving in magazine weight. The factor of visibility has been emphasized beyond the point of credulity. When buried in a stack of three or four magazines, what happens to visibility? It is reminiscent of the question, "What happens to a man's lap when he stands up?" No, visibility isn't the answer in materials for magazines. First of all, they must be built with plates that become exact biplanes in the magazine, and they must stay that way for years and years. Second, the channels must be non-resistant to the gravity flow of matrices. Third, they must be sufficiently light to permit easy handling.

And that's what Linotype magazines assure users.

Inbuilt Magazines Supporting Arms Since Blue Streak Linotypes have become the standard of the world in composing machines, their inbuilt arms have come to be accepted as a matter of course. They are so convenient, so dependable, that they are most appreciated when operators must use machines of earlier vintage.

The vertical lift, which has long been appreciated by users of Linotypes as a health saver, is another feature that ties into the functions of the inbuilt arms. More than one operator can thank Linotype for the fact that he isn't walking about with a hernia caused by the "belly lift" of the competing machine. Such features seem to be accepted by users as typical of what Linotype has always tried to provide for their comfort and safety.

One-Turn Shift This exclusive Linotype feature came to Linotype operators as a welcome relief from the earlier almost endless turning of cranks to which they had been accustomed. It is the best, the quickest, and the surest means of magazine shifting by one turn, whether manual or electric. Its Unit-Control, on auxiliary magazine machines, is simple and effective. All multiple magazine Linotypes use this positive and reliable shifting mechanism—only one thing to learn and simple to the ultimate. Too much stress cannot be placed on the time-saving possibilities in a battery of Linotypes, thus equipped, wherein all magazine shifts—single distributors or mixers, display or two-in-one machines—all function alike, easy to operate and simple to maintain.

The One-Turn Shift construction protects matrices, magazines and machine from damage due to careless operation. For instance, if the distributor has stopped and matrices remain on the bar, all unnoticed by the operator, the shift cannot function until that stop is cleared and the mats are run off the bar. The matrix guard over the lower front distributor screw is movable, and the first action of unlocking lever is to move that guard back over the screw. If mats remain on the bar—one or a dozen—the shifting mechanism does not unlock and the operator receives notice that the distributor needs clearing up. Thus wrong fonts are prevented as the mats must be distributed where they belong before a magazine change is made.

A matrix partly protruding from the delivery end of the magazine, when a shift is to be made, will produce much the same stop. Matrix guard strips just above the magazines at the front do the detecting job and prevent magazine movement until the obstruction is removed.

These two safeties have a common linkage. And there is still another safety, on the same linkage, which prevents an untimely magazine shift even with the distributor running. It is a guard at the distributor box that halts unlocking if a matrix, one or more, remain in the box, due to wrong font or damaged matrix.

The One-Turn Shift is a cardinal selling point.

Competition: Intertype uses a manual shift on certain models and the "Autoshift," a complicated elec-

trically driven mechanism, on others. Their Model C, single-distributor, carries a crank-operated shifting mechanism which requires three turns of the crank to go from one magazine position to another. The first turn opens the channel entrance, and the next two turns act through a chain, connected with crank and pinions and a shaft under the magazine frame, to move one magazine into operating position through two gear-tooth racks on the sides of the magazine frame. While the action is positive it is cumbersome compared to our One-Turn Shift, and it fails to close the channel entrance if carelessly operated.

On a Model C equipped with side magazines (auxiliaries to us), the magazine shift handle is switched to either stack of magazines, corresponding to our Unit-Control.

For the Autoshift, used on mixer Intertypes, they claim "no turns of a handle are necessary—no physical effort is required. The operator simply moves a control knob and the machine does the rest." But they don't add that this complicated mechanism sometimes gets out of order—when no alternate manual shifting of magazines is possible—and the whole machine is down until repairs are made.

The Autoshift gets part of its power drive from the intermediate shaft and part from a special electric motor (or two such motors if the machine carries side magazines). Their sales literature features "independent sources of power, eliminating many complications which would otherwise be involved, and smooth operation is insured by means of a worm drive." The channel entrance opening and closing, which precedes and follows magazine shifting, is driven with power take-off from the intermediate shaft. Says one machinist: "It's a lot of machinery!"

Says the same man: "This should be the ideal setup for changes of type face and size, but doesn't seem to meet with universal approval. It is double operation. To change, with the Autoshift, from the top pair of magazines to middle or lower pair, on a mixer Intertype, first open the channel entrance, controlled by a lever at the side just above the keyboard. While opening the channel entrance another function of this mechanism is to withdraw the lower magazine several inches from its position over the keyboard key rods. No change can be made until both above described actions are complete. This operation is speedy.

"Now seat the operating lever for the motor switch in the proper position, close the switch and the magazines start moving. But there is *no* speed there. The magazines move slower by this method of changing than by any other known.

"Also, the construction of the magazine-moving mechanism is too light and, not infrequently, failure of some part of it puts the machine out of operation. Such failure, usually in the magazine-moving mechanism, leaves it impossible to move the magazines manually. The breakage is apt to be in the rack, link or pinion which are part of the Autoshift, and replacement is a major job.

"After your magazines have moved and are properly seated, then the operator must close the channel entrance by another pull on the same lever used for the opening. Now he is ready to set type."

To accomplish the purposes of the safeties designed by Linotype, the competitor features his "Mat-Traffic Light." A small electric bulb, on a 10-volt circuit, is located next to the channel entrance lever and control knobs. The circuit includes the distributor system and the lamp lights when the shifter is withdrawn from the distributor box, and stays lit until all mats clear the bar. But it does not indicate mats caught in the channel entrance and failing to slide down into the magazine.

It is mechanically possible, on mixer Intertypes, to change the position of magazines while matrices are distributing. Under such faulty procedure, the channel entrance opening would stop the distributor but the magazine change would be completed—resulting in serious wrong fonts when the matrices in distribution were then returned to the wrong magazines. This cannot happen on mixer Linotypes.

Linotype's One-Turn Shift remains the cardinal selling feature against either the Intertype manual shift, with its three turns, or their Autoshift, with its tricky mechanism and its added first cost and maintenance exasperations.

Now, with magazine in operating position, we consider the keyboard and its related mechanisms.

Linotype's Swinging Keyboard An outstanding feature of Linotype for a number of years has been its Swinging Keyboard, which permits accessibility for inspection, cleaning, maintenance and repair without removal from the machines. This applies to both the main and power-driven auxiliary keyboards and is exclusive with Linotype. The obvious results of easy inspection are fewer operating worries which might be caused by neglect of keyboard mechanisms—a common nuisance with machines that do not have swinging keyboards. Not to mention reduction of delays in making necessary repairs.

When the Linotypeman can demonstrate with an available machine, the accessibility of the Swinging Keyboard and its resultant advantages are simply and dramatically shown. By the disconnecting of the assembling elevator lever, the loosening of one screw, re-

moval of the keyboard driving belt—as quick as we write it down the keyboard swings out. Simple! Then keyboard cams may be removed, singly or as a unit; rubber rolls removed, cleaned and replaced; weights removed *as a unit*. All of these operations of cleaning and replacement can be performed in much less time and much more efficiently than on the fixed-position keyboard of the Intertype. Cleaning of the machine back of the keyboard is also quick and simple—virtually impossible otherwise.

Keyboards for auxiliary magazines swing out the same way, with the same easy and many advantages for maintenance.

Main keyboards on current Linotype models are uniformly built with ninety keys. When machines are equipped with 72-channel magazines, the keyboard still carries ninety keys, but the excess keys are locked out, thus eliminating the objection that some operators have to special 72-channel keyboard layouts.

The Linotype keyboard arrangement of characters is the result of careful study and analysis of their frequency of use and ease of operation. Its designers applied scientific principles when the Linotype was produced to replace hand composition. Following the same principle that had made the hand-type case layout universally used, those characters most often used were placed within easiest reach. But, bear in mind that while hand-compositors had used only one hand to pick type from the case, here was a mechanical device which would permit both hands to assemble characters. The result was the Linotype Keyboard, which today is recognized in more than a hundred countries as being the best basic arrangement of letter characters ever devised.

Every so often, we hear the question, "Why don't you folks adopt the typewriter keyboard?" The usual thought seems to be that any experienced typist could run a Linotype, provided a typewriter keyboard were used. Of course, there are many good reasons why the Linotype keyboard has proved to be not only acceptable, but necessary to the production of the broad variety of composition that printers must have.

True, this versatility could be limited and the product of the forty-odd typewriter keys suffice for some kinds of composition. But we know what our machine is called upon to produce and it is our job to conform. How many operators will agree that fewer keys would produce more lines?

There are those who believe that there may be a market for typewriter keyboards for Linotypes. There might be strike conditions when typists could be brought in and composition of a sort produced if typewriter keyboards were used. The Type-O-Writer, which is now being made by the Kellogg Switchboard & Supply Company, is one. This equipment operates with electrical magnets to transmit the keystroke from the Type-O-Writer character to the corresponding character on the Linotype. It is placed directly atop the Linotype keyboard. We are not aware of any others presently being offered for sale, but we have had knowledge of efforts from time to time.

Standard keyboard diagrams meet the requirements of average composition problems. To take care of special conditions, an understanding of layouts is necessary, both for English and other languages. This information is available in Sales Data Book and supplementary instructions.

Keyboard construction is based upon design and development intended to give uniform action and "touch." However, certain operators will be found who declare that the keyboard action of one machine or model may seem easier or harder than another. Some will say they prefer Intertype keyboards for easier operation, while others will declare Linotype keyboards much better. Perhaps you have heard similar discussions concerning the driving ease of one make of cars over others. There may be an element of prejudice. In any event, Linotype keyboards are well-designed, well-made, and carefully tested after being assembled. They have the general preference among operators.

Power-Driven Auxiliary Keyboard When Linotype announced a change from the single keyboard (to control main and auxiliary magazines) which had been ours for years, the question was asked, "Why?" And the answer is just as simple as the question: Times have changed. The requirements of printers made upon us have been increasing year after year. Printers must set more complicated composition, requiring many special characters and layouts and the matrices must often be housed in auxiliary magazines in order to supplement main magazine layouts. Display composition, too, has become the ordinary practice on Linotypes in many plants. All of these conditions combined to make the power-driven auxiliary keyboard a desirable departure from the old single keyboard. So we changed, in order to give the printers what we felt they now need.

Competitive: Intertype has always had the separate auxiliary keyboard. Patent considerations forced them to make it so—that's the only reason. Like ourselves, the pressure for greater versatility in machine competition makes the power-driven auxiliary keyboard a desirable feature for them.

Among their claims of superiority, Intertype again makes a virtue of necessity by stating that "all parts of the keyboard are easily accessible for inspection and removal without moving the keyboard out of its fixed position on the machine." Never-the-less they have made many changes in recent years, seeking to improve the keyboard feature: cams have been made more readily removable by putting a pin through the yoke end and a

slot machined in the back of the frame to fit the pin. A clamp, with latch fastening, holds them in place. The banking bar for keyboard weights is now quickly removable. Screws formerly used at each end to hold it have been changed to latches making the weights, when the bar is removed, with keyboard on the machine, visable for their entire length in a sort of "worm's-eye view" when looking at them from the back of the machine. The weights may be given a solvent bath for cleaning them. But no weight may be removed under these conditions. All of which makes a feeble counter-argument to the facility of maintenance with Linotype's Swinging Removable Keyboard.

On mixer Intertypes, using 72/90 combinations, there is a keyboard detail of design which makes 75 channels of matrices available for the 72-channel magazines. This permits the adding of em-, en-, and thin-space channels of the lower (90-channel) magazine to the capacity of the 72-channel magazine. While Linotype salesmen have been prone to discount the value of this feature a friendly machinist says "it's the only good feature of that keyboard." If you are backed into a corner on that one, the plausible evasion is that 72-channel composition has less need for the subtleties of spacing—then switch the subject to:

Linotype's Em-, En-, Thin-Space Release Quite distinct from the Intertype feature mentioned in the preceding paragraph, Linotype's provision for spacing problems is incorporated in these three small buttons at the top of the keyboard. When any one of them is moved into operative position it causes a corresponding space matrix to drop automatically when the spaceband key is touched. By this means, in setting larger sizes, the capacity of normal spacebands may be augmented to attain suitable word-spacing. This automatic function is a real time-saver.

Rubber Rolls This is a small, but controversial part of Linotype keyboards. Some users like one kind of rubber roll and the next one will not have it in his plant—he wants a slightly different brand. So, we have several from which to choose. We believe them to be good rubber rolls which will last almost in proportion to the kind of care given to keyboard cam action.

Assembling Entrances on Linotypes are designed, both for mixers and single-distributors, with the one idea of getting the matrices to the assembling elevator by the shortest path and in as many direct lines thereto as possible. No obstructions are built in their path of travel from the end of the magazine to the assembler belt. They do not need to fall between groups of keyboard keyrods to reach the guides that keep them in position while falling, and they encounter no hindrances.

Competitive: On the Intertype, assembling entrances (front) have much in common with Linotype on their non-mixer models. But Intertype mixers have a decidedly complicated method for getting matrices from magazines and through keyrods and assembling guides to the front and to the matrix delivery belt from the lower magazine. To forestall criticism on this point they, at an earlier time, were quick to point out that mats from either magazine were the same distance from the assembling elevator, seeking to convince the buyer and operator that there could be no transpositions in operating due to a time lag in the drop of a matrix from either magazine. But experience seemed to prove that no operator could detect any difference between machines in this respect, and with the introduction of Model G Intertype they have good reason to abandon this argument. In the G, the extra guides required to control mats at the extreme right of the upper magazine set up interference with mats falling from the last six channels at the right side of the lower 90-channel magazine. These guides need frequent adjustment, and when the G carries side magazines the trouble is further aggravated.

Linotype Adjustable Star Wheel To insure the proper assembling of matrices, we have recently introduced a new permanent adjustment for setting and maintaining star wheel friction.

By the use of a square stud in the star wheel assembly, which fits into the square hole in the star wheel, we have succeeded in maintaining the friction under all operating conditions, once it has been set. To change the tension of the star wheel friction, the star wheel is removed and the square-headed stud turned by hand, or by the use of the star wheel to the desired tension. The star wheel is then replaced, the tension adjusted and cannot change. Adjustment is made from the front without removing the assembler.

Competitive: The Intertype star wheel must be adjusted from the back of the assembler, not so convenient as on the Linotype, nor so sensitive and positive in control of tension.

Linotype Two-Speed Assembler A feature of the Wide-Range Linotypes which has made the assembling of either large or small matrices equally easy and accurate. It was designed to take care of the extra distance of assembling caused by the Wide-Standard magazines and has done a splendid job. Recent modifications of the shift drive (from slow to fast and *vice versa*) makes the action positive and faultless functioning. An exclusive Linotype feature.

Competitive: The Intertype assembler is driven with one long belt, running over a series of pulleys and making a right-angle turn to a pulley on the intermediate shaft. On single-distributor Intertypes one of the idler pulleys used to change the direction may be moved to tighten the belt. On their mixers carrying auxiliaries that adjustment is still there, but it is completely covered by the electric switch and linkage for the channel-opening mechanism. Belt adjustment with the idler pulley becomes virtually impossible—the practical solution being to cut a piece out of the belt to tighten it. Replacing the belt on a mixer is time-consuming and annoying because of inaccessibility of the intermediate driving shaft—a much condemned feature of design among machinists.

Linotype Optic Aid Front This feature, which was introduced when Blue Streak Linotypes were offered to the printing industry, has become such a recognized advantage that Linotypemen frequently find home-made substitutes to shield moving parts from the operators' vision. Whether its optical or its psychological effects are more important to users is unimportant, perhaps. The fact remains that a feature at first intended to improve the appearance of Linotypes quickly proved to be popular among operators who found relief from eye-fatigue due to causes that they previously had not realized. The Optic Aid Front, while now an accepted advantage, is still a good talking point.

Competitive: When Intertype "streamlined" their machines some years ago they also recognized the advantage of covering up whirling pulleys within the operator's field of vision. The score is even on this point.

Spacebands There is a spaceband for practically every composition need. We have five styles: extra thin, thick, extra thick, wide range and special taper. For years, Linotype spacebands have been highly rated by the industry.

Extra Thin spacebands are made for close spacing and are recommended for offices doing good book and job work and those using small faces.

Thick spacebands are those in general use and (unless otherwise specified) are supplied in new Linotypes, as well as on supply orders. They are designed for normal spacing of medium size faces where close spacing is not required.

Extra Thick spacebands are recommended for large display faces where wide spacing is required.

Wide Range spacebands give extreme flexibility of spacing. They are thin enough for close spacing, with ample range of expansion for wide spacing.

Special Taper spacebands are similar to the Wide Range but a little thicker at both minimum and maximum points.

The effect which the new process called *"Linolizing"* will eventually have upon the use of spacebands will be fully known after sufficient time has elapsed following its introduction.

Competition: The nature of the spaceband made it one of the first items to be undertaken by the "bootleg" manufacturers who continue to try to cut in on the market for genuine Linotype parts and supplies. Before the recent war, bands made in Germany were imported and sold "at a price." A New England machine shop made bands for several years, and today spacebands variously made are offered across the country. Perhaps we should appreciate these efforts because improperly made spacebands, with dimensions even a few thousandths off, can ruin matrices and machine parts—many a substantial supplies order can be traced to that cause. The Linotype salesman who urges genuine Linotype bands insistently is helping his customer quite as much as his Company.

Automatic Sliding Line Stop prevents the matrices from spreading when recasting, and if the matrices are in the raised position in the elevator jaws, it keeps the end matrix from falling sideways to the left when the elevator slide is on its upward movement.

Linotype Duplex Rail in the assembling elevator embodies the essence of simplicity in design. It has just one function—to hold the matrices assembled on the duplex rail in the assembling elevator when mixing roman and bold faces, or roman, small caps, and italic words, as frequently needed in many kinds of composition. When such lines go in for casting their position must be held, and it is. After casting, the matrices must return to a common level for distribution—and they are. Sounds complicated—but it isn't. Just before transfer that rail is withdrawn in a single backward movement and the matrices drop, by their own weight, to the common level. The rail is not moved in either direction toward the ends of the jaws, but is pushed straight back. Something else on the Intertype:

Competition had to find some substitute action for the direct forward and backward motion of Linotype's duplex rail in the assembling elevator. Their solution, with a sliding action in two directions, is "mechanically indefensible," says a machinist, who

adds "furthermore, it requires a lot of attention and when replacement is required it is usually a major job of fitting parts."

Linotype's Short Line Safety is a preventive of trouble due to operators sending in short lines. They will not cast. It not only protects the operator but assures uniform production.

Linotype Molds and Mold Disks The advantage of Linotype mold design has been outstanding for years. Linotype molds are superior to Intertype molds in the following respects:

Greater Facility of Liner Changing: Intertype liners are held in place at each end by clamps and screws. A special wrench is needed to release them. Then the mold cap must be removed before the liner is accessible. After the liner is changed the whole process must be repeated in reverse with special care taken to line up the screw apertures.

Linotype liners may be changed simply by loosening the mold cap screws in the mold disk with an ordinary screw driver, slipping out the old liners, inserting the new, and tightening the mold cap screws.

Less Susceptible to Warping: The Intertype mold cap is long and thin. The equivalent Linotype part is thicker and hence better constructed to resist warping. In addition, the Linotype center screw supplementing the two end screws lends greater support than the Intertype two-clamp arrangement.

Less Susceptible to Adhesion: All new Linotype molds are Linolized at no extra cost. This coating which becomes an integral part of the base metal has proven to be effective in reducing type metal adhesion. The Intertype coating, pentrate, has made no appreciable difference as far as the adhesion-resisting properties of their molds are concerned, according to our tests and field reports.

No Liner Inserts Required in Six-Mold Disks: The necessity of buying this extra part is completely eliminated in the case of Linotype Six-Mold Disks.

Competitive: Intertype's listing of features says: "Merely by loosening two swivel bolts, mold caps can be quickly removed so that liner changes can be made." We may add that the caps are awkward to handle, especially when hot, and the risk of dropping and damaging the cap is always present. Liner changes are an excellent Linotype talking point.

Linotype Universal Ejector Here is a simple mechanism performing one of the biggest jobs on the machine. It delivers the finished product, any length from 4 ems to 30 (or up to 42), in any point size from 4 to 45 points thick, and it keeps on doing it with minimum attention and rare need for any repairs. In plants where machines receive systematic upkeep the machinists don't pretend to remember when a Linotype Ejector has needed repair. The blade segments usually start with 4-em sections at the bottom and 2-em segments take the entire assembly on up to the maximum measure. Segments are of the finest steel, rigidly held by guides until the slug is pushed from the mold. Setting the ejector for change of slug length according to liners in use is provided through a convenient lever, operated by the left hand, with an indicator in the face plate showing the slug length to be ejected. This lever cannot be accidentally moved as its catch meshes and is locked in a toothed rack in any desired position.

Linotype's Auto-Ejector Set provides automatic ejector setting when molds are changed with a turn of the disk. When the mechanism has been pre-set to the measures in the molds, either four or six, the ejector automatically changes thereafter with each mold change. This safeguard against the operator's possible forgetfulness and a resulting smashed liner is particularly valuable on six-mold disk equipped Linotypes. And the universal design for four or six molds is a further operating advantage.

Competitive: Intertype listings of claimed superiority in features omit reference to their solid blade ejector, a design which Linotype abandoned many years ago. Says a machinist: "The change from one Intertype blade to another is mostly a two-handed operation. Construction is much too light. Master blade will slip at times between blades in the blade box and bend the right-hand blade box cover. A wrong blade in position will not infrequently stick against a broken liner when ejecting or become imbedded in the broken slug, with the result that the key end of the blade and occasionally the key of the master blade is snapped off. Every Intertype user keeps these two items on hand."

The twelve blades in the Intertype ejector are not sufficient in number to provide for all slug measures between 4 and 30 picas as does the Linotype Ejector, thus adding to ejection problems on certain measures.

Intertype's six-mold equipment includes an automatic ejector setting device, thus differing from their four-mold equipment.

Linotype Knife Block Rugged, simple construction makes this vital mechanism dependable and trouble-free. The left-hand knife is bolted to the vise frame—the only method used by linecasting machine builders throughout the years. But in the mounting of the movable right-hand knife and in its rigid support Linotype design is vastly superior. When thicker slugs became a feature of Linotype development, the earlier two-point support of the moving knife (at its ends) was found in-

adequate for accurate trimming. A third bearing was introduced, adding rigidity and dependability. Intertype continues to use only the two end supports.

The Linotype Knife Block also provides for making individual settings for every slug size (5 to 45 point). Simple screws can be turned to get a trim either fatter or thinner on every setting, and these screws can be locked in position. There is no micrometer block to be moved for one altered size and then forgotten after a change until somebody complains to the operator about a lot of bad slugs. Another feature provides for ejecting overhanging slugs without trimming, an important aid in handling food-store and similar composition. The right-hand knife is set to trim the small-size slug—then when an overhung line comes through a quick-opening lever pushes the knife open out of trimming position and the slug is ejected without damage to the overhung characters. If the next slug is to be trimmed the lever is pulled back and no settings have been disturbed—slug trim remains exactly as before. This is a strong competitive feature.

Competition: The Intertype Knife Block is designed with two pieces of tubing, one bronze, the inner member bearing on the outer tube by screw threads cut on each. Changes in slug thickness are thus controlled by the movement of the tubular piece to which the right-hand knife is attached. Slots cut in the outer tube provide stops for the various settings of slug thickness in points, from 5 to 48 point. There is only one setting of the right-hand knife for each slug thickness as contrasted with Linotype's individual flexibility when desired. For variations from standard thickness Intertype provides an attachment on the setting stop which is supposed to control the movement of the tubular screw. Two chances for error occur here. Since the stops on the tube are wedge-shaped, and the stop is held by a spring, continued use develops wear of the wedge and of the slot—and there is some wear also in the main screw-threads of the block. Also, the setting of the adjustable stop is up to the operator—it has a micrometer knob and screw for movement—and he may forget to return to zero setting after use on a special setting, thus throwing all thicknesses out.

These elements of design add up to uneven wear on the more frequently used settings, to cumbersome detail in getting special settings, and to opportunities for trouble that have been eliminated by the Linotype Knife Block. When a competitive battle gets into machine detail, here's a strong argument.

Down-Stroke Knife Wiper This Linotype feature assures knives being kept clear of metal chips, with consequent freedom in trimming successive slugs. There isn't anything to get out of order and the flag (wiper), being under spring tension, assures uniform contact with the knife. It is standard equipment and can be applied to outstanding machines.

Linotype Distributors are either single-distributors or multiple-distributors (mixers). Their construction is rugged and accurate. *Linotype distributor boxes* are precision made and stand up over periods of time far in excess of competitive distributor boxes, if they are given proper maintenance care.

The distributor screws are well designed, properly manufactured and finely finished, assuring minimum matrix wear and operating with suitable safeties and guards; the *distributor shifter slide* carries a cushion spring to reduce wear on the distributor box rails; the *distributor box safety* automatically prevents shifting magazines if there are matrices in the distributor boxes, thus assuring positive distribution, while the *automatic distributor screw guard* prevents magazine shifting until both distributor bars and boxes are completely free of matrices.

The *spiral automatic* over at the far end of the distributor, is an exclusive Linotype feature, used for many years, and presently used on all models excepting the Blue Streak Comet. This simple mechanism consists of two rotary wedges, on the ends of the distributor screws, one loose and one tight, so placed that the thin end of one wedge is opposite the thick end of the other. A spiral spring connects the loose wedge with its distributor screw. When the motion of the screw carrying the loose wedge is retarded (as by a matrix clogged in a channel entrance), the rotary wedges instantly lock and stop the distributor, with no strain on matrices or channel partitions.

Linotype's *lateral adjustment* of the distributor beam and parts provides simplicity in maintenance.

These are the features which have made Linotype distributors reliable and durable.

Competition: Intertype distributor construction on their single-distributor machines remains practically unchanged from the design adopted in 1923. They try to meet Linotype's spiral automatic with their "automatic distributor safety." This mechanism, when a channel of the channel entrance becomes clogged with matrices, causes a movement of the channel partition against a plate, which in turn actuates other members to disengage the distributor clutch. Says our machinist friend: "Channel entrances on all Intertype models, single or plural distributor, use flexible partitions or channel entrance guides to get mats into magazines. That system, in connection with the slide stopping bar and its coil-spring-actuated bar return and stopping shoe, is a never-ending source of trouble. Uneven width of spacing for the channels in the en-

trance plate complicates straightening the guides after a moving partition stop leaves the guide bent out of normal position. A mat falling flat on top of the guides, and moving along them until another mat rides on it while travelling along the screws until pressure on top of the guides causes a stop, is *real* trouble. Several guides become bent and it then is difficult to open the channel entrance, since the first movement of the entrance is not down but is parallel to the matrices. Such a stop may force one or more of the guides out of position with the stopping bar."

Comet Distributor This distributor has high strength aluminum alloy distributor screws. These have worked out successfully in extensive field testing.

A new distributor clutch using an entirely different principle is used. The force required to stop the distributor (as exerted on a matrix by any interference) is almost four times less than the force necessary with the spiral automatic type of distributor clutch. This should result in less damage to matrices and channel entrance partitions.

The new clutch is extremely simple in principle and is very easy to adjust.

Linotype Channel Entrance Directly contrasted with the foregoing complaint about Intertype construction is Linotype's advantage with the fixed guides in the channel entrance. Held permanently in position in the plates, these guides become assured and sensitive actuating points for the famous Linotype spiral automatic. Neither partitions nor matrices will be damaged by a distributor stop with the quick positive protection of this Linotype construction. Of course it must be properly maintained, kept clean and properly lubricated, all of which, says our machinist "takes only part of the time required to straighten a couple of bent guides on an Intertype channel entrance."

On Mixer Models the Linotype system of bridge-notching, combined with the two distributor boxes, assure users of accurate and safe distribution of matrices to their proper distributor screws and magazines. There have been many discussions over the years as to the relative merits of the Linotype and Intertype distributor boxes. Ours are superimposed, while the competitor uses a box which requires a "switch" arrangement to deflect matrices to either of two parallel distributor bars and thence to the magazines. We seem to have had the better acceptance by the trade and certainly judging from the number of cases which have forced the competitor to rebuild (sometimes whole batteries) mixer distributors, he has had his share of troubles.

Competition: Intertype literature features "simplicity" in describing their mixer distributor details. "There is only one distributor box," they say, "which moves back and forth automatically from one distributor bar to the other." Now says our machinist: "And there, right there, simplicity ends. The assortment of gears (pinions), shafts, springs, levers, adjustable guides, blocks, cams and screws ('all set correctly at the factory' as they claim) make the entire distributor of the mixer Linotype seem as simple as the second elevator lever compared with this assortment of Intertype mechanisms. This Intertype distributor, after varying periods of use, is guilty of wrong fonts. They send out detailed instructions to explain how simple it is to correct this. Sometimes it is. But frequently, after following all of their instructions, it continues the wrong fonting. Maybe some spring has lost its tension, some guide has become worn, a feeler gauge is not rigid in its bracket or a bit of wear on some small shaft and in its bearings allows lost motion to creep into that box shifting mechanism. Then it's a problem to find the cause, and a further job to make the repairs after parts have been procured."

Linotype Sorts Stacker Tube and Sorts Assembler Mostly they are called "Pi Tube" and "Pi Stacker," but operators and machinists like our flexible tube. It doesn't form kinks to retard matrix passage from distributor bar to the sorts stacker. And they like the star wheel design of the stacker. It works uninterruptedly, regardless of whether the pi mat is thick or thin.

Competition: We hear criticism of Intertype's rigid stacker tube. It is open on one side, "easily and often damaged, and difficult to repair." But they proclaim its virtues.

Linotype Attachments and Supplies

THE FOLLOWING comments, covering some of the more important items in Section C of the SDB, will provide background comment that may not belong in the Data Book. The attachments and devices, noted here, might have been included in their normal sequence of progress through the machine that provided the order of items in the preceding pages on Linotype Features. But these items bring comment that branches off somewhat, hence we follow the sequence of your SDB—and note again that this Sales Manual avoids needless duplication of other printed matter about the Linotype.

Melting Metal on the Linotype In the earlier years of the Linotype, gas was the most efficient fuel for melting metal. The gas pot and its necessary controls to maintain metal temperature were an early development. But electricity became generally desirable, where comparable rates permitted, because there are no combustion fumes from electric heat and its controls have been more positive up to the recent redesigning of our gas system.

The preference for electricity has caused some 75% to 80% of all shipments to be thus equipped, but there is a growing preference for gas, with rapid increase in the industrial use of natural gas, and with frequent use of butane and other bottled gases in country districts.

In the Linotype Electric Pot there has been consistent use of the immersion principle for heating elements. In earlier years, with the envelope style of element, occasional trouble developed with the effects of type metal on the steel used for enclosing the heating unit. In recent times, with the coming of the calrod type of a heating tube, enclosed in impervious steel, high satisfaction has resulted. In the control of current flow to maintain metal temperature during the continual change of casting slugs and melting a new supply of metal, Linotype's most recent development, the Electronic Control, is extremely sensitive. Variations of a fraction of a degree are enough to actuate the control and regulation of metal has now reached very narrow limits of fluctuation. Added to this, there has been a new design in means for regulating mouthpiece temperature, independently from the metal pot—a further contribution to casting good slugs.

Competitive: Intertype has necessarily followed Linotype methods in melting metal, but their metal pot designs have varied, to the disadvantage of the product. While their pots hold a somewhat larger amount of metal, their controls are not as good, having a greater variation between high and low points when operating, and needing more attention to maintain a casting condition.

The Intertype Electric Pot uses heating elements *outside* the metal itself, whereas Linotype uses the immersion principle, a general industrial practice for the most efficient melting of metal. In all other mechanisms that require molten metal—in material-making machines, type casters, stereotyping and electrotyping metal pots—you will find the electric heating elements immersed in the metal to be melted, taking the heat directly to the material to be melted. Outside elements, heating through a cast iron wall, are obviously less efficient.

Three elements are required for the Intertype Electric Pot—one on each side of the pot and one under the throat. They are inserted in pockets, cast in the pot. But the asbestos insulation of the pot cannot be packed over these pockets, which thus have a formed cover to protect them. That cover is not always metal-tight. As time goes on a little metal can, and often does, seep into these pockets. A pot runs over, or a back squirt occurs, or a crucible may crack. If even a little metal gets into the pockets it is quickly burned into a red oxide that clings to the elements and it must be heated along with the crucible wall. That not only increases current consumption but eventually becomes so serious a handicap that printing quality cannot be maintained. Then comes a big overhaul job.

When plant machinists realize these comparative factors it is not unusual to sell Linotype pots for installation on Intertypes. In one outstanding case, a complete battery of Intertypes (why the complete battery is another story of human factors) received Linotype Electric Pot replacement. That plant superintendent heard so much about Linotype Pots that he ran a severe and scientific comparative test, under supervision of a competent electrician. The results in current consumption and quality of slugs were so marked in favor of Linotype that he ordered some 25 new Linotype Pots to replace the Intertype equipment.

Metal Feeders obviously improve the conditions caused by hand feeding. The gradual melting of one or more long, suspended pigs of metal facilitates maintenance of temperature control of the molten metal in the pot. Dropping in smaller pigs by hand chills the pot enough to lower its temperature measurably, thus endangering uniformity of product. And here's another function where a device to replace the time of operator or machinist soon pays out.

We prefer to sell the Margach Feeder as a more ruggedly built device, with sure control of the rate of feeding. But thousands of Kendall users feel that they get a satisfactory buy at a lower price.

Your SDB (page C-9) says "we do not advocate the installation of a Monomelt over a Margach or a Kendall Feeder." There are two reasons for this policy. First, the added weight of the Monomelt, superimposed over the Linotype metal pot, isn't too healthy for the pot legs and their adjustments. Second, the liability of metal contamination and variation in quality is inherent in Monomelt's principle: to remelt dead slugs over the Linotype metal pot, thus avoiding use of a general remelting furnace. We have seen trouble thus caused—yet some customers like Monomelt, and then we cooperate in furnishing it, but strictly as defined in the SDB. Monomelt users must use extra care to keep dead slugs free from miscellaneous scrap metal and saw-dust from zinc and copper, etc.

Linotype Metal We neither sell nor recommend any particular make of Linotype metal over others. We do insist that the best results can be obtained only with the best quality of metal. There are a number of metal companies that furnish good type metal. We preserve a strict neutrality in such matters. At Brooklyn, one make of metal is used in the factory and another in our printing department—simply to prove to visitors and questioners that we are unbiased in the matter. And we have found it to be a pretty wise policy.

While we're on this subject, here's a word about the wisdom of keeping customers awake to the importance of good metal in their plants. So many complaints that start with blame on the Linotype are quickly traceable to metal conditions. Good slugs rarely come from mixtures of old type metal, stereo plates, saw trimmings, dirt and tobacco quids. Our Technical Division tells us to make note of the elements in standard metal. They are 12% antimony, 4% tin, and 84% lead. Periodic tests of metal should be encouraged in all plants. It's good production insurance.

Another point to watch is the use of flux. When used discreetly in the smelting furnace, flux can be an aid to clean metal. But, when it is placed in Linotype metal pots or on molds it leads to sure trouble.

Electric Motors "Why the price for a compact little third-horse motor that looks about like $60 at Sears-Roebuck?" That question is typical, because one motor looks pretty much like another and our Emerson motors do cost more than the small motors that are made by the carload for industrial uses and home appliances. Therein lies some of the difference.

Linotype motors fulfill decidedly different operating requirements than the stock industrial motor. They must be specially designed to run continuously at a relatively low but constant speed, without undue heating. They must maintain satisfactory performance against possible variations of 10 per cent in the stated current characteristics. This requires a heavier general design and a resulting extra heavy rotor, mounted in ball bearings, provides a fly wheel effect against minor speed variations due to brief voltage fluctuations or differences in load.

While the Emerson motor is designed to avoid overheating, we must realize that any such motor operates more efficiently when it heats up somewhat. Occasional queries from alarmed customers have been answered with that reassuring comment. Only an abnormal current condition or serious machine trouble should cause an Emerson motor to *over*-heat.

Our long-standing manufacturing arrangements with the Emerson Electric Manufacturing Co. have been fully rewarded in the satisfactory performance of Emerson motors on our machines. Yet the number of Linotype motors made to our special requirements is so small, compared with their output of other industrial motors, that our motor inevitably costs substantially more—hence the higher price.

A Linotype can be, and sometimes is driven by an average industrial, high-speed motor. That necessitates a jack-shaft and the necessary pulley ratios to reduce the motor speed to the Linotype need.

Competition: Intertype's motor is made by General Electric Co., who also make their electric pot heating mechanism. The G.E. motor apparently functions satisfactorily, but the manufacturing costs must be comparable to Emerson's for we have had no price war on motors.

Cline Electric Co., whose major specialty is press drives, etc., also furnish a motor for Linotypes or Intertypes. It is made by General Electric and is identical with G.E.'s Intertype motor.

Linotype's Self-Quadder The Self-Quadder has become a mechanical feature of tremendous savings in plants where many lines are centered or quadded left or right. Specialty houses where much work of this sort is produced have indicated savings beyond 50%, while others report varying advantages when setting heads, ad-guts, etc.

Savings of time upward of 50% have been noted with the Self-Quadder against the old-fashioned spacing of matter, on either end of the slug or for centering. Spacing, with the Quadder, is maintained uniformly. Jaws may be set to any measure, a line of mats assembled to that length and sent into the vise with complete assurance that a slug will be cast and there will be no damage either to the mats or to the face of the slug. If a line is inadvertently overset and one or more mats must be removed, it is only necessary to back the machine and get the mold away from the line. No mishap will occur—the vise jaws will not snap shut on your fingers nor will the line be pied. The setting of measures between vise jaws may be done at any time the vise jaws are in normal position—just make the change, that's all.

This feature has a background of mechanical development and engineering that is both historic and lively. Nearly forty years ago, Linotype in the Government Printing Office at Washington were equipped with a Linotype-made quadding device, a mechanism that merely completed a line without the necessity of blanking it out with quads. But that idea, hatched long before any Intertype existed, caused no general application of such a device—apparently the trade wasn't ready for it. The later spark for the modern quadder came from a plant machinist in the Northwest.

Meantime Intertype had entered the market and both that machine and Linotype were considerably more elaborate machines in scope and mechanism than the G.P.O. quadder-equipped Linotypes. When one competitor saw merit in automatic white space the other naturally plunged into the same development. There followed a decade or more of continuing engineering studies during which the trade acceptance of quadding and centering was a constant stimulant. Changes in design were inevitable to meet the various conditions and such mechanical problems as the use of a Mohr Saw on the same machine. Through such a period customer relationships were occasionally difficult.

It was learned early in the application of quadders that this mechanism, necessarily highly precise and built to close tolerances, *must* be kept clean. Whereas many parts of the Linotype can and do continue to function under sloppy care, the Self-Quadder calls for regular maintenance. But the results, in its automatic production of white space otherwise costly to set, are worth all its investment and upkeep.

Competition: Meantime, Intertype has had its quadding and centering device—the Autospacer. This has not been without its faults and troubles. Those users who had our Self-Quadder during its earlier days sometimes have thought that the Intertype device was better. And some of the users of their equipment have felt just as sure that the Self-Quadder was better. Then, of course, the vast majority who had either kind have gone ahead and picked up a great many savings because of the automatic elimination of hitherto laborious, time-consuming hand spacing.

A user of Intertypes, whose candid confidence we appreciate, has told us: "The Autospacer has four fundamental faults:

"1. A full-measure line (as 15 ems—more or less), all matrices and bands, measuring exactly the set length and sent into the casting elevator will not descend between the vise jaws.

"2. The slug measure on the Autospacer can be changed *only* when it is set to quad flush left." *(Ed. Note—Remember that the Linotype Self-Quadder equipped machine can be changed at any time the vise jaws are in normal position. No preliminary setting of the quadding position.)*

"3. The Autospacer-equipped Intertype cannot be backed up when a line of mats and bands has descended to casting position between the vise jaws without help to aid the operator or machinist, or the line will be completely pied." *(Note—Not the case with Self-Quadder on the Linotype.)*

"4. Closing of the vise jaws on the Autospacer, on a line of mats, is spring-driven, with a hydraulic brake hooked to linkage which moves the rack controlling the jaws. Setting the control of the oil flow in the brake cylinder is supposed to govern the force of the jaw moving levers, and to prevent the jaws striking the mats with too much force. Failure to get that setting correct, which is often neglected, may cause considerable mat damage."

It is apparent that both the Linotype and Intertype quadding devices need careful maintenance—with the odds for basic construction now in favor of Linotype.

ML Quadder (For Outstanding Machines) The main operating mechanism of this new Quadder is contained in a cast aluminum housing attached to the left side of the vise in the same position as the left-hand vise jaw wedge. This wedge and its adjustment are now built into the new aluminum housing.

The housing and Self-Quadder mechanism weighs only 35 pounds, of which 15 pounds is the weight of the housing. It is fastened to the left side of the vise and held on by 3 screws and 2 dowels. The housing is 7⅛″ wide, 21″ high and 2″ deep at the top, tapering to 5¼″ deep at the bottom.

Although the quadder housing extends 7⅛″ to the left of the edge of the vise cap, it is only 5¼″ beyond the first elevator cam.

The new quadder operates on an entirely different principle than other Linotype Quadders. There is no locking mechanism to adjust. The vise jaws are moved inward against the line of matrices by the upward movement of the vise closing and second justification lever. A simple lever at the left of the keyboard controls the quadding action. The Quadder will quad left, quad right, and center, or it can be disconnected and the machine used regular.

"Bootleg" Quadder More recently, the Linotype Parts Company have been promoting another device which they are selling to be applied to outstanding machines. The equipment was offered to our Company, but was not considered adequate for its purpose, either mechanically or otherwise, and was turned down. How satisfactory this gadget will eventually prove remains to be seen. Reports vary.

The Linotype Six-Mold Disk with its greatly increased production capacity, does not depart from the principles of construction of the four-mold disk. They look alike, except in their capacity, go on the slide the same way, and for changing from one mold to another the same method is used. Thus no new methods of handling and maintenance are required when Linotype Six-Mold Disks come into a plant.

Competitive: Whereas the Linotype Six-Mold Disk is cast and machined as one integral piece, the Intertype six-mold disk is a built-up affair. On a central hub the six molds are bolted. Then the rim is fastened to the molds—a "Goldbergian" design that makes for difficulties in maintenance of accuracy. Both disk and molds, for the six-up style, vary on the Intertype from their four-mold style—not so with Linotype. Thus Intertype maintenance and operation are complicated by the necessity to learn a new technique.

For the Intertype six-mold disk the entire mold must be removed from the disk to change slug size. This also requires expensive parts as they use, not liners, but "liner inserts" which cost about a third of the original mold price. While it may be argued that a six-mold layout provides a permanent variety of sizes and measures, changes may be required in any plant. Linotype's standard procedures, carrying through the adaptation of four-mold methods with disk and molds, become a strong argument against Intertype's special design.

Changing mold position on the Linotype is a standard bit of routine with four or six molds. On the Intertype, six-mold disk changes become a double operation. First, the starting-and-stopping lever must be pushed in to the shut-off position. Then the handle which operates the mold disk turning pinion (manual) is pushed in and turned to bring the needed mold into position. Then the handle is released and allowed to return. On all the outstanding Intertypes, when this change is begun, pushing that handle in to start the change means that the disk becomes completely disengaged from the mold disk turning pinion. Not infrequently, when the released handle returns the mold turning pinion to mesh with the disk, there may be one or more teeth on the disk missed in the realignment. Then the disk is out of time, the machine stops when a line is sent in, and production stops right there! Remedy: the Intertype must be backed to normal position, the vise lowered, the disk pulled forward and timed correctly. This just doesn't happen with Linotype's Six-Mold Disk.

The foregoing headaches occur on Intertypes shipped previously to a current change of design which remedies the loss of timing. Current shipments will presumably meet this defect—but the outstanding machines must continue to annoy their operators.

Mohr Lino-Saw While this device is not of our manufacture, it is such a common addition to Linotypes that it is familiar to most operators. Those who have operated them on our machines are their best salesmen, since the absence of liner changes for various line lengths makes the Mohr Lino-Saw a great time-saver—often when time is at a premium. It can be installed on new machines at our factory, but when ordered for outstanding Linotypes it is installed by the Mohr Lino-Saw Company. It has the endorsement of our engineers and our fieldmen are familiar with its help in production of food-store advertising and both straight and display composition of all kinds. When used on Linotypes that are equipped with six-mold disk, it will be seen that six slug body sizes are instantly available, delivering practically any line length required, and eliminating the Auto-Ejector Set.

On the general subject of composing-room saws, our fieldmen and some customers wonder why we don't handle a full line of pedestal and bench saws, and particularly the Rouse Band Saw, for which we supply a special left-hand vise jaw. Years ago we sold the Miller Saw, about the first of the precision saws to be made for printers' needs. But other manufacturers soon entered the field and it seemed wiser to concentrate our sales efforts on our own products. That policy still prevails, though it covers approved items of outside manufacture which are actual attachments for the Linotype or of direct use in its operation and maintenance.

Linotype's Thermo-Blo Thermo-Blo has solved more casting problems than any of us realize. We are constantly hearing about conditions wherein poor faces or porous bodies have been remedied by Thermo-Blo. Its controlled air feature permits a regulated volume of air directed on the full length of the mold, rather than being diffused on the mouthpiece or operator's legs. It is a money-saver for plants where display slugs are numerous, or where recasting of lines is required.

We've heard about various coolers, some of which cost considerably less than Thermo-Blo, but never a better one. Our research department went through a long period of tests before this feature was released. Compressor-type of air flow was entirely disapproved, because of water condensation and consequent rusting of parts exposed to the air blast. Operators who had some cause for complaints, due to rheumatism of the knees when some other makes were used, find Thermo-Blo to be entirely satisfactory. And the boss gets more and better slugs.

Competitive: Intertype has recently developed a mold-cooler along the lines of Thermo-Blo which

they now sell as extra equipment. Their earlier blower, belt driven from a pulley on the drive shaft, was unsatisfactory. Even though they tossed it in without extra charge the favorable trade opinion of Thermo-Blo obviously forced them to something better. No critical comment has yet been received on this Intertype reply to Linotype leadership.

Fluorescent Linolamp We did a lot of experimenting before we brought out our fluorescent keyboard lamp. It had to be right and there were a number of makes on the market, ranging all the way from homemade and airplane units to specially designed lamps. We had a flock of them in our printing department for rigid tests. And out of these (and other) experiments and collaboration with manufacturers came our Linolamp. It's good, even though some others may cost slightly less. Ours had to be right, and we think that it is. No, it isn't a trouble lamp—that isn't what we were shooting for, but it brings to the keyboard and copy the correct volume of light for the operator's needs. And that is what they were clamoring for—and now have. Intertype has not copied our action on this item, as yet.

"Standardization"—"Simplicity" While various attempts to devise a competing linecasting machine have marked Linotype's history of more than sixty years of successful leadership, all have failed except Intertype. That machine was urged on by bitter feeling among certain individuals in the business world and its development was attended by patent litigation and various actions characteristic of determined competition. Printers and publishers, despite their widespread feeling of friendship for Linotype, encouraged the growth of a second source of supply and of research and development in the field of composition—such was, and is the spirit of business in America. "Competition is the life of trade" has long been a familiar slogan.

Intertype came along after some twenty-five years of Linotype's successful functions with the trade. In that quarter-century, Linotype had revolutionized printing and publishing, had made an outstanding business success, and had accomplished so much in typesetting that the machine itself had grown and changed. Such progress necessitated new design in many features and principles—new models, introduced to set more varied kinds of type, naturally were more than amplifications of earlier models. Basic changes were necessary, even though every effort was made to adapt such changes to earlier models. But Intertype, basing its start on Linotype's expired patents and the opportunity to study Linotype's experience, undertook to make a machine that would not be subsequently basically changed.

For some years after their start Intertype proclaimed that "No Standardized Intertype Has Ever Become Obsolete." And their other battle cry, based on necessity in design against Linotype's patents, featured "Simplicity and Fewer Parts." You will have noted that factor in their escapement mechanism, still a moot point with them.

Their standardization claims were ultimately overcome by their own machine developments—and we hear no talk about it today.

The simplicity and fewer parts theme is still used when they feel the need to defend their construction. In the twenties we launched a campaign entitled "The Big Scheme of Simple Operation," a title which has been perpetuated in the booklet by that name (611.01.2) which was written then to demonstrate the need for *enough* parts to do the job properly. That campaign was successful then, and of late years various Intertype mechanisms have been the height of complexity rather than of simplicity (witness their mixer distributor).

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In gathering the material for this unit of our Sales Manual we have tried to keep it sufficiently brief and yet include the more useful items, on Linotype products and on the competitive angle. Users of the Manual are urged to report unusual points of discussion they may encounter in the trade. Any new sales argument advanced by competition should be included in sales reports, to come on via the Agency to the home offices. By such process, with the direct answers that may be made and by accumulation for the Manual, can this tool for the Salesman be kept effectively up to date.