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Technology Outlook

"Optical storage is at the beginning of its technology curve." Bruce Blumberg, NeXT Inc.

The investment a library makes in today's CD-ROM technology will have a useful life of at least three to five years. But technology decisions are unsettling because few of us have the technical instinct to put our fears to rest and move forward with certainty.

As Mark Sommer observes, "Our very conception of change has changed. The old concept was that change could be dramatic, sudden, and total. The new understanding is that it's sort of a halting, two steps forward one step back, sometimes two steps back and one step forward...It leaps, lingers, lurches, and regresses."'

Changes will occur, bu t the archival CD-ROM promises to remain a reliable, supported standard. From our vantage point, libraries run Ii ttle risk acquiring information products from established companies. Today's CD-ROM technology will change in an evolutionary, not a revolutionary way.

The Changes Ahead

Forecasting technological change in the optical storage area is difficult. CD-ROM applications will grow in sophistication, perform faster, and offer a richer array of features. We all take for granted that personal computers are getting more powerful.

Speed and increased computing horsepower provide a platform for some exciting innovations. Richard Bader, Intel Corporation, hints at the future when he says, "People try to get a grasp on an optical disc as X number of pages of text. Although that is a meaningful metaphor to get a grasp on the size, it's not a good metaphor in terms of how this stuff is going to be used."[2] In the months ahead, look for:

- Optical discs that work like floppies. The user can put his own data on a disc and then read it back.
- Read-write discs that make moving data from place to place effortless. Optical technologies will consequently have an important role in a wide variety of computer systems, not just desktop PCs.
- Multimedia discs which combine words, moving pictures, and sound on a single disc. Products will become fully interactive.
- Information products from companies not now in the information business. Optical technology gives an individual or organization the ability to undertake *desktop database publishing*.

Next Generation Products

Some second-generation optical products are appearing today. We want to highlight just three which hint at the innovations to come.

Multimedia from Voyager Corporation

Voyager is a company developing and marketing optical products for the Macintosh computer. The *Vincent van Gogh Laserguide* costs less than $80. It is a HyperCard index to a disc product which contains scanned images of more than 150 of van Gogh's works.

The laser disc includes background material on each work of art and van Gogh's life and career. Hosted and narrated by the actor Leonard Nimoy, the disc takes the viewer to the places where van Gogh worked. It features dual soundtracks so that the viewer may choose between critical commentary or van Gogh's own thoughts as expressed in the letters he wrote to his brother.

The disc's index organizes the videodisc for viewing by period, theme, topic, time line, technique, influences, and key works. The user has the option of viewing a slide presentation of all the art work in a category. In any category, the viewer uses a mouse to click on the name of a painting, drawing, or photograph to view it or to obtain additional information about the particular picture.

The laser guide contains a separate card or database record for each of the images on the disc. Cards include textual information on the painting or drawing being viewed, a motion sequence that discusses the work, or a look at present day views of the important places where van Gogh's lived and worked.

This product hints at the richness of educational discs, games, and simulation software which will be a natural outgrowth of the CD-ROM variants allowing multimedia on a single small format disc. The Voyager Company can be contacted at 1351 Pacific Coast Highway, Santa Monica, California 90401.

Retrieval Software from Tome

The publicity surrounding Hypercard technology has obscured other retrieval software innovations. An interesting approach to retrieval software is available from a company in London. Tome Associates has built a text retrieval and user interface on work originally completed at the University of London and the British Library. At the time of this writing, Tome software has not been applied to a CD-ROM, however, it merits inclusion in the next generation of optical information products.

Tome's software allows the user to retrieve information by typing a natural language sentence on the screen. The software dissects the sentence and builds a search strategy from the user's statement. If the user types, "Get me information about the marketing of semiconductors in the U.S.," the Tome software builds the search strategy, adds terms to the search, retrieves the information, and displays the results.

If a search requires modification, the software helps the user broaden or narrow the retrieval net. The Tome approach uses a word list developed from terms used by a particular organization and the person querying the database. The thesauri give the Tome-equipped computer the appearance that the machine understands the user's

request. Consequently, the person doing the search needs little or no training. The Tome interface is fully customizable for a particular application or database.

If the query cannot be properly researched using a CD-ROM source, the software can query in-house or commercial databases, identify those which are relevant to the research question, create the strategy, log on, execute the search, and display the results. The conversion of the search from one system to another is fully automatic and requires no intervention by the user. At any point the user can quit, modify the search, or perform any of the downloading and printing functions that are appropriate.

Officers of the company point to the fact that the software lets *any* user perform search and retrieval without instruction. The first-time user can formulate searches and obtain results almost immediately. Tome Associates can be reached at IMO House, 222 Northfield Avenue, London W13 9SJ, England.

Bookbase and Archival Information

CMC Research, Inc., a company in Denver, Colorado, has developed a product concept called *Bookbase.*® The product line is unique because it combines ASCII text with full-color images.

The initial disk products are directed at the medical profession and physicians in the 1.1 .S. and elsewhere. Each product contains the full text, tables, line art, and images from two to five years of a single medical journal. For example, *Pediatrics on Disc: 1983-1987* contains the text and images from five years of the American Academy of Pediatrics's journal *Pediatrics.* Applications include tradi-

tional medical library research as well as information retrieval during patient examinations or treatment. In countries where medical library facilities may not be readily available, the *Bookbase* system provides a durable, easy-to-use way to provide practicing physicians with access to the definitive journals in a subject speciality.

The interface features menus, context sensitive help, free-text searching with full Boolean logic, and, most importantly, the ability to retrieve information about a particular medical condition and flip back and forth between the text, tabular data, and images. The company has developed software to allow the user to print the textual information and obtain full-color copies of the images stored on the **CD-ROM** and displayed on the screen.

Among the text and image products the company now has available are *Cancer on Disc, Wilm's and Other Renal Tumors of Children,* and *Year Book on Disc,* which contains a half dozen 1988 medical year books plus related materials from standard physician references.

The cost for these products ranges from about $80 to $300. In addition, **CMC** offers a full line of hardware and provides text and image services to other companies wanting to *use* the *Bookbase* technology. Contact the company at **CMC** Research, Inc., 7150 SW Hampton, Suite 120, Portland, Oregon 97223.

In Closing

Each of these products is available today, and they hint at the richness of the optical applications available in the near future.

Researchers will have at their fingertips a wealth of information which now must be assembled from a range of sources in diverse media. There will be a place in the library and the office for archival text products.

In the mid-1990s, there will be new applications which will combine words, pictures, graphics, motion video, and full color.

Users will be able to access these images with little or no training. Hard copies will he produced in color or transferred to other media for additional processing. On-line information retrieval will be available to update or supplement the research conducted on the optical media.

One last comment to those of you who will manage the new electronic products: "We are not so much run by what happens as by what we expect."[3] So expect the new information products to enrich us and our ability to serve. The ability to manage this opportunity ensures the vitality and value of our profession. Welcome change because it energizes the information process and each of us.

Notes

[1] *Whole Earth,* Winter 1988p2 1.

[2] *MIPS, February 1989, p. 22.*

[3] Marilyn Ferguson, *Whole Earth*, Winter 1988, p. 10