All this will be influenced by the urgency connected with the transmission of raw data and the receipt of the answers.

The typewriter will be capable of receiving punched paper tape at very high speeds through a photo-electric reader. It will operate at double the speeds of present automatic electric machines. We are fortunate in having available here for demonstration to-day a new automatic tape-operated electric typewriter — the Dura Mach 10 — using pertinent data that has been punched on master tapes or edge punched cards. This machine will automatically type out the information at a rate of 175 words a minute without making any mistakes and it will position the material correctly on the page. At the same time, it can punch out a by-product tape for direct input into a computer. Machines of this kind will be in common use in years to come for automatic preparation of letters and general correspondence where form letters would serve the purpose with minor modifications. It will also have a variety of other uses.

Optical Scanning - It has always been a fond hope that some day a way would be found to have input devices read the printed word directly. Considerable progress has been made in this direction. Optical scanners equipped with photo electric cells can read letters and figures of distinctive shapes directly from documents and forms.

If this language is going to become common to several types of machines, a certain degree of standardization has to be worked out. In addition, the system is costly and requires extensive use to reach the stage of being practical and economical. The minimum economical quantity to justify an optical scanner is 10,000 documents a day.

The adoption of a common machine language will make its greatest impact in the transfer of documents from industry to industry, but there should also be a potential savings to be realized from the exchange of forms between industry and the Government. These would include income tax returns, customs forms, census of industry reports, etc., where key punching or other processing now required before information can be entered in the computer could be drastically reduced or eliminated. The development of peripheral machines to produce typography suitable for optical scanning is now being extended to typewriters, cash registers, accounting machines, add punches, ADP machines such as Flexowriters, computypers, etc. While optical scanning is now quite costly it is hoped that future development work will lead to more efficient and economical equipment which will come within the reach of more and more users.

Magnetic Ink Character Recognition - The type of coding known as Magnetic Ink Character Recognition (MICR) is similar to optical scanning but uses a different sensing principle. It may be familiar to you as you

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