Sales Primer on Teletypesetter

An introduction to the Linotype-Teletypesetter system, with comments on the mechanical conditions and trade relationships which are important in making sales of Linotype equipment for this special use

This Primer Is a Supplement

THE LINOTYPE HANDBOOK FOR TELETYPESETTER OPERATION is a more complete exposition, written for publishers, printers, and their mechanical executives. As a customers' booklet it must omit certain confidential information which Linotype Production Engineers must possess.

It is also realized that, despite the rapidly growing number of Teletypesetter installations, there are many in the Industry who are not familiar with this system for the automatic operation of Linotypes (and Intertypes).

But it is assumed that the reader of this Primer *is* well-informed about:

a. The general mechanism and operation of the Linotype.

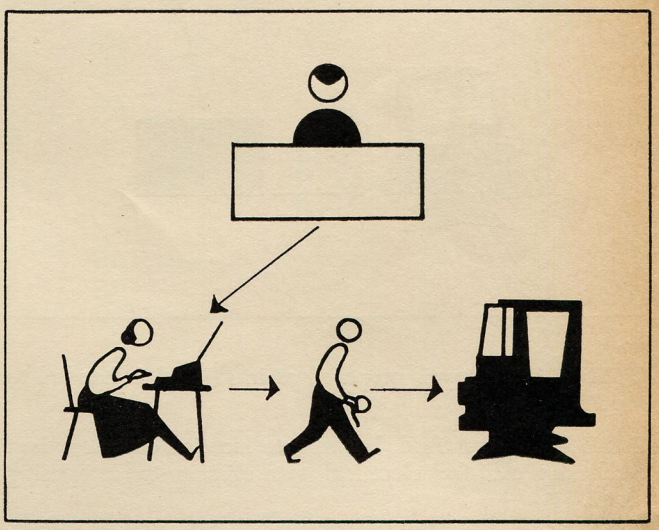
b. The editorial, business, and composing-room operations in newspaper production.

c. Typesetting production in commercial and book manufacturing printing plants.

We Call It TTS

TELETYPESETTER is a cumbersome word and, in the trade, it is sometimes confused or mis-used in connection with its ancestor word "teletype." Our Linotype Handbook christened it TTS, and the trade press now uses that convenient abbreviation.

Before we talk about the mechanisms of TTS, it may help toward a general understanding of its part in plant operations to study a series of diagrams that show various uses of TTS. In these visual schemes that follow, the Linotype salesman will find the general variety of

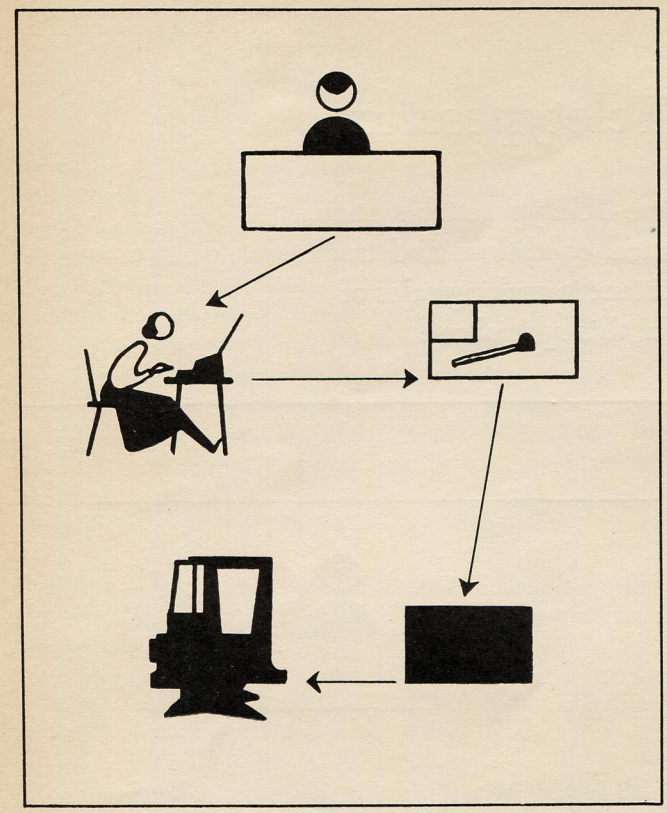


EDITORIAL copy is prepared in the conventional manner as for regular, manual Linotype composition.

PERFORATOR. Copy goes to this machine, where an operator (usually a former typist) prepares a paper tape carrying punched code perforations that will actuate the TTS operating unit on the Linotype. The tape remotely resembles the Monotype principle. The punched holes will release matrices from any of the 90 channels on the Linotype, release spacebands, and will raise the assembling elevator when a line is completed. On the Comet it operates the quadder.

LINOTYPE equipped with TTS Operating Unit receives tape via messenger (in the simplest operation). Once the tape is placed in the unit the Linotype produces automatically and its attending monitor can perform other duties, often covering such care of three or four TTS-operated machines.

1). Local TTS Production—Tape Carried by Messenger.



EDITORIAL copy is prepared as in (1) and is handed to the Perforator.

TAPE is duly punched, but remote location or other plant conditions call for electrical transmission to composing room.

TRANSMITTER-DISTRIBUTOR receives the punched tape and automatically translates the punched holes into electrical impulses which are carried by wire (over thousands of miles in extreme instances) to the Reperforator.

REPERFORATOR receives the electrical impulses and translates them into a newly punched tape which duplicates the original. The Reperforator is frequently located beside the Linotype.

LINOTYPE and its TTS Operating Unit receive the transmitted tape and proceed with automatic typesetting. Electrical transmission is the essential to circuit or group operations as shown in further examples.

2). Local TTS Production—Tape Transmitted Electrically.

conditions which he may have to cover in planning a TTS installation.

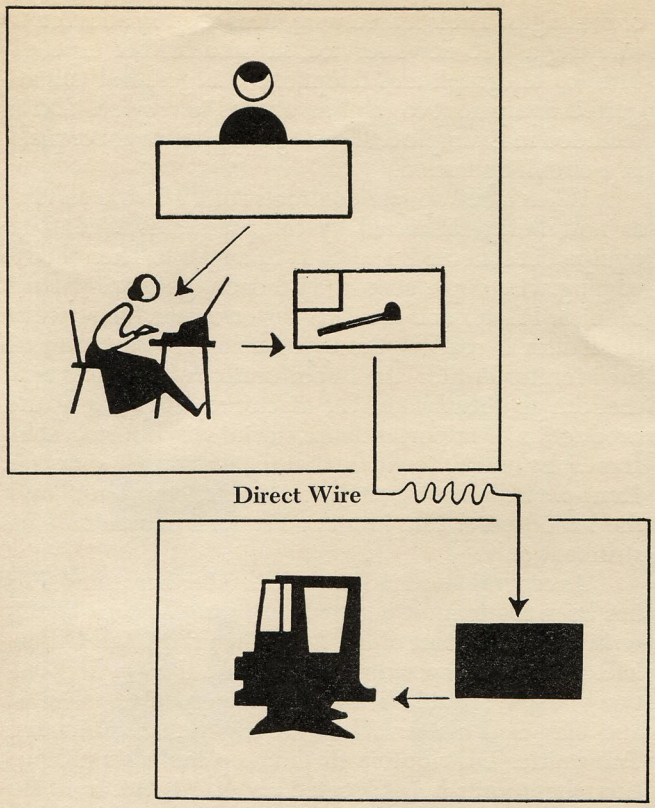
The elements of the diagrams (all taken from page 31 of the Handbook—and you'd better have a copy of that available) cover instruments and machines, plus plant functions. Each receives more comment later, but the diagrams mostly explain themselves as they go along.

In Example 1, the use of TTS has no relation to group operations or electrical transmission of copy. Here the one reason for a considerable investment in auxiliary equipment to operate one or more Linotypes is *increased* production at *lower* cost. We Linotype people know full well that the trend among operators has been to curtail production. Our machines are normally geared at the Factory to produce 6⅝ lines per minute—yet production figures, compiled through publishers' and other trade associations show that *half* the capacity speed for a manually operated Linotype (or Intertype) has been an average across the country in recent years.

We know, too, that the earlier piece-work cities showed averages of 9 lines a minute from various models of Linotypes, *manually* operated. Those machines were specially geared but not otherwise specially designed. Yet we have witnessed steadily declining production rates and meantime publishers and master printers have clamored for "more productive machines" when the slow-down factors were elsewhere. When Teletypesetter made it possible to put a typist on the Perforator and, with relatively short training, step up a Linotype's production to 400 or 500 lines an hour, it didn't require much arithmetic for plant owners to justify their investment in TTS equipment. Page 17 in the Handbook compares production conditions in numbers of comparable machines.

Example 2 illustrates a condition that has frequently developed wherein it has been found preferable to locate TTS Perforators away from the composing room. Sometimes this avoids conflict and again it seems better to have the Perforators close to the editorial department. Then, instead of a routine of messengers in transit with spools of TTS tape, the mechanisms of electrical transmission simplify that procedure. In such cases the Transmitter-Distributors are placed on the same table with the Perforators. Their electrical signals, conveyed by wire, may go any distance to actuate Reperforators. The latter are usually close to the typesetting machines, frequently literally feeding the duplicating tape into the Operating Unit of TTS as it is carried on Linotypes or Intertypes.

This is a good point at which to remark that Intertype has always lagged definitely behind Linotype in TTS applications. Various reports have indicated better performance with TTS on Linotypes, and the Teletypesetter people themselves (depending somewhat on the



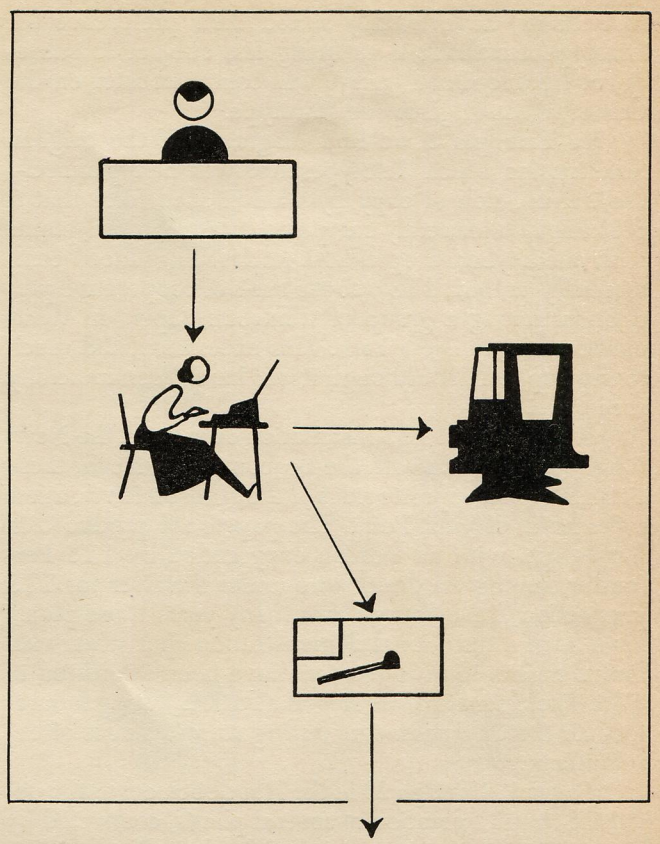
EDITORIAL matter and the original tape are prepared as in (1) and (2).

TRANSMITTER-DISTRIBUTOR is always used for electrical transmission. It automatically translates the holes in the tape into electrical impulses.

REPERFORATOR must be used at each plant receiving incoming TTS transmission, to reproduce punched tape identical with the original.

LINOTYPE with TTS Operating Unit receive the duplicated tape and produce its composition. Extreme example is the perforation of tape for Time Magazine in New York, with duplicate reception and printing in Philadelphia, Chicago, and Los Angeles.

3). Use of TTS for Transmission to One or More Distant Plants.



EDITORIAL preparation of copy covers both local and distant uses.

TAPE is perforated in usual manner.

LOCAL LINOTYPE runs tape for local composition.

TRANSMITTER-DISTRIBUTOR then translates tape into electrical signals that may go to any number of distant plants.

4). Local TTS Production plus Transmission to One or More Distant Plants.

individuals) have frankly stated their preference for Linotype installations as being less subject to subsequent trouble-shooting. We will comment later on the Comet versus High-Speed Intertype.

In Example 3 we find diagrammed the original function for which Teletypesetter was first planned—the transmission of copy by wire in such form that it could be automatically composed in two or more plants with one keyboard operation. As first introduced commercially in 1932, TTS was the basis of cooperative production among a group of suburban papers in Westchester County, New York. This experiment did much to develop to TTS, although it was hardly commercially successful.

A subsequent TTS installation connected the Newburgh (N. Y.) News with the Beacon (N. Y.) News, these cities being on opposite sides of the Hudson River, a few miles north of West Point. The papers are produced in Newburgh, with all Beacon copy coded by TTS Perforator coming via direct wire under the river for TTS production in Newburgh. For many years those plants have been a traditional demonstration spot when visitors to Linotype headquarters have been interested in TTS. These same plants served also as a testing laboratory for the TTS engineers during various stages of development.

Pages 19 through 23 in the Handbook cover the details of circuit operation of several plants, connected by direct wire, to use one original keyboarding of TTS copy.

Example 4 shows the plant arrangement wherein TTS production originates, to be used locally and to go to one or more outside plants. This would combine with Example 3 in circuit operations, as shown in later diagrams.

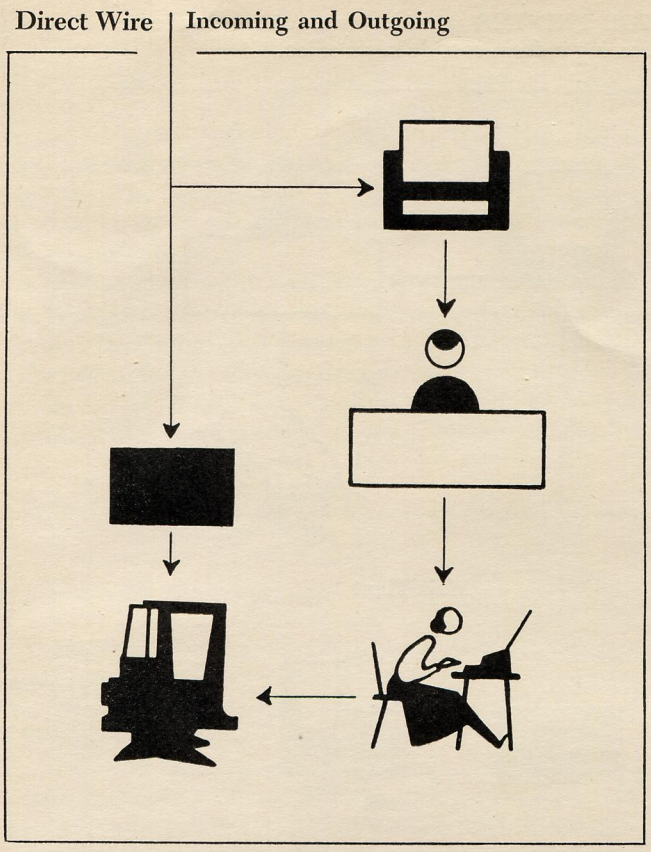
Early in the history of group operations of TTS-equipped papers it was found both convenient and economical to utilize their wire facilities for the interchange of messages. Their leased wire, thus used in addition to carrying a TTS news service, saved a further expenditure for telegraph and telephone charges. But this required equipment to *send* as well as to *receive*. This is included in Example 5, showing a typical member plant in a circuit operation.

When a newspaper contracts for TTS wire service, as now being furnished by the press associations, its equipment scheme is shown in Example 6. Then the incoming wire copy, sent in TTS code, goes jointly to a Monitor Printer and the TTS Reperforator. Thus, while the Editor is reading the typewritten copy coming off the Monitor Printer, the Reperforator is delivering tape that can go directly onto the machines—stepping up the production of important wire stories very considerably. It must be noted, however, that the equipment shown in Example 6 does not include facilities to "talk back" over the leased wire. The Monitor Printer is a *receiving* instrument only.

As diagrammed in Example 7, a further use of TTS has been made most conspicuously, at the time of this writing, in the plant of the Allentown (Pa.) Call-Chronicle. In their composing room, with a total of 21 Linotypes, eight Model 8's are TTS-equipped to set news and classified matter. They use eight Perforators and Transmitter-Distributors for home plant news production, these units being located about 100 feet from the Linotypes.

One Perforator and Transmitter are located at a branch office 40 miles from Allentown, and another similar equipment is located at their Bethlehem branch office 6 miles from Allentown. These two offices handle news stories and classified ads.

A third Perforator, with Transmitter, is located in the home office classified advertising department. The classified ads, as taken over the counter or by telephone are keyboarded immediately, then transmitted by wire up to the composing room.



REPERFORATOR receives and punches wire copy as received, edited for group of papers, TTS punched and sent out over circuit wire.

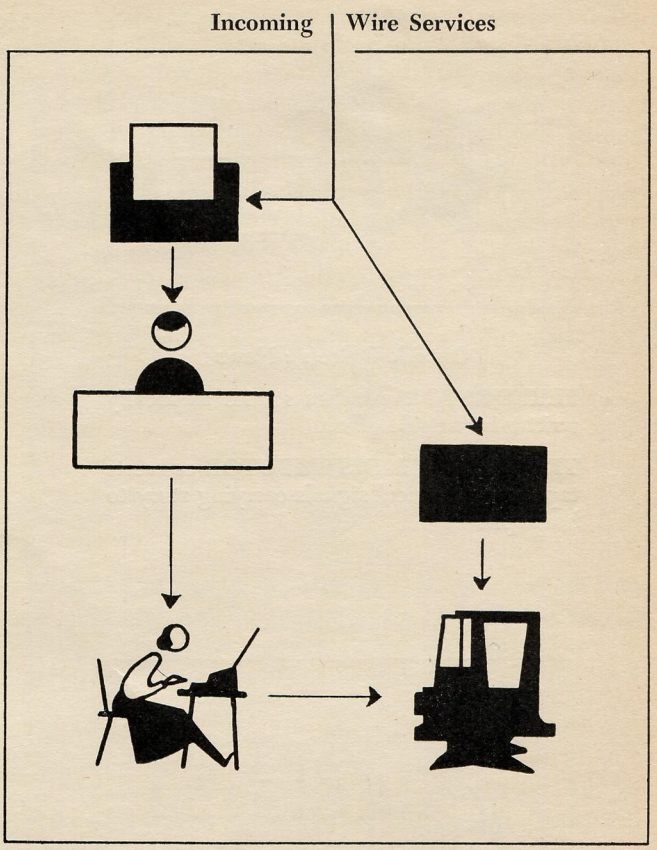
LINOTYPE with TTS equipment receives tape and sets wire copy, plus local copy. Wire copy can be deleted in part or amended, using code numbers on tape to identify.

SENDING and RECEIVING are both accomplished with Teletype Printer. It produces typewritten facsimile of incoming wire copy to guide editors. As a sending device it permits interchange of messages among member papers of a circuit.

EDITORIAL functions on a TTS Circuit paper remain independent within reason. Wire stories can be cut or modified if desired, with guidance of Monitor Printer reproduction of all incoming matter.

LOCAL TTS Perforator produces tape for local matter as desired. Local tape goes to composing room either by messenger, as in (1), or electrically, as in (2).

5). Handling Copy in a Member Plant in a TTS Circuit Operation, with Local TTS Production.



DIRECT WIRE brings in signals as transmitted from TTS tape at point of origin. Wire goes simultaneously to Reperforator and Monitor Printer.

MONITOR PRINTER is electrically operated typewriter which reproduces TTS signals, line for line, in caps and lower case, as originally punched. This copy used by editors. May be used to measure length of stories.

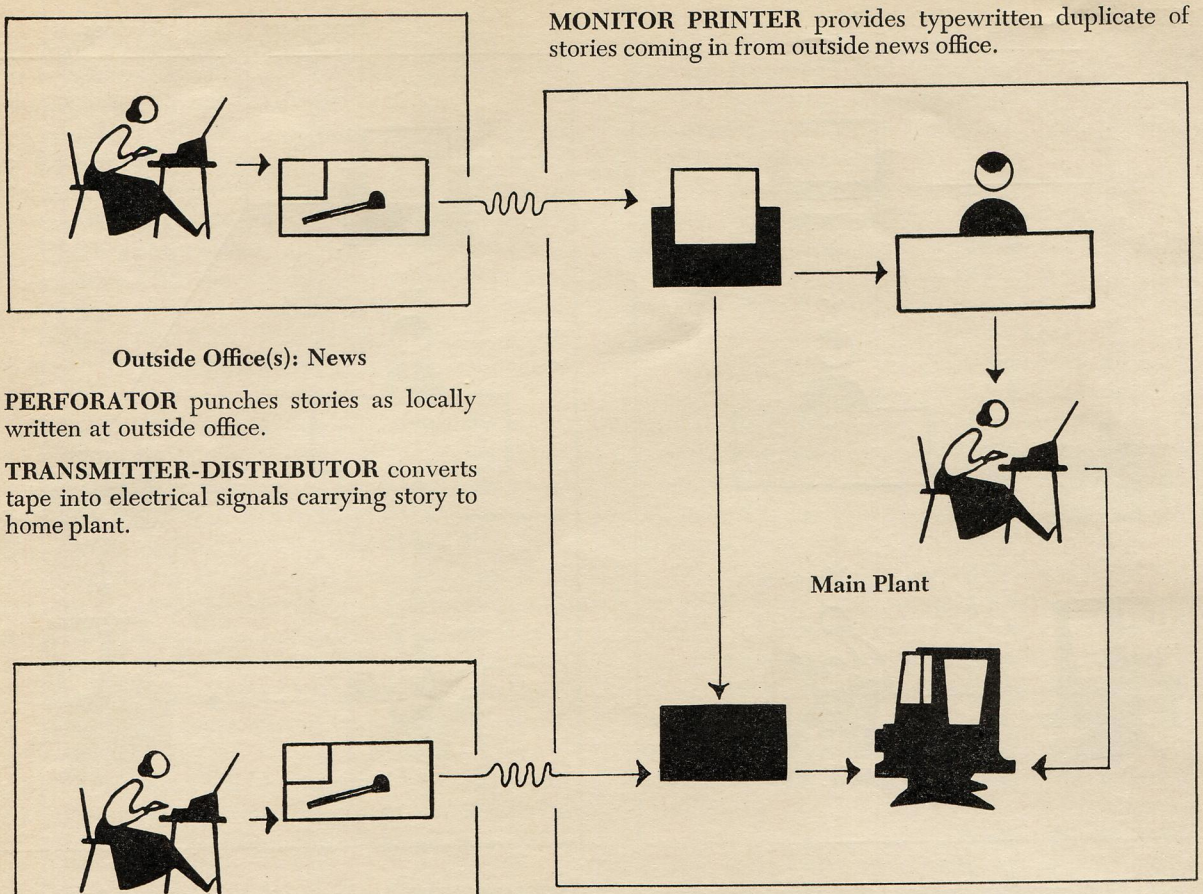
REPERFORATOR produces tape from incoming signals. For such conditions each item of copy is identified with a number or letter. Thus Editor can kill or change as needed. Tape usually goes direct to Linotype, with any deletions indicated by Editor, who has read the monitor copy.

LOCAL PERFORATOR handles any local copy or revision of wire copy.

EDITORIAL offices, guided by Monitor reproduction, can modify matter as received by TTS tape on Reperforator. They also release local copy for TTS production.

LINOTYPE with TTS equipment handles tape as received.

6). TTS Operation with Incoming Wire Services (such as AP, UP, and INS, etc.) plus Local Use of TTS.



MONITOR PRINTER provides typewritten duplicate of stories coming in from outside news office.

Outside Office(s): News

PERFORATOR punches stories as locally written at outside office.

TRANSMITTER-DISTRIBUTOR converts tape into electrical signals carrying story to home plant.

Outside Office(s): Classified

PERFORATOR punches classified advertisements as received by regionally located office.

TRANSMITTER-DISTRIBUTOR translates tape for wire transmission to home plant composing room.

EDITORIAL offices can revise stories as received via Monitor Printer from outside news office. They also issue copy for home plant TTS production.

PERFORATOR at home plant handles general run of copy in normal manner.

REPERFORATOR makes duplicate tape for incoming stories from outside news office. May also handle tape from home Perforators.

LINOTYPES with TTS set classified and editorial matter as received.

7). Outside Advertising Offices (for Classified Especially) and Outside News Offices Tie into Home Plant with Direct Wires for TTS Production.

What About the Mechanisms of TTS?

THE DIAGRAMS and the comment on them up to this point have merely intimated the general functions of the various units that enter into the TTS system. The Handbook, pages 3 through 13, pictures and fully describes these devices. Perhaps they will be more readily understood when the reader visualizes their uses as shown in our examples here.

We may say in this confidential Sales Manual what the Teletypesetter Corporation deleted from the copy for the Handbook: that corporation, the manufacturer and distributor of TTS equipment, is a subsidiary of the Teletype Corporation, which for years has made and furnished the Teletypes and similar apparatus used by wire services. Both are subsidiaries of Western Electric Company, which is the manufacturing and purchasing organization for the Bell Telephone Companies as embodied in American Telephone and Telegraph Co.

One of the pioneer developers of TTS was Walter Morey, who had been in earlier years a Monotype expert. He is presumably responsible for the unit system for matrices, used in TTS, that first made it possible for TTS to produce justified lines on the Linotype. Here again, as in the entire history of the devising of machines for composition of type, justification of the composed line has been the one most important factor. In the sale of Linotype equipment for TTS it is most important to understand every phase and every detail of that unit system.

Unit-Width Matrices

The importance of unit-width matrices for TTS has been summarized in a recent memorandum, issued by the Director of Typographic Development. We repeat it here, as follows:

Teletypesetter operation is dependent upon the exact relationship between the counting mechanism in the Perforator and the widths of the matrices. It is therefore necessary that they both conform to the same system of measurement. For this purpose, the "unit system" was devised, in which the Perforator does not count matrix sizes as such, but rather unit sizes. The unit of measurement is 1/18th of the width of the em quad. Eleven multiples of this unit have been designated as the sizes into which all unit-width matrices must fall.

The cap S, for instance, is always 11/18ths of the em quad, no matter what the point size or set size, and the lower-case j is always 7/18ths of the em quad, or 7 units thick.

In adapting regular Linotype faces to the Teletypesetter system, alphabet length and the thickness of the em quad are of primary importance, while point size designation is incidental. As an example, 6-point Excelsior with Bold Face No. 2, with Italic and with Gothic No. 3 all have em quads measuring .0968″ which is the true 7-point quad size. Their alphabet lengths are 107, 107 and 103 points respectively. These faces are obviously suited to the Teletypesetter set-size of 7, and were redesigned to give them an alphabet length of 103.2 points.

The same applies to the 7-, 7½- and 8-point faces in "8-set." They were all closer to the 8-point quad size and the 118-point alphabet length than any other set size. For Perforator purposes, they are punched as true 8-point faces, since the unit sizes on which the matrices are punched are fractions of the 8-point em.

In the course of the design and manufacture of a new, non-unit font of matrices, the various characters are drawn from the esthetic point of view, and are assigned brass widths entirely unrelated to the unit system. When they are to be used for Teletypesetter composition, their brass widths are compared with the units of different set sizes. Once the most suitable set size has been selected, the assignment of the characters to particular unit sizes is mandatory. All caps C, L and T, for example, must always be 13 units wide and all lower-case j, f and t must always be 7 units wide.

Questions are frequently asked regarding tape composition with non-unit matrices. Can it be done? If not, why not? Let us suppose that a font of non-unit matrices is similar to 8-set, in that it has an alphabet length of 118 points and has an em quad of .1107″. It would seem that Teletypesetter matrices would be unnecessary. However, since *all* characters in a Teletypesetter font are punched on different brass widths than are regular matrices, accumulated differences, caused by several thicker or several thinner matrices in the same line, will result in frequent tight or loose lines. It is true that these differences will offset each other most of the time, but those who have attempted such operation have usually concluded that the manual resetting of a large number of lines is not economical. And when a tight line occurs, the line itself, the succeeding line, and often the rest of the paragraph must be reset.

A recent analysis of a typical non-unit font, indicated that the following changes would have to be made for Teletypesetter operation. The same punch could be used for 105 characters, but 44 of the matrices would be narrower and 61 wider than the original. 43 characters required modification and remanufacture of the punch to suit it to a narrower brass size, while for 60 the character had to be completely redrawn and new punches manufactured. Result—of the 208 regular and auxiliary

characters needed for Teletypesetter operation, 208 had to be revised either in thickness alone, or in design and thickness. A tabulation of these changes is interesting and is shown here:

New brass size only (smaller)	44
New brass size only (larger)	61
New punch and new brass size	43
New drawing, new punch, new brass sizes	60
Total changes in 208 characters	208

This should provide an answer for those plants who ask *"How many of our present non-unit matrices can we salvage for Teletypesetter operation?"* Incidentally, the same situation applies when a change is made from one set-size to another. Since all unit sizes vary with set-size, complete new fonts must be ordered.

The differences between the Standard Perforator and the Multiface Perforator have caused some confusion. The Standard Perforator has a built-in counting mechanism which counts in terms of eleven different units. The Multiface Perforator has a removable counting magazine which counts in terms of 28 different sizes. When a change is made to a face of different alphabet length, the counting magazine is changed. The Standard Perforator will operate only with unit matrices, and the Multiface only with non-unit matrices.

The Standard Perforator is ideal for newspaper composition and is a "must" if circuit operation is contemplated. The Multiface Perforator, originally called the Book and Job Perforator, was designed for use with the variety of faces found in book and commercial composition. It will handle newspaper composition in non-unit characters, provided circuit operation is not involved.

More About the TTS Counting System

IT MUST always be kept in mind that the TTS Perforators (both styles) are a combination of two distinct mechanisms. One is a selective punching device to determine the holes in the tape which will determine the keyrods to be actuated on the Linotype. The other is a computing device which accumulates the units of space that will be occupied by the composed matrices, also providing for the range of space to be filled by the spacebands during justification on the Linotype. This counting system is *positive* for the Standard Perforator and TTS unit matrices. But it is only *approximate* when standard Linotype matrices are composed with the Multiface Perforator.

Turn now to page 8 of the Handbook and study Fig. 4, the Indicator Scale on the Perforator. It looks complicated—but it is actually simple in performance.

In this picture, the type measure or line length to be composed is labelled "COLUMN WIDTH" at the top. This is set at "20 KEYBOARD EMS." The Linotype assembler scales are graduated in picas, and pica measurements control molds and slugs. But TTS uses EMS (like the Monotype keyboard) and those EMS change with each change of set (page 38 in the Handbook). Thus any column measure to be composed on the Perforators must be converted into ems, established by the set of the face. That procedure merely needs a conversion table.

The Perforator Indicator Scale of course reads in ems—and it is reverse-numbered, from left to right. The *Indicator* itself (shown in the picture as the small black triangle-pointer extending downward at 1 em) moves from left to right. It shows, as it moves with each keyboard stroke, how many ems of line width *remain to be filled.* That is the purpose of the reversed scale, left to right.

Just above the Indicator Scale this drawing shows a line of type characters that have been composed: "Type Composition is now Automatic." Above the characters appear the figures showing "UNIT VALUES OF TYPE," beginning with 18 for an em quad.

Between the words four spacebands will be composed. With each touch on the spacebar of the keyboard the Indicator Scale *itself* has moved to the left a distance corresponding to the minimum thickness of one spaceband.

Meantime the two *lower* pointers, which project upward across the Indicator Scale, have also moved with each touch on the spacebar. Their relative positions show the maximum spread of the spacebands in the line.

When the Indicator reaches a point anywhere *between* the two spaceband pointers (as in this drawing) the composed line will justify on the Linotype. That means simply that the remaining unfilled line width is *more* than the minimum width of the spacebands, and *less* than the maximum spread of the spacebands it will contain.

This condition, on the TTS Perforator, parallels for the TTS operator the situation in a Linotype assembling elevator when a line of matrices and spacebands approaches the full measure. On the Linotype the operator *sees* the actual matrices and bands—on the TTS Perforator the Indicator pointer shows how far the matrices will extend and the spaceband pointers, in relation to

the Indicator show when the bands will spread properly to justify the line.

Let's drive home this principle by computing the actual units of this illustration (again Fig. 4 in the Handbook). We have:

a). 20 keyboard ems (each of 18 units) become 20 x 18, or 360 units.

b). The type characters, and one em quad, as shown add up to 319 units.

c). The remaining line length is 360 minus 319, or 41 units. This is to be filled by the spacebands. In terms of these units, one band has a minimum thickness of 6 units and a maximum spread to 24 units. With four bands, the total minimum would be 24 units and the total spread 96 units. The actual line length to be justified is 41 units, comfortably between the minimum and maximum.

That procedure of adding up units and establishing the relationship of spacebands is exactly the function of the counting mechanism of the TTS Perforators, either style. It emphasizes the importance of unit-width matrices for use with the Standard Perforator. For the Multiface Perforator the mathematics become somewhat more complicated.

How TTS Computes Non-Unit Matrices

On pages 10 and 11 of the Handbook, the picture of the Multiface Perforator features its counting magazine. The description emphasizes the counting blades, each bearing small projections that serve selectively somewhat like the teeth on a matrix. They provide for 28 different movements of set-width on the Indicator Scale, instead of only 11 on the Standard Perforator.

But the Handbook says "it does not count with absolute mathematical accuracy as does the Standard Perforator since the brass widths of the matrices vary slightly from one face to another." An illustration of that condition may help.

For this purpose we may make comparison of two distinct cuttings of 7½-point Excelsior with Bold Face No. 2. Both appear alike to the reader, but one is cut on the TTS unit system (7½△46) and the other on standard Linotype matrices (7½△6).

The TTS unit matrices for this face (the 8-set version) are made with the basic 11 widths of brass, ranging from .0369″ through .1107″.

But the non-unit standard matrices, made to the original letter designs of the Excelsior face, require 46 widths of brass, ranging from .0311″ through .1280″.

In this comparison an identical font scheme of 79 characters has been used, being that shown on page 37 of the Handbook.

When the non-unit Linotype matrices are to be composed with a Multiface Perforator, the 46 brass widths must be classified within the 28 groups which are counted by this Perforator. The reduction of 46 to 28 groups is accomplished by placing together (for computing purposes) the characters which are *approximately* the same width. Sometimes the differences are a single thousandth of an inch, sometimes more.

Of course this grouping procedure introduces possibilities for slight differences between the *computed* length of a line of matrices and the actual sum of the matrix width. A group handled by the counting mechanism on the basis of a width of .096″ may contain matrices that are .095″ or .097″. Each will register on the Indicator Scale on the basis of .096″ but the composed matrices may vary according to their actual width.

The theory is that such errors tend to offset each other, and practice has shown this to be true. But plants using standard Linotype faces with the Multiface Perforator have found that their TTS operators must learn the spacing characteristics of different faces—some may run a bit "long" on the Indicator Scale and others a bit "short."

A further factor for variation, in running standard matrices, arises with differing widths of the same letter in different type designs. A lower-case e in one face may be slim and in another perceptibly wider. Such variations are part of the basic distinctions in type design.

Because of these varying conditions the TTS people found it essential to arrange a counting magazine for each different face to be composed in standard matrices. From the Teletypesetter Corporation such specially arranged counting magazines are purchased, with the counting blades determined by brass widths as specified by M.L.Co. However, experienced plant machinists (in a few instances) have learned how to make their own adaptation of a counting magazine. They measure the brass widths of the font they want to run (or sometimes ask Brooklyn for these data), make the necessary 28 groups, and place the blades in the magazine accordingly. Fig. 6a in the Handbook shows a number of individual blades.

To the Linotype sales representative this procedure for handling counting magazines (which cost $101.00 each) is merely of technical interest. Such purchases are made from Teletypesetter Corporation and we have no part in them. Our vital interest in the Multiface Perforator stems from its capacity to compose standard matrices, thus avoiding the necessity of re-cutting faces on the unit system. This, in turn, would distinctly harm our good book faces, and it is also a heavy duplication of manufacturing costs.

Let's Compare Standard Linotype and TTS Matrices

PAGES 34 through 40 in the Handbook should be read before this section of our Primer is studied. Then the TTS unit system, with its simple grouping of all the type characters as shown on Handbook page 37, may be kept in mind as we look at a single composed line. Here is a 12-pica, single-column line composed in 7½-point Excelsior with Bold Face No. 2 (7½△6), standard *non*-unit face:

Line of matrices and spacebands

Four spacebands in the above line justify it normally. As set in the *non*-unit 7½-point Excelsior, the total width of the matrices (figured by adding their individual brass widths from Matrix Dept. data) is 1.700″.

The 12-pica column measure equals 1.992″. The difference between the width of the matrices and the width of the column becomes 1.992″ minus 1.700″, or .292″. The latter, .292″, is the width filled by the four spacebands during machine justification. (Each Special Taper spaceband, used for TTS, measures minimum .0369″ and maximum spread .1219″.)

If the same line is set in TTS *unit* matrices for 7½-point Excelsior with Bold Face No. 2 (7½△46), the reader's eye cannot readily find any difference in *appearance.* Yet throughout both fonts *not one single character* has the same brass width in each. Thus the line, shown above, if set in the *unit* matrices would have a total width of its matrices amounting to 1.6842″. This leaves .3078″ to be absorbed by the four spacebands.

While either of the above lines would justify properly, the differences between *non*-unit and *unit* matrices, in the same face, produce an alphabet length of 123 points in the non-unit and 118 points in the unit face. Certain characters differ as much as nearly ten thousandths (cap A, for instance, measures .096″ in non-unit and .0861″ in the unit matrix). These differences are such as to prevent satisfactory performance with TTS unless unit-system matrices are used. While some lines, like the above, might justify, other combinations of letters would defeat the counting mechanism.

Don't Substitute Matrices in TTS Plants!

THE FOREGOING comments have been especially emphasized in a memorandum to the Sales Organization (7-26-51), warning against the substitution of one kind of matrices for another in TTS equipment. Particularly at a time when a face may be changed, from standard to TTS matrices, a thrifty machinist or foreman may want to keep a stock of sorts matrices, previously bought, and use them with the TTS matrices.

In the case of the 7½-point Excelsior with Bold Face No. 2, there are *three* separate and distinct faces:

1). 7½△6—standard Linotype matrices, with l.c. alphabet length of 123 points, and made on brass widths ranging from .0311″ to .1280″ in a total of 46 different widths.

2). 7½△46—TTS matrices, 8-set, alphabet length 118 points, made in 11 brass widths from .0369″ to .1107″.

3). 7½△22—TTS matrices, 8.66-set, alphabet length 128 points, made in 11 brass widths, from .0400″ to .1199″.

These three *cannot* be intermingled, for TTS uses, without disturbing the counting system.

The same restrictions apply to *any* of the TTS faces and their counterparts in standard Linotype faces. They all *look* alike when composed but only the TTS unit matrices meet the needs of the Standard Perforator. For a Multiface Perforator, with a counting magazine arranged for a standard Linotype face, the same confusion would develop if TTS matrices were mixed into the font. That, however, is not apt to occur.

Problems with Column Measures under 12 Picas

CURRENTLY we are confronted with efforts to relieve the distortion caused by excessive stereotyping shrinkages through the use of column measures less than the normal 12 picas. Such reduction in column measure brings a related problem when TTS wire services are used. These services are all coded for standard alphabet lengths of 118 points and 12-pica column. A reduction of even a few points in the column means automatically it is an effort to squeeze the last few characters into the reduced line.

When 12 picas are reduced to 11 picas–9 pts. (as recently occurred in the *Boston Herald-Traveler*), the loss of just 3 points seriously hampers TTS operations. The more openly spaced lines may set, but tight lines

become so frequent that production losses defeat the whole TTS idea. The substitution of thin spacebands has proved to be impracticable.

The mathematics of this condition are worth remembering:

A 12-pica column measures 144 points.

Reduced 3 points, the measure becomes 141 points. The loss, percentagewise, becomes 2.12%.

If the column measure is reduced 2.12% then, mathematically, a similar reduction of 2.12% in the set width of the matrices would hold the same number of matrices in the narrower as in the 12-pica column.

Taking 2.12% off the standard alphabet length reduces it by approximately 2.4 points, giving us a related standard for the 11–9 column of 115.6 points alphabet length.

For the *Herald-Traveler* special 11–9 matrices were manufactured for this special 115.6 alphabet length. This procedure must apply to any similar problem—special matrices at a special price—until the narrower column trend may have levelled off to indicate a manufacturing policy.

Other problems of reduced column measure, with TTS operation, were discussed in EL-65, dated September 28, 1951. Noting that ANPA data on column widths (96.8% of 581 newspapers were using 12 picas), the wire services thus established their TTS circuits standards, with 118 points alphabet length proven by experience to be the preferred type standard.

If some paper wanted to use 11–6 as its column measure, the reduction of 6 points becomes 4.2%. The 118 points standard, when reduced 4.2%, becomes 113 points. No present TTS face exists in that length. Again special manufacture would be required.

If the salesman who encounters this problem makes the typeface calculations right on the spot, he can show any plant executive exactly what is involved. This should guide further procedure more smoothly, without an interruption for correspondence with Agency or Brooklyn.

Sales Relationships in TTS

SINCE the rapid growth of TTS affects many of the separate and sometimes conflicting interests in Printing and Publishing, the Linotype Production Engineer ("in the middle" as usual) finds himself confronted on all sides with questions of policy and procedure. Production quotas—labor relationships—group action toward circuit hook-ups—special matrix problems—all these enter into TTS installations. The Linotype Handbook and this Sales Primer have provided most of the answers, but this development moves so rapidly in current events that the Executive Letter and current Sales Bulletins are needed to keep abreast of the situation. It may be helpful to summarize the more important recent factors:

Standard Matrices Not Good as Sorts for TTS Fonts

The preceding sections make it clear that TTS matrices differ from standard matrices in identical faces. Certain thrifty plant executives, trying to save the extra charge for TTS faces, have tried to mix them, but with unsatisfactory results. It doesn't take much resetting of tight lines and their resultant runover paragraphs to balance out, at today's hour costs, the difference between standard and TTS matrices on a sorts order.

And why do TTS matrices cost more? Because the volume of sales, thus far in the history of TTS, is small in comparison with the movement of standard matrices. It may be possible, at some future time, that sales of TTS matrices will mount to the extent that their price can be that of standard matrices—but not today.

Covering a NEW Prospect for TTS. When the P. E. finds a possibility for TTS in a plant not hitherto known to be interested, he uses the Handbook as a basis for discussion and leaves it for further study. He immediately reports the prospect to his Agency. If the Agency finds no previous TTS action in the customer's file they report the prospect to the Teletypesetter Corporation, Chicago, explaining whether circuit or merely local operation may be involved. As the sale develops it is important to maintain contact with the TTS people. The relationships are "triangular" and can easily suffer from misunderstandings unless all hands are kept informed.

Making TTS Estimates. In a joint installation, Linotypes with TTS, the Linotype P.E. figures *only* the Linotype equipment while the TTS representative must supply the estimates on that portion of the set-up. But, for informal discussions of an overall picture, the Linotype P.E. needs to know the general items of cost for TTS equipment. They are detailed in memos to the entire Sales organization, with the various unit costs reflecting the periodical changes in price which mark present-day conditions. Therefore the Linotype P.E. must study these data and must understand how a proposed TTS installation will be affected by such items as the Adaptor Keyboard and by the different sets of Linotype parts required to apply TTS to the Comet.

Circuit wire costs cannot be summarized in a given figure. They vary with localities and distances. But the wire service agencies maintain their regular rates when

a group of papers sets up a central editorial headquarters. The publisher will usually be first to learn of any newly projected TTS circuit and the costs thereof in wire rates.

The I. T. U. Attitude. Trade paper reports and the Typographical Journal keep us informed of I.T.U.'s reluctant recognition of the impact of TTS. Technical progress has compelled the Linotype Company to keep pace—I.T.U.'s tacit encouragement of restricted production has not stopped Linotype's effort to adapt the machine to present-day conditions. Yet, in every local condition that may have a controversial flavor, when TTS is used by the publisher to cut costs, we must maintain a completely neutral stand. The P.E.'s normal contacts are in the Composing Room, but he finds the publisher in direct conflict with his men—then the P.E. must use all his tact and diplomacy to preserve relationships.

Training TTS Perforator Operators and Monitor Machinists is a phase of the TTS installation which lies wholly between the publisher and the TTS people. We can repeat what we have learned about the experiences of others, as reported in the Handbook, in sundry mechanical conferences, and in the trade papers. But we cannot make assurances of performance.

The monitor machinist will usually be the regular Linotype machinist in the plant. He *should* be our friend through past regular relationships. But his TTS training will come from them—not through us. It is *important* to note and report his attitude toward M.L.Co. *after* his TTS training.

Competition has become more acute since the earlier days of TTS when most of their people frankly stated that Linotypes performed better than Intertypes when TTS-equipped. The "High-Speed" developments and the effort to "soup up" standard Intertypes in the field have been evidence of the impact of the Comet as an outgrowth of Linotype's better performance with TTS from the start. Detailed discussions in the Executive Letter should be fully studied—they cover, to date:

Intertype Quadder Claims are refuted in EL-19 and EL-44.

TTS Circuit Operations, as of July, 1951, are reported in EL-57.

The Comet vs TTS Model C shows Comet's superiority in EL-60, and in EL-64 and 65.

14-Point Composition with TTS Comet in EL-61.

Widow Lines and TTS Problems, Corona vs Regal are clarified in EL-32 and 33.

Applying Adaptor Keyboard for TTS is discussed as a Factory-installation-only policy in EL-55.

TTS-Set Column Width discusses problems when measures less than 12-pica columns are to be used, in EL-65.