

Technology | Andrew Pollack

Videodisk's Data Future

SO far, the videodisk has been used mainly to play recorded movies on television sets. But computer industry experts see the day coming soon when disks similar to one type of videodisk now on the market will play a major role in the storage of computer data and office documents. Such disks will increasingly take the place of paper files, microfilm and the magnetic disks and tapes now used to store information.

The disk of interest is not the RCA Corporation's videodisk, which uses a stylus traveling in a groove, but rather the optical videodisk systems sold by Pioneer and Magnavox. They use a laser to read little pits cut into the surface of the disk.

Those pits could store data in the binary code used by computers. Moreover, the pits can be made so tiny that such disks could store mind-boggling amounts of information.

A single disk the size of a record album could store two billion to four billion letters — roughly equal to the contents of the *Encyclopaedia Britannica*. Some companies are working on "jukeboxes" to hold 100 or more such disks, enough to store all the words assembled in a small library.

What is believed to be the first optical system used for document storage in the United States recently went into operation at the Library of Congress. It will use 24 optical disks to store the images of 5.5 million library cards, which would fill several thousand catalogue drawers.

Numerous companies are working on development of such optical disk storage systems. They include the Storage Technology Corporation, RCA, the Burroughs Corporation, a joint venture involving the Xerox Corporation and France's Thomson CSF and another joint venture involving

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See full page image or
microfilm.

the Control Data Corporation and the Dutch company Philips Industries, as well as several Japanese companies.

Others, such as the Eastman Kodak Company and the small Drexler Technology Corporation, are concentrating on making materials for the disks themselves. The products will start coming to market in 1983 and 1984, according to Edward S. Rothchild, a San Francisco consultant who publishes the *Optical Memory* newsletter.

But progress has been slow. Technical obstacles have to be overcome. One is to reduce the error rate in storing data on optical disks. An error on a consumer videodisk might cause merely a tiny spot in a picture, but the same error on a computer disk could lead to serious miscalculations.

A bigger obstacle is to make it possible for users of such disks to record data on the disks and erase it. The consumer disks can be used only to play recorded programs. The first data storage systems on the market will allow users to record information once, by burning the pits into the disk with the laser, but they cannot be erased.

Thus optical disks initially will not compete

with magnetic computer storage disks, which are constantly changed. They are more likely to compete against paper, microfiche and magnetic tapes used for archival storage.

"In the 1988 time frame, most likely, we'll see a significant change in the need for magnetic tape," predicts Juan A. Rodriguez, vice president for research and technology at Storage Technology. A single disk can hold as much information as 40 computer storage tapes, he said, yet the information can be retrieved quickly, without having to wait for a tape to be wound to the right spot.

In addition to storing data, optical disk systems might be used to store images of documents, as is being done by the Library of Congress.

Optical storage systems would initially be too expensive to use with personal computers. However, consumer videodisks, which are affordable, could be used to store data, although not to record it. Even more promising for such use are the digital audiodisks coming on the market within the next year since those disks are smaller and designed to handle on-off digital information.

Leonard Laub, president of Vision Three Inc. in Pasadena, Calif., a consulting concern, said optical disk peripherals for microcomputers would reach the market next year. They could be used to store recorded data banks.

At present data bases are stored in central computers. Users with terminals or desk-top computers gain access to those data banks over telephone lines. Optical disks would let users retrieve information while avoiding telephone charges.

Once optical disks come into widespread use, for instance, the Standard & Poor's Corporation would consider distributing historical financial data on such disks, requiring customers to get in contact with the central computer only for the most recent information, according to Brian Dugan, vice president of technical planning. "It's an ideal marriage — the microcomputer and the digital videodisk," he said.