COMPOSING MACHINES OF TO-DAY *

BY CHAS. H. COCHRANE.

The question of profit in the composing-room rests largely upon the composing machine that either is in use or is to come. Perhaps it is not too much to say that the principal cause of loss in composing-rooms is the coming of the very machines designed to save labor in composition. If there were no machines the price of hand composition could be raised to at least a living rate; but since the machines have come and prices of composition are cut, the desire to hold composition in offices where hand work is done has induced the unnatural condition of typesetting at cost and less than cost.

The only remedy for this state of affairs appears to be through the very machines that caused it. The firms that bought Thorne and Empire machines ten or fifteen years ago made money by their enterprise, and the firms that bought linotypes within the past few years are also to be congratulated upon the profits that they are presumably reaping. I say "presumably" because there has been a tendency in some quarters (away out West) to cut the rates of linotype composition below a profitable figure.

We must concede frankly that the old Thorne and Empire machines are now back numbers, for their manufacturers virtually admit this, and are putting out improved machinery better suited to compete with the linotype. A few years ago most of us thought the linotype not suited to a good grade of book or magazine composition. To-day the linotype probably controls the bulk of this class of composition, although much of the better grade of type composition continues to be done on the Thorne, McMillan and Empire machines, which, though more costly to operate than the linotype, because of the three men employed per machine, maintain their places because they handle foundry type, the best type we have.

This being the condition of affairs, it is of supreme importance to proprietors of composing-rooms to be able to form a correct judgment as to the wisest course to pursue in regard to the purchase of machines—whether to put in linotypes, and trust to getting the money back before the perfect machine typesetter comes along, or to hang on to some three-man machine, or to continue hand composition at a loss while waiting for a one-man automatic justifying typesetting machine.

I must admit at the outset that the linotype machine to-day practically controls the situation, but also that it is not suited to some classes of composition. It will save anywhere from thirty-three to ten per cent. in cost of composition on most classes of matter, but the quality of the product does not rank with that of foundry type. Considering the means, however, and that a linotype slug is not true in its proportions as are types, it is a matter of admiration that such good work is turned out. Many of the leading periodicals of the day are set on the linotype, showing what can be done with linotype slugs, but we know that such good results involve the throwing away of a considerable number of poorly-cast slugs.

The linotype is all we can ask for in a line-forming machine, but we want also a machine that will set the best grade of type at the same cost that the linotype produces newspaper composition. Are we going to get such a machine, and where? For half a dozen years and more, printers have been told that the ideal machine "would be out in a few months," and many who ought to have bought linotypes have grown poor waiting for this ideal machine, and now they are wondering whether they are foolish for holding off any longer, or whether they would be foolish to invest and then see a better machine sold at a lower price to others take away their work.

The linotype machine has an advantage over the type machine in keeping matter standing; the type machine has the advantage over the linotype in corrections. Each has its field, and a large book and job office really requires both kinds of machines. A one-man justifying typesetting machine would have the economy of production of the linotype, and could handle work that now has to be done by hand or on three-man machines. Among the machines that the trade has been told were to revolutionize the situation, the most prominent are the Unitype, Dow, Lanston, Goodson, Empire and Johnson. In connection with the Unitype, we must consider the Cox and the Simplex machines, which are controlled by the same company.

As most of you know, the Simplex is an improved form of the Thorne, being arranged so that one man can do his own justification by hand, at intervals of every half dozen lines composed. The boy who supplied the distributor in the Thorne is dispensed with, and the keyboard operator or some one else stops occasionally and supplies a handful of dead matter for the distributor. In this way the Simplex becomes a one-man machine, and I must say that for simplicity and even working it is most admirable. No one who knows the old Thorne and has not seen the Simplex should draw the inference that he knows what the latter machine is, for ten to one it is far better than he thinks. As yet the Simplex is not known to New York City offices, because it is only made to distribute matter of newspaper widths, but I do not doubt that it will be available for all measures within a very short time. As to its product, I should say that 2,500 ems an hour is not too much to expect of an average twenty-dollar-a-week operator with full copy.

The Cox machine was exhibited in New York two years ago, being the one that was exploited by Barnhart Brothers & Spindler, and now the property of the Unitype Company. It is a one-man machine, and effects justification with a crimped or corrugated space, that is squeezed to bring an overset line to measure. Two automatic machines are required for the distribution processes. For some classes of work this machine might be very economical, but I do not see how it is possible to do electrotyping from matter filled with spaces that would surely let in the wax, and I have also serious doubts as to the success of stereotyping from such type composition. Evidently the makers realize these difficulties, for they have not marketed the machine, and I do not believe that they will until thoroughly satisfied with a system of justification. That the Unitype Company's machines will all be provided with automatic justification in the near future seems certain, as Mr. Cox and other inventors are known to be working to that end; I shall be surprised if 1901 dawns before the Simplex and Unitype machines are offered to the trade with automatic justifiers.

The Dow machine is the invention of Alexander Dow, a trained mechanical engineer, who received a rich legacy from his father, Lorenzo Dow, in the shape of a dozen years' experience with a gravity typesetter that never was marketed. Mr. Dow has profited by this experience and his own genius, and produced a most remarkable and, I believe, wholly practical machine. The setter and justifier are combined in one machine, operated by one man, with a speed limited

* Addressed to the New York Typothetæ.

only by capacity to finger the keys, the justification being wholly automatic. The distributor is a separate machine, operating at a speed great enough to supply three composing machines, so that three men and a boy could operate a three-machine plant, and, as I figure it, produce type composition at a little less cost than slugs can be produced on the linotype. I hear that this company has recently acquired a large accession of capital, and that its machines are to be put out as quickly as possible. As they now have a perfect-working machine they ought to be able to market them in quantities inside of a year.

The Lanston monotype machine is the one that has recently been placed in the *Sun* office. It is perhaps hardly kind to judge of its work under the trying conditions of a strike, but it is evident that it will have to make a much better showing to be preferred to the linotype or Simplex. I am told that on the *Sun* there is one man to every keyboard and another man to every caster, and about one corrector of galleys to every two machines, making a labor cost of two and a half men to each machine, besides taxing the proof-room heavily with extra labor.

The Goodson machine naturally comes next for consideration, being designed on the same general plan as the Lanston, namely, with a separate keyboard, like a typewriter, on which a paper tape, like the tape of a stock-ticker, is punched with holes. Later the paper tape is taken to an automatic type-caster, that sets the type in the order directed by the punched holes, and casts the type as they are set. While this machine is open to many of the same difficulties as the Lanston, yet its mechanical design is far superior. There is only about one-fifth as much mechanism as on the Lanston, and, of course, much reduced chances of getting out of order. I must also give the inventor, George A. Goodson, the credit of making the best type that I have seen produced outside of a regular foundry. By the use of an electrically-heated tube and a cold mold he is able to cast types of comparatively hard metal and sharp face, Whether these advantages of mechanism will overcome the difficulties of the tape system, as made apparent in the *Sun* office, is a matter that the future must determine. The Goodson machine may be offered for general sale sooner than any of the machines I have discussed.

As question has been raised at times as to a conflict of patents between the Lanston and Goodson machines, owing to their both using the paper tape system, I would say that this system is thirty years old, being originated by Mackie, of England. It is public property, and anybody can make use of it. There is an inventor who claims that both of these machines infringe his patents, but so far as I know none of the composing machine companies in the field can stop either of them.

The Empire machine is being fitted with an automatic justifier, and the distributor is also being redesigned to operate at double the present speed. When I last saw it the machine was not quite perfect, though in a most encouraging state. I have faith that it will be perfected and marketed within a comparatively short time.

The Johnson machine, which has been exhibited by Stodder Brothers, on William street, justifies automatically by measuring the line of composed type, and sawing spaces from slugs to the proper justifying width and inserting them automatically. Distribution is avoided by supplying a caster and simply throwing the dead matter in the melting pot. The setter and justifier are comparatively small and simple machines, but I believe that the caster will have to be experimented with further before it can reduce the cost to the same level as type distribution. At present it is practically a two-man machine. Doubtless the company interested will improve this part of the system before marketing the machine.

I might mention a dozen more projected machines, but as no one of them seems ready for the market, it would only take up time to no purpose. I ought to add, however, that besides the complete machines we have discussed there are independnt justifying mechanisms being constructed for attachment to non-justifying machines, such as the Thorne, McMillan and Empire. Inventors Des Jardines and Chalfant and others are working on this problem, and if the manufacturers of the machines named do not speedily offer their customers automatic justifiers there are others who will do so. It is well, therefore, to hang on to old three-men typesetters, as they may yet earn good money for many years.

As a summing up of my observations, I do not see how, with four or five reasonable possibilities of a one-man automatic justifying typesetter being ready so soon, the printer can fail of an opportunity to buy something satisfactory within a year, and as a result of so much competition the prices of composing machinery must come down within a few years to a level that will place both typesetting and line-forming machines within the reach of all.

THE MANAGEMENT OF A COMPOSING-ROOM *

BY CHARLES A. FRALEY,
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I lay no claim to stating an original truth when I say that if you are in the business to make money, thorough system is indispensable in a printing office.

The foreman of a composing-room who has the reins of his department well in hand over his desk, so to speak, is like the skilful driver on the box behind the four-in-hand. With the reins firmly grasped is he is master of the situation; he knows what is expected of him, and how to perform his duties. As an example of thorough system, take the fire department of a large city. The gong sounds the alarm, and a thorough training of man and beast combines in getting the engine under way in the smallest possible fraction of time. A thorough study of all points has resulted in such perfection in the fire system that old "Pop" Time is kept busy recording the seconds when the boys go to a fire. System will do for the workroom what it has accomplished for the fire department. After a thorough study of the question, a scheme has been evolved in the composing-room of the John Polhemus Printing Company whereby, among its other advantages, "copy" can be put in hand in the shortest possible fraction of time. Why, it can be done almost as quickly as a fire engine getting out after the gong sounds.

It is something like this: The bell rings twice; up whirls the copy box, and thirty or forty pages of copy, marked "rush" lay before the foreman. Does he get up and shout out his orders to this man and that? Does he get "rattled"? Not if he is thoroughly familiar with all his resources. He must know in an instant which of his men have the kind of type required to set the copy, and also the exact condition of all the

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