BOTTOM LINE

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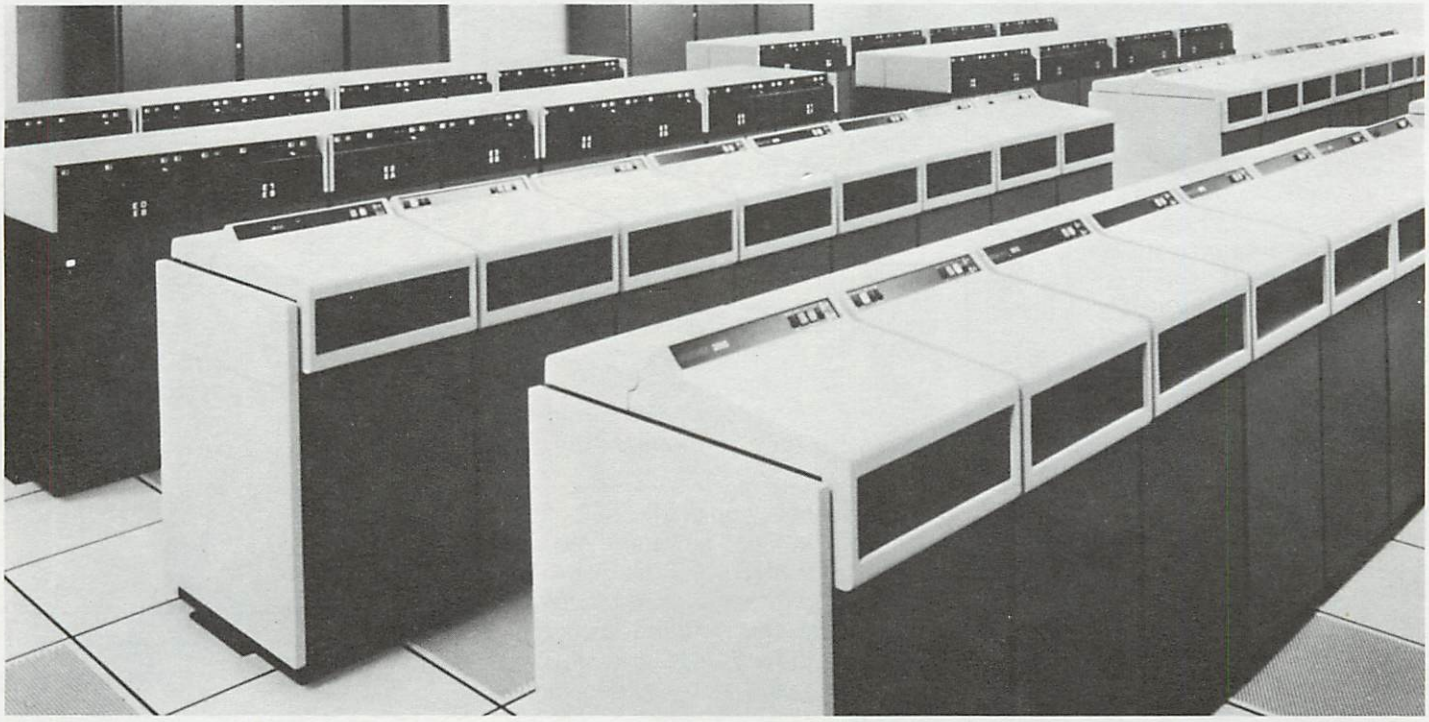


These random-access Memorex disc drive systems enable lawyers, executives and journalists to obtain information on any subject they choose without leaving their offices. Searching for specific words or phrases, the magnetic heads quickly locate material for display and printout on custom-designed timesharing terminals.

Computerized Library Cuts Research Time

DAYTON, OHIO— Electronic research services are bringing vast libraries to the desktop. One of the key components in any such system is a fast, reliable, memory system—disc drives that store vast amounts of data and scan it for topics in fractions of a second.

Envision, for example a desktop computer terminal that can bring you the *Encyclopedia Britannica, The Washington Post,* major magazines, wire service stores, newsletters, the Federal Register, Supreme Court decisions, the Internal Revenue Code, case law from all 50 states, corporate annual reports, SEC reports and various other information, and all within minutes or even seconds.

Consider the efficiency of a system that can search these materials for you and select sections or display the full document on virtually any subject you're looking for. A sizable resource of this type, assisted by a computer-controlled array of disc drives, can eliminate indexes, abstracts and time-consuming trips to the library.

Known as NEXIS, for news and financial information, and LEXIS, for legal data retrieval, extensive electronic libraries already exist via customized timesharing terminals connected to a computer facility at Mead Data Central.

Mead devised a data processing system that can search in and retrieve the full text of information in an interactive dialogue with the user, around-the-clock, nationwide. Other data retrieval services have shied away from this full-text approach by structuring data bases more narrowly. They provide an index or abstract as the first step in locating information. Mead eliminates this step and enables the user to search and browse in all or part of the materials directly.

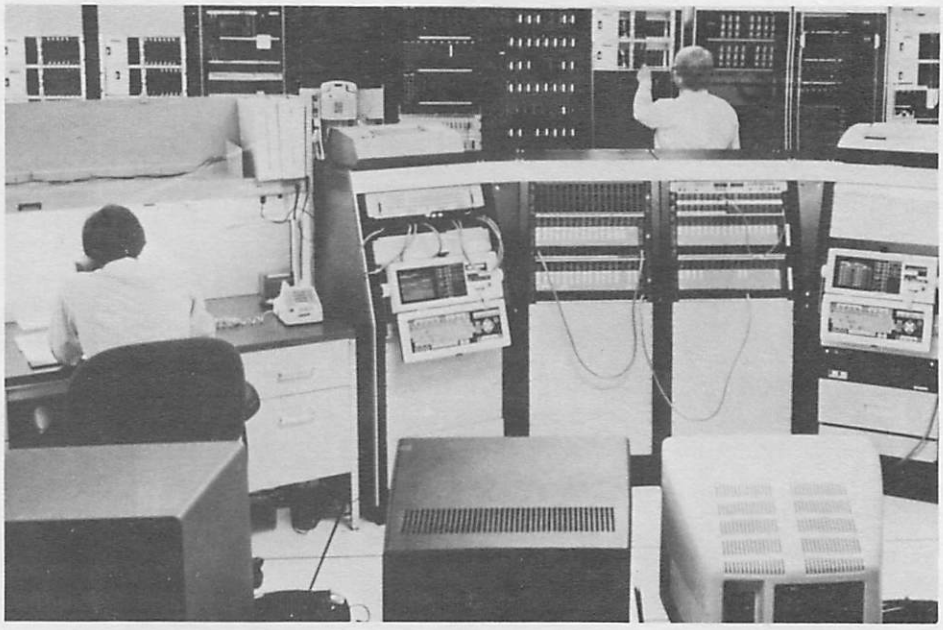
The company has assembled massive on-line data bases of complete texts stored primarily on Memorex disc drive systems and equivalent to about 200 years of reading—more than 32 billion characters of data. The supply

continues to grow as Mead adds new publications and legal materials to its disc storage arsenal.

The "brains" of this service are in the Mead Data Computer Center just outside of Dayton, Ohio, where two large-scale Amdahl computers are connected to an extensive array of state-of-the-art random access disc memory systems. **Most of the disc equipment consists of Memorex 3652s, 3655s and 3656s.**

LEXIS® and NEXIS® can be compared to libraries with high-speed research personnel. Instead of going to the library, you turn on the desktop terminal. Instead of searching the card catalog or indexes, you enter in the word, phrase, or combination of words and phrases to describe your information needs.

Rather than pore through the book stacks yourself, you direct the disc drive magnetic heads to locate relevant data at speeds measured in millionths of a second. No need to check out and return the materials—push PRINT and gather up a hard copy of the materials displayed on the CRT screen.



A computer-controlled array of disc drives performs electronic research services at Mead Data Central's Computer Center, shown here. Memorex disc drives, selected for reliability, provide quick response to search requests, frequently within only 15 seconds.

Full backup

"Every decision to turn on the system is equivalent to a decision to buy time on our service, so our key concerns in setting up our system have been reliability, prompt response and cost-effective delivery," notes Bruce Rhoades, Mead's Vice President of Operations. It took years to perfect the software; now the burden of consistent performance is on the hardware. **According to Rhoades, Mead has been using Memorex equipment for years, based on it's reliability, service support, and cost.**

The configuration is fully redundant. All of the disc drive units are connected to both of the computer mainframes so that there are at least two paths to each storage unit. **Moreover, all of Mead's Memorex disc drive systems incorporate a unique option called Intelligent Dual Interface (IDI). With the built-in redundancy of IDI, each spindle in the disc drive has two independent access paths for optimal throughput. It also means the equipment can be serviced without shutdown—each spindle can be diagnosed and repaired, while all of the others continue to operate.**

The discs are dual-density to maximize the amount of information that can be stored. The more densely packed the data, the less time required to scan and identify relevant texts. **Average seek time on the Memorex systems is only 18 thousandths of a second.**

To further back up this fail-safe configuration, Mead provides three levels of security. First, a complete copy of all the information is stored on tape in the computer center. Then, a second complete tape copy is housed at a separate location nearby. And for further protection, a third full set is ensconced in another facility located in a different geographic region.

Eliminates the middlemen

Mead's NEXIS and LEXIS services respond to more than 25,000 search requests per day—that's an average of more than 100 transactions per hour—and the number is rising as more law firms, corporations, broadcasters, advertising and public relations agencies, unions, government agencies, political organizations, and others subscribe. Mead's extraordinary success recently led *Fortune* magazine to cite it as one of the "hidden gems" in American business.

Already the leading supplier of computer-assisted legal research services, Mead Data Central is expanding in the news and financial areas because of its unique full-text capabilities. This full-text data base distinguishes NEXIS not only from other electronic data services but from ordinary libraries as well.

The company has eliminated the middlemen of information—the indexers and abstract writers whose task is to summarize huge library resources. The problem with abstracting, Mead points out, is that a topic that was minor when the abstract was written may later attract headlines. Or, a side issue to an indexer may be of major importance to an attorney handling a special case or to a corporate executive marketing a new technology.

Mead decided to enable each user to find exactly what he or she is interested in, regardless of how rare, specific, vague or technical that subject might be. And to implement this flexibility, it designed its own sophisticated programs. **The company also customized special user-friendly terminals and installed high throughput, dual-density Memorex disc memory systems to store much of this data.** This integrated service responds reliably and quickly even at the critical 2:00 PM hour when users on both east and west coasts are at full steam.

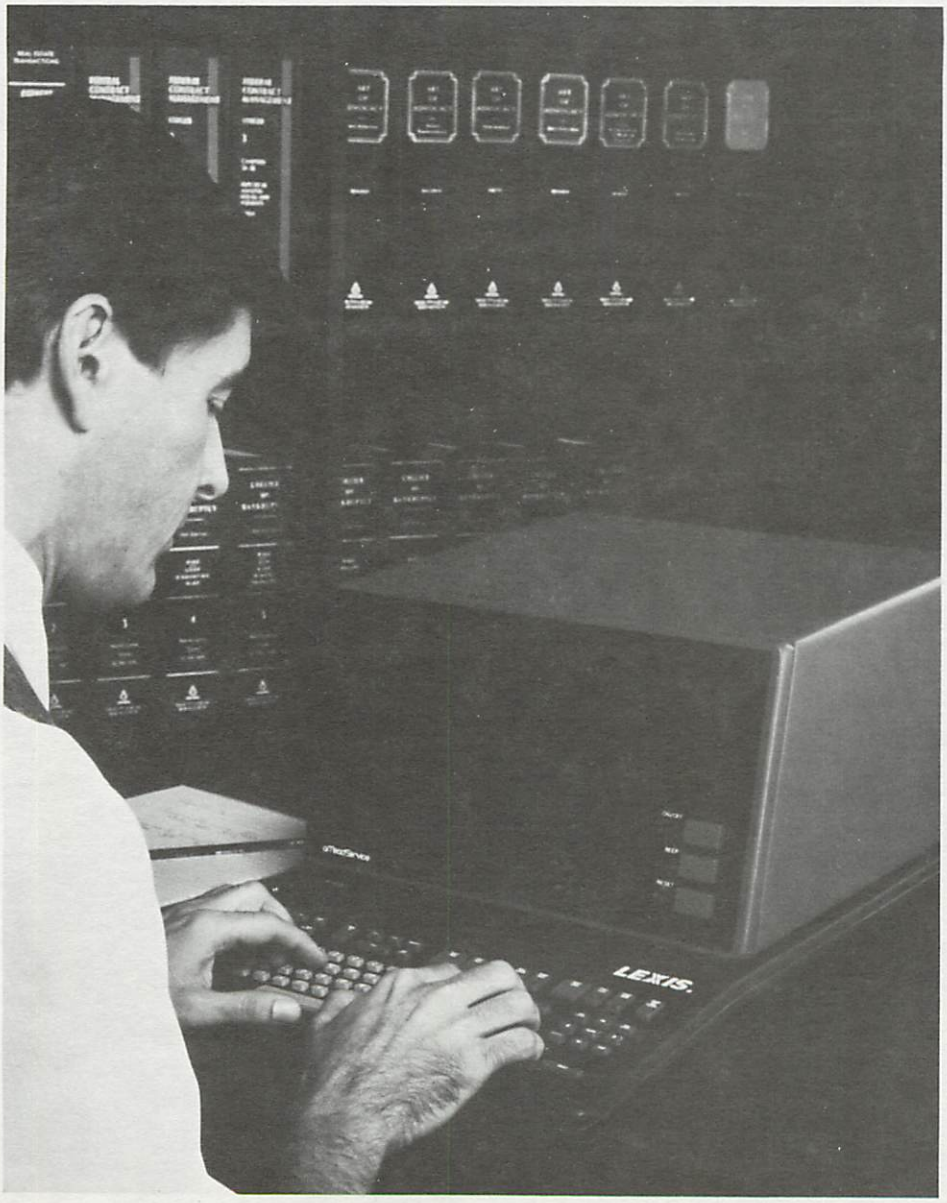
Let your fingertips do the browsing

Some examples can illustrate how the system works. Last year, when the Pope was shot in Italy, the name of the attacker was announced, but little else was known about him. A reporter in San Francisco entered the alleged assassin's name into the NEXIS terminal and, within minutes, retrieved six background news articles that had mentioned his name. The terminal first gave the journalist a list of publications and stories that were requested. Then, it provided excerpts referring to the assassin; and finally, the reporter asked for printouts of the articles in full. That night, an in-depth report on the attacker appeared on the television news.

Broader subject areas usually mean more complex computer detective work. For example, a corporation was thinking of donating a chair in economics to a local university. Since the chair was to be devoted to the study of the free enterprise system, the corporate public affairs manager wanted to find out whether other companies had made similar gifts and, if so, how they had been received. Did the universities accept? How did the media treat such gifts? Would there be criticism?

Within minutes, and without leaving the office, the manager let the system do his homework by using an ingenious display format called KWIC for Key Word in Context.

Instead of having to sift through indexes under such listings as "universities," "corporate gifts," "economics," "academic chairs," or what-have-you, the manager came up with some key words that would be likely to appear near one another in an article or report dealing with the subject. Wherever these words appeared together, the disc drives located the story or article containing these words. The speed of the response, frequently 15 seconds or less, is based on the read and retrieve speed of the disc memory devices. The information received was positive and the university accepted the corporation's gift.



The terminal enables this lawyer to obtain legal information in seconds. In an interactive dialogue, he can narrow down his search or expand it broadly, leaving the tedious bookworming to the computer and disc drives.

Synergy and expansion

With the software and hardware in place, the Mead system can expand relatively easily, using the same technology in any number of new information areas. Mead has already placed the French and British legal systems on disc.

Meanwhile NEXIS is increasing the range of publications covered and Bruce Rhoades points out that there are all sorts of new possibilities in the offing.

One such venture, a joint project of Mead Data Central and the Associated Press, offers up-to-the-minute information on the candidates and issues in the elections. It targets information on the candidates, their backgrounds, positions, endorsements, events, etc.

By taking the tedium out of information-gathering, Mead Data Central's computer system is giving its users more time to do what computers still can't do—think.

A version of this article has appeared in *Legal Automation News*, and *North Ohio Business Journal*. It is due to appear in *Desktop Computing*, and *ComputerWorld* in the near future.

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Editor, Louise Garnett
Graphic Designer, April Bishop

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