TYPOGRAPHY

Printing Gets "New Look"

A machine which may outmode movable type and high-speed presses that may be able to print in six colors are some of the promising advances ahead.

By WATSON DAVIS

➤ THE PRINTED WORD, so important in keeping you up-to-date on news of the world or entertaining you, is getting a "new look" to those expert in the technical processes of printing.

The pages of this magazine or other printed material are not likely to look markedly different in coming months. But a tremendous spurt of experimentation in printing methods and apparatus is taking place behind the scenes.

It is a big leap from Gutenberg to the high-speed rotary newspaper press. Gutenberg in the 14th century is credited with inventing movable type.

One advance in the next few years is likely to outmode the movable type, whether set by hand or by machine. It is composing by photography.

Several photocomposing machines are in experimental use and one company known for typesetting machinery has its photocomposer in day-by-day use in several large plants.

Photocomposing Machines

Usually these photocomposing machines will be used to set up material for lithographic printing. Lithography has come a long way from the days when an artist drew pictures directly on a special stone from which copies could be made by use of the fact that ink would stick to the markings and not to the stone. Lithography is now generally done from a metal plate on which the reproducing images are placed by photographic processes.

The new photocomposers are useful because usually type matter to be lithographed has to be set with ordinary type and then a proof pulled which must be photographed as a negative in order to transfer the image to the lithograph plate. These additional steps for getting words into lithographic copy impose a burden upon the process.

Photocomposers would make negatives directly and these could be used for making plates for lithography—for rotogravure or for line engraving that can be printed on ordinary presses—what is called letterpress.

In the Government Printing Office in Washington, one of these photocomposers is at work and it has been used on various jobs, including a series of guides for the National Parks. This machine is the Intertype Corporation's Fotosetter. Other such machines are in experimental production or use.

A new kind of high-speed press is being developed with the idea of using electricity to entice the ink from the plate to the paper, without the paper and printing even coming into wearing contact. This "electronographic" press of the Huebner Laboratories is in pilot press stage, but many printers are excited about it because it may be able to print in six colors on both sides of a roll of paper at the same time—bringing color at high speed to newspapers and long-run magazines.

With color invading the printing processes at a great rate, another new device is an apparatus that matches colors electronically in making the printing plates by various processes.

In Chicago for many months the newspapers have had a different appearance because the compositors who run the typesetting machines have been on strike. The newspapers have been getting around this lack of typesetting by making photoengravings of typewritten copy, much as they normally reproduce from drawings and photographs the illustrations of the newspaper. This typeless printing short-circuits the linotype and intertype composing machines necessarily idle because of strike. Everything else—plating-making presses, etc.—is the same.

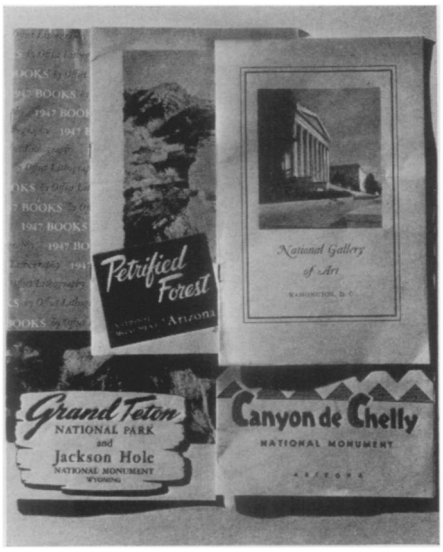
This emergency method, which has focused attention on printing technology as never before, is really not anything new. It was used by the old Literary Digest magazine nearly 30 years ago when its typesetters were on strike. It was used a little later in London and Paris for a similar reason. Within the past year its use in this country has greatly increased.

Typeless Printing

The Literary Digest typeless printing job was merely photographic reproductions of typewritten pages made with ordinary typewriters. It opened the eyes of publishers to a possibility of a printing method perhaps better than that used for long years. It also interested inventors in developing special typewriters for the purpose and better and more rapid methods of electroengraving.

In early ordinary printing tiny rectangular strips of metal, with a letter in reverse on the end, were assembled by hand in proper order in a form from which the

WHIRLING PRESSES—This high-speed rotary newspaper press marks centuries of progress since Gutenberg who is credited with inventing movable type.



PHOTOCOMPOSING — Machines, called photocomposers, make negatives of the material desired which are then used for making plates for lithography. Here a series of guides and other publications were produced by this method.

printed matter was made. This process is still used to a certain extent but is too slow and costly for printing in quantity.

Most type is now set by such machines as the linotype which produces type cast in lines or bars.

The hand-set or linotype-cast bars of type are set in frames in a printing press. Ink is applied to the face of the type. Then the paper to be printed is pressed against it. However, if many copies are to be printed, lead casings called stereotypes are made of each page. These can be used on the rollers of high-speed rotary presses.

The typesetting trade is as old as printing itself. It is not to be expected that no typesetters will be needed in the future. Newspapers and other printing plants have huge investments in giant typesetting machines. However, new printing companies will certainly study the new process and may decide to use typists instead of typesetters. And as the giant machines become worn out in old plants, some of them may never be replaced.

One problem encountered in using ordinary typewriters for newspaper work is to arrange the reading material in lines of equal length and in columns perfectly aligned on the right as well as the left side. In ordinary typesetting this may be accomplished with inserts to widen the spaces between the individual types or between separated words. In the ordinary typewriter there is no way of spacing letters farther apart, but greater space may be put between words.

Justified Copy

Justified copy is the printer's term for properly columned type. Justifying typewriters are relatively new typing machines which can be used to produce justified copy. There are several on the market and others in the testing stage. Some of them will permit the changing of type face or size. Some have type especially designed for newspaper work, producing copy that resembles closely the familiar printing type. Some have provisions for an improved spacing of letters, with more space for wide letters and less for the thin ones. This provides easier reading.

After the justified copy has been typed, it must be assembled into pages. The columns are pasted on a make-up cardboard sheet the size of which depends upon the

size of the page to be printed. This form page is photoengraved on metal, and stereotypes made from the engravings. These are placed in the rotary press. The proposed, and partly in use, printing process has advantages and disadvantages of course. One appeal to printers is a probable saving in printing costs. Ordinary typists with a little special training can operate the justifying typewriters, and typist wages are only about one-half of that paid members of the International Typographical Union. There is a similar reduction in make-up costs, and new devices for electro-engraving can be operated with personnel of only a few days training.

There are several devices which permit the use of regular linotype machines by ordinary typists. One is a typewriter keyboard attached to the keyboard of the linotype which, instead of producing ordinary typing, operates the linotype producing the same cast lines which the trained linotype operator would produce.

Then there is the teletypesetter which has been in use for some time. These machines have typewriter keyboards, and when used produce a tape with perforations that represent letters and punctuation marks. This tape is then put in a special device on a standard typesetting machine, and automatically controls the operation of the machine to produce cast bars of printing type.

This device is used for operating typesetters at a distance from the office where the perforated tape is made. Electrical impulses sent with its use operate typesetters in distant cities where copies of publications are printed to save time and cost in distribution.

The Vari-Typer, made by Ralph Coxhead Corp., New York, is a semi-automatic justifying typewriter with interchangeable type faces, includes several hundred sizes and styles. In use, two manual typings of the material are necessary. The matter to be printed is first rough-typed with the varityper itself, or with an ordinary typewriter, on the left side of a sheet, justified as far as possible. The typed sheet is then put in the justifying machine, or if it is already in it the carriage is moved to the left. In retyping each line, the machine automatically justifies it.

Typeless printing may be said to be in an experimental stage but its future is definitely promising. The printing industry is watching developments closely. The newspaper business is keenly awake to its possibilities and will not let others surpass it.

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ENGINEERING

Gas Turbine Locomotive Is Undergoing Tests

➤ NEWEST development in locomotives is under test by the American Locomotive Co. and the General Electric Co. in Erie, Pa.

The first gas turbine-electric locomotive to be built and operated in this country will be operated on a demonstration basis by the Union Pacific Railroad next summer. This locomotive is now fired by oil, but engineers hope it will lead to a successful coal-burning gas turbine.

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