

COLUMBIA'S Contagious CD-ROM Fever

1987 WAS THE YEAR "IT" HAPPENED in Columbia University's libraries. By last December, CD-ROM systems had been installed in 11 of the university's 39 libraries, and more are on the way.

According to Charles Henry, assistant director for the libraries' humanities and history division, entry into the world of optical storage was made possible by a \$300,000 grant from the Pew Memorial Trust Foundation. The grant was in the tradition of previous Pew grants, incorporating computers into scholarly research.

In early 1987, Columbia created a CD-ROM task force that solicited proposals from each of the university's branch libraries. It was the branches' responsibility to choose vendors and hardware configurations. Applications were reviewed in several rounds of competition, and "nearly all" of the proposals were accepted, Henry said.



Ambitious installations in an Ivy League university's library system are drawing favorable reviews from many students and some librarians. The price for popularity, however, is too few workstations and limited space for growth.

The majority of Columbia's CD-ROM systems are electronic versions of paper indexes already available to library users: mostly indexes and abstracts of journal articles. Most systems are available as walk-up, self-service workstations, and a few libraries have sign-up sheets for the equipment. In many libraries, however,

only a handful of people have been trained to use CD-ROM, meaning most users have had to learn the technology on their own.

In several systems, however, one user interface can be operated with a variety of databases. With Wilsondisc, for example, users can change the subject from art to science simply by changing discs. Since 13 different products are in use at Columbia, however, patrons must learn a variety of user interfaces. Not surprisingly, many users want a standard interface. ►

by Simson L. Garfinkel

General Observations

Nevertheless, Columbia's library patrons prefer CD-ROM to online, dial-in databases. "People love to sit down and play around with it, without having to worry about paving up or getting off," says Terry King, a bibliographic assistant in the biology library. Even when a library pays for online searches, CD-ROM systems have been getting more use.

Librarians have no budgetary incentive to limit patron's CD-ROM searches, and conversely, patrons do not feel that their searches are wasting the library's limited operating funds. Many librarians, however, are concerned that patrons are turning away from traditional printed information sources, some of which are more extensive than their CD-ROM counterparts.

Nearly all of Columbia's CD-ROM systems allow inexperienced users to sit down at the keyboard, initiate a search with menu-driven commands, and find needed information within minutes. Most systems also let users type search commands, as they would with online. All provide a simple way to print search results, and many systems let users copy search results onto a floppy disk. (Few users know of this option, however, unless the library staff tells them about it.)

Although color is used by most systems to highlight search words in the text, color choices are not standardized and are rarely adjustable. SilverPlatter, for example, uses a yellow highlighter that many patrons found difficult to distinguish from the green text.

While HELP function keys give users a message specially tailored for each point in the program, Columbia users have found that some HELP facilities are more complicated to use than the search program that invoked them. One complaint concerned examples of valid search commands, which are usually all inexperienced users need to begin a search. Instead of being found at the beginning of the HELP screens, some search command examples were at the end.

Incremental Searching

A popular and powerful data entry tool, called "incremental search," is found on such Columbia systems as Dertext and Dialog. If a user is searching for the word "Project Athena" on a menu of several thousand choices, pressing *P* will advance the menu to the beginning of the



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Ps. Pressing *r* will take the user to the beginning of the PRs, and so forth. At any time, the menu can be moved manually with the arrow or page keys.

To the detriment of a library setting, however, many systems have the standard, long-and-loud PC bell. In PC Plus and Dialog, for example, the bell rings often during normal use. The problem is compounded by the keyboard buffer's failure to clear when the bell rings. As a result, it is likely that multiple bell-ringing keystrokes will be stored in the buffer and cause the bell to ring for up to 30 seconds.

Many CD-ROM users at Columbia said the Wilson system was one of the easiest to use. One graduate student in psychology said that Wilson's special keyboard with labeled function keys were an important feature. The function keys do not change in meaning when running different parts of the program. For example, pressing the "PRINT CITATION" key causes the citation on the screen to be printed as displayed; if there is no citation on the screen, nothing is printed.

Labeling Differences

Other programs, however, adopted different strategies for labeling function keys.

Most placed one or two menu lines on the bottom of the screen, saying, for example, "F4 = PRINT." The Grolier screen, meanwhile, features a two-by-five window on the left that contains a drawing of the IBM PC's ten function keys. The display takes up nearly a quarter of the screen and is confusing on the new PC keyboard, which features function keys in one row *across* the top.

Speed is a critical issue for CD-ROM users, and many at Columbia liked the Dertext system that interleaves pulling information from the disc with responding to keyboard commands. This feature lets users review the first few pages of a multipage report while the computer builds the rest. UMI's system, by contrast, only reads just enough data from the disc to make a screen display. Users found when they scrolled out of the region, the drive was energized and more data was read—a slow process.

Software Snobbery

Several librarians complained that the installation programs provided with the CD-ROM systems assumed they were the only packages installed on the software. The danger with such an assumption is software that auto-

matically installs itself on the hard disk might rename or erase preexistent and customized AUTOEXEC.BAT and CONFIG.SYS files.

Getting McGraw-Hill's Science and Technical Reference Set and UMI's Dissertation Abstracts, for example, to reside on the same computer was a task beyond the abilities of four librarians—four who considered themselves "computer literate."

Another installation headache was that some systems made a distinction between installing the CD-ROM device driver and installing the application program that uses the system. The device driver must be installed only once, no matter how many different CD-ROM applications are used on the computer. Some systems, such as McGraw-Hill's, require that special files be in the root directory, and do not use MS-DOS's PATH environment variable to find their overlays. Many packages do not use the standard device driver, and some will run only with one particular CD-ROM player.

In the Columbia Business Library, where four computers provide access to CD-ROM databases and two computers link students with online databases, reference librarian Jim Coen is concerned that students don't understand the difference between CD-ROM and online. Furthermore, Coen noted, many users do not understand the difference between a CD-ROM and a floppy disk.

Disk or Disc?

The problem is widespread. Many libraries have gone so far as to place labels on the CD-ROM drives which say "The silver disc goes in here," and on the floppy disk drives which say "The silver disc does *not* go in here." Nevertheless, Coen said, some users still put CD-ROMs into the floppy disk drives, resulting in the destruction of at least one disc in the business library.

Each library branch has adopted its own policies for CD-ROM use. At Butler Reference Library, two of the three Wilson stations are located in a remote corner of the card catalog area. Patrons can use the systems and change discs without staff observation or supervision. In the Biological Sciences Library, the workstation is unmonitored, but the CD-ROM player is locked. If a user wants a different disc (each year of Medline, for example, is printed on a separate volume), the librarian must change it. This policy is designed to eliminate theft or damage.



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In other Columbia libraries, CD-ROMs are kept at the reference desk and are "checked out" in exchange for a student ID. The most unusual policy is at the School of Library Service Library, where the librarian keeps the computer keyboard and CD-ROM player behind the front desk for "security reasons." To use the system, a student must present an ID card and wait for the librarian to carry out the equipment and hook it up.

Not surprisingly, the system gets little use. Says SLSL librarian Olha T. Della Cava, only students who must use the system to complete an assignment ask to have it set up.

Too Popular

Columbia's ultimate goal is to take the CD-ROMs off the workstations and placed onto the university's central computer, making the same database accessible to many users at the same time. Henry added that the libraries already have terminals installed for the university's computerized card catalog system, and more CD-ROM stations will require more space in already-cramped libraries.

Despite CD-ROM's success at the university, however, Columbia currently has neither the money nor the personnel to undertake such a massive centralization project.

A second problem is paying for CD-ROM subscriptions. The \$300,000 grant from the Pew Foundation has been exhausted. Payment for further subscriptions must come out of the library's fixed resource budget, which means librarians must decide between CD-ROM and printed reference materials.

One suggestion is to change costly paper subscriptions to less expensive microfilm versions. Otherwise, other library services must be cut back to pay for the "free" CD-ROM databases.

Despite hindrances and complaints, the biggest problem facing Columbia, says assistant director Henry, is that the CD-ROMs are becoming too popular.

On weekends, lines of students wait to use some systems. "We could use another ten workstations," he said. "At any given time there are 7,000 people who could use a database. The more widely it becomes known, the more problematic it becomes. They are, in themselves, creating their own problem." ●

Simson L. Garfinkel, a recent graduate of the Columbia University Graduate School of Journalism, is a freelance writer living in Somerville, Mass.

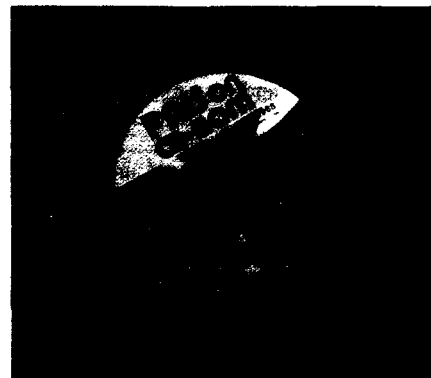
EVALUATING 12 DISCS *for* LIBRARIES

CD-ROM users tell what's worth the investment and what isn't worth the time of day.



ONE OF THE MOST POPULAR library-based CD-ROMs on the market are in use in Columbia University's library system. What follows is a brief summary of each product's plusses and minuses, particularly in a library setting. Findings are based on the author's own experience, and that of other CD-ROM users at Columbia.

— by *Simson Garfinkel* —



PAIS ON CD-ROM (Public Affairs Information Service)

PAIS is "an index to journals, books, and other published materials in the fields of international relations, public administration, economics, political science, business and other social sciences," from 1972-1987. The disc is updated quarterly.

There are three modes of accessing the database: browse, beginner, and expert. In browse mode, users can select a search by "keyword in all fields," or subject, author, title, journal, publisher, journal abbreviation, publisher abbreviation, or series note. The search is made on a single string. Boolean operators cannot be specified when browsing.

The more powerful search mode isn't more difficult. Search commands are in the form of keyword statements. For example, to search for "academic freedom" in all fields, type "kw = academic and kw = freedom"; to restrict the search to the words in a title, use "ti = academic and ti = freedom."

Somebody had a lot of fun writing this program. When it starts up, a system check reports operating system, system memory, display interface, type of CD-ROM player installed, name of the CD-ROM, "Spill File Space," and CPU type. This user interface is similar to Bowker's Books-in-Print Plus product.

The system has bizarre scroll-down menus, like pulling down a window shade with writing on it. It's fun to watch at first, but it made me dizzy after awhile.

Suggested price: \$1,795 per year with updates. Public Affairs Information Service, 11 West 40th St., New York, NY 10018. (212) 736-6629.



ELECTRONIC ENCYCLOPEDIA (Grolier)

Type a phrase and Grolier's Electronic Encyclopedia will find the article or search for the phrase within all the articles on the CD-ROM. It's a good idea in theory, but Grolier's product is all but unusable.

A good system begins with a good database, but the text upon which the Electronic Encyclopedia is based is loosely written in colloquial English. It simply does not read like a collection of encyclopedia articles, but rather like a collection of high school term papers.

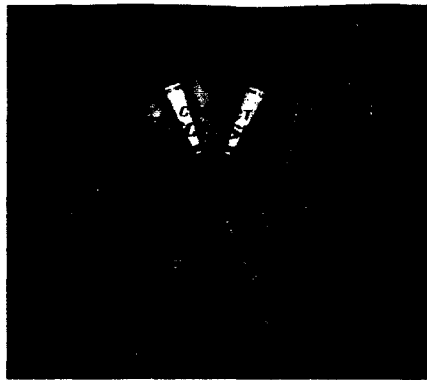
Aside from the text quality, the user interface leaves much to be desired. For example, there is no easy way to jump to the beginning or end of the article.

The lack of orientation is especially disconcerting when performing full-text searches. Rather than starting at the beginning, the software displays the first paragraph in the article that contains the match.

An electronic encyclopedia should make up for the cumbersome keyboard and screen by adding the power of a hypertext interface. Articles should link with related subjects in other articles, and users should be able to easily jump between them. Grolier's doesn't do this. Instead, the end of the disc article—like the paper version—contains a SEE ALSO section. The user must manually call up each additional article.

Grolier has announced, but not shipped, a new version of this product that promises improved software and revised articles.

Suggested price: \$299. Grolier Electronic Publishing Inc., 45 Madison Ave., Suite 1100, New York, NY 10016, (212) 696-9750.



ERIC (Dialog); COMPACT DISCLOSURE (Disclosure)

These systems bring two online databases to CD-ROM. Both can be searched using standard Dialog commands. A simpler menu system provides a much friendlier interface.

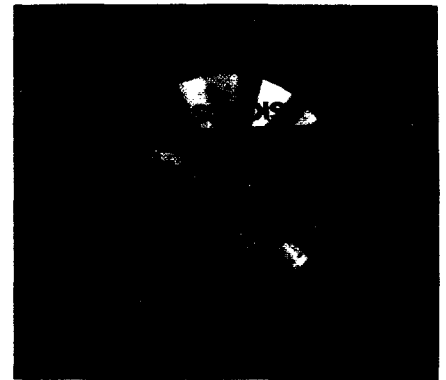
Users select a set of articles or companies by a simple criterion, such as year of publication or incorporation.

Since up to 1,500 records could result, the set is cut down with limit (and), include (or) or exclude (not) commands.

Search strategies read like a report from a librarian. For example, a search for computer and network companies in the Boston area reads: "682 companies with textual description of business of computer; 814 companies total, also including those with textual description of business of network?; 57 companies remaining, limiting to those with area codes of 617." A variety of formats are available when the set is displayed on the screen or printed.

The ERIC package includes a communications program for direct access to Dialog. Unlike the Wilson system, the ERIC program cannot automatically call up Dialog and get the latest records added to the database subsequent to the disc's manufacture.

Alien Foresta, head of the Teacher College Library's reference department, called the systems "instruction intensive," meaning that students did not learn all the features and commands unless they were shown. Some, however, got information with no instruction. Foresta suspects that most students didn't have the time to learn about the systems because they were limited to half-an-hour of computer time per day.



Suggested price: ERIC, \$950 per year with updates; Compact Disclosure, \$4,500 per year with updates.

Dialog Information, 3460 Hillview Ave., Palo Alto, CA 94304, (800) 3-DIALOG. Disclosure, 5161 River Road, Bethesda, MD 20816, (800) 843-7747.

VARIOUS TITLES (H.W. Wilson Co.)

By far, the H. W. Wilson Company has the largest CD-ROM installation at Columbia. As of March 1988, Wilson had 19 discs that run on the same retrieval system, and nine of them are installed at the university.

The system is easy for novices. It has three main modes of operation: users can browse article references through a subject listing (just as the printed abstracts allow); they can fill in a form to search for keywords in title, subject, author, and so on; or they can use the Wilsonline command language.

Wilson sells a special keyboard as part of their \$4,695 Wilsonline workstation (includes a PS/2 Model 30, color monitor, Proprinter 2, Hayes 1200B internal modem, and Philips CM100 CD-ROM player).

The internal modem is one of the more interesting features. Most of Wilson's discs are printed quarterly, and users can get updates by pressing a function key. The computer automatically places a phone call, going through Telenet, to access Wilson's database. The service is free with a Wilson subscription (prices range from \$1,095 to \$1,995). There is, however, a \$10 charge for Telenet access.

H.W. Wilson Co., 950 University Ave., Bronx, NY 10452, (212) 588-8400.

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PC-SIG CD-ROM (PC-SIG Inc.)

PC-SIG's CD-ROM has the single largest collection of public domain software available for the IBM PC.

For Columbia's PC users, knowing that a library has the PC-SIG disc means that all it takes to get a volume from the collection is to walk over to the mathematics library, get the disc from the librarian, put it in the CD-ROM player and type "DIR D:"

The disc is an MS-DOS image of a half-gigabyte hard disk. The root directory contains eight subdirectories, named "001-100" through "701-800." Each subdirectory has 100 more directories, named "DISK001" through "DISK705." The third level subdirectories contain the contents of each PC-SIG disc.

Users simply copy the programs wanted off the CD-ROM onto their own floppy disk. The only problem is that it takes ten to 20 seconds for DOS's "DIR" program to print the number of "bytes free" on the disk. There is no way to turn this feature off.

Suggested price: \$295. PC-SIG Inc., 1030-D E. Duane Ave., Sunnyvale, CA 94086, (408) 730-9291.

SOCIOFILE & PSYCLIT (SilverPlatter)

SilverPlatter provides a generalized search program that can be used with any of its CD-ROMs. It is difficult to learn, however, and awkward to use. No one I spoke with at Columbia liked the system, but many said it was still faster than using paper indexes.

The interface looks menu-based, but it has the feel of a command line-based search system. This may be a compromise, since the system doesn't have a command line interpreter in addition to the menu system, as do most of the other products at Columbia. Having both interfaces available would be a better approach.

As a result, the SilverPlatter system comes off looking like a programmer's search system: it is very powerful, but people unskilled with computers will find it awkward and nonintuitive.

The HELP facility reflects the system's design philosophy; rather than giving specific information for particular sections, pressing the HELP key starts up an entire help subsystem, with its own tree-structure, commands, and index pages (important, considering that the help section on the FIND command is 17 screens long.)

Suggested price: Sociofile, \$1,950 per year with updates; PsychLit, \$3,995 per year with updates. SilverPlatter, 37 Walnut St., Wellesley Hills, MA 02181, (617) 239-0306.

LE PAC GOVERNMENT DOCUMENTS (Brodart)

The disc contains a catalog of documents printed by the U.S. Government Printing Office from 1976 to the present. Documents can be searched by title, subject or author, or by keyword searching on any record field.

Menu mode operates on the binary search principle. Selecting an entry causes the search to be expanded around that item. For instance, to find a document by the Congressional Research Service Symposium on Agricultural Communities, it is necessary to select on "Council of Envi..." (between "Claybrook, Joan..." and "DeLong, Carl F...") which brings up a menu on which the user selects "Conlon, W. M." (between "Conference on Waste Heat" and "Connolly, Paul R."), which in turn brings up a menu of individual documents.

Although the user interface may leave much to be desired, the disc's information is invaluable. Using the computer is faster than using the paper index, even for a first-time user. "We couldn't live without it, because the paper is such a nuisance" said Bill Middleton, reference librarian at the Leman Library.

Columbia purchased the system with a Brodart Automation PC clone, which comes with a custom-designed function keypad. "We regret it now, because this [computer] is not very flexible," Middleton said. The clone's only advantage may be a panel that bolts on the front and requires an extraordinary wrench for removal. The panel keeps the CD-ROM in place and prevents people from using the computer ▶

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Suggested price: \$2,500 per year plus updates. Brodart Automation, 500 Arch St., Williamsport, PA 17705, (717) 233-8467.

MEDLINE

(Cambridge Scientific Abstracts)

Medline is a slick, fast and valuable index of articles on medicine, biomedicine and biological research.

Search results can be viewed on the screen, printed, or saved on floppy disk. Options allow the dictionary of indexed words (chemicals, authors, publications, and so forth) to be viewed directly. Cambridge Scientific Abstracts calls this feature "expand dictionary," while other systems call it "browse mode."

Most users become comfortable with Medline within five minutes of instruction says Terry King, a bibliographic assistant in Columbia's biology library. Most use menus, King added, although experienced users learn to use the program's expert mode.

Suggested price: \$975. Cambridge Scientific Abstracts, 5161 River Road, Bethesda, MD 20816, (800) 843-7551.

DATEXT

(Lotus)

This four-disc business research system contains financial, biographical, and abstract databases covering several hundred publicly-held companies. Information includes businesses in consumer, service, technology and industrial sectors.

Menus let users select data retrieval according to company, industry, line of business, or name of executive. A number of companies can also be grouped together as a "portfolio," which can be searched as one. Datext can prepare reports ranking the portfolio companies by a variety of business indicators.

The wealth of retrievable information includes company profile, recent and historical financial information, subsidiaries, names and biographies of directors, stock reports, abstracts of recent articles, and investment reports and report excerpts. This information,

when combined in a single report, can run from tens to hundreds of pages.

Sometimes, however, the database entries are incomplete: The March 1988 *Technology CD-ROM* says that Paul E. Grey holds directorships at Arthur D. Little and Cabot Corp., but fails to mention he is president of the Massachusetts Institute of Technology. The executive database was also sloppy, with two identical entries for John Sculley, president of Apple Computer.

Some of Datext's raw reports are questionable. For example, asking the system to report the top 20 companies in the "computer system" field resulted in Exxon Corp. (with \$79 billion in sales) as #1, IBM as #2, and AT&T as #3. I would have expected, when I asked for "computer systems," that the program would have selected only that portion of the company's revenue that came from computer systems.

Suggested price: \$6,500 to \$19,500 per year with updates. Lotus Development Corp., 1 Cambridge Center, Cambridge, MA 02142, (617) 577-8500.

POPULATION

(Slater Hall Information Products)

This system lets users generate customized reports from the 1980 U.S. Census and other recent materials. The database is tabulated on a county, state and federal level. All statistics appear to be precalculated.

To generate a report, it is necessary to follow a nonintuitive four-step process: select a geographical area of interest; execute a "New Search;" select the items to be included in the report and report device; and execute the report.

Tree-structured submenus are used for selecting items that appear in the report. After selecting "Report Items" from the main menu, users are presented with 30 choices, from "Age of Persons" to "Journey to Work" (as in time spent). One menu choice allows users to "Choose all items from this page." Most of the choices have submenus. "Age Distributions," for example, allows users to choose data from the 1980 Census or the 1984 updates.

"Navigating in the submenus is probably the hardest part of the system," says reference

librarian Bill Middleton.

In general, the menus are this system's principle weakness. They are not "hot menus"—the only way to select an item is to move the menu bar with the cursor to the item and press *Enter*. The menu bar can be moved to almost any part of the screen, even if selectable text is not present. The bar's motion, however, cannot keep up with the frequency of the keyboard character repeat, possibly leading to confusion for novice users.

This system is also inflexible in the types of reports it generates. It is not possible, for example, to flip the report matrix so that geographical areas run across the top of the report and the items down the side (which would be handy when reporting on many items from just a few counties). There is also no provision for doing cross-tabulations.

In summary, the Slater Hall database is good, but with a difficult-to-use front-end.

Suggested price: \$1,200. Slater Hall Information Products, 1522 K St., Suite 1112, NW Washington, DC 20005, (202) 682-1350.

IBYCUS (Packard Humanities Institute)

Ibycus is Columbia's wildcard CD-ROM system. It is the only one that does not use an IBM PC or compatible. Instead, Ibycus features a custom-built 68008-based computer built by David Packard of the Packard Humanities Institute.

The computer has special-purpose hardware for high-speed text searching as it streams off the CD-ROM.

This \$3,800 system is designed as a scholar's workstation, ideal for searching and analyzing ancient texts. When text is displayed on the screen, every fifth line is numbered in the right hand margin, just as in printed texts. Any document on the disc can be instantly called up by entering its author, name and line number. The screen is lightning fast.

The system includes a stand-alone word processor in PROM, available the moment the system comes up. Ibycus can read 3.5-inch disks, but it can only transmit information to other computers by serial cable.

The problem with Ibycus is that it is custom-

built. To cut costs, Packard uses a Hewlett-Packard keyboard that does not have labeled function keys. Other problems are a limited installed base and its incompatibility with IBM PCs.

COMPUSTAT PC PLUS (Standard & Poor)

Compustat contains a detailed database of 7,187 public companies. The system lets users select a set of companies according to several criteria, prepare reports, and generate files that are usable with spreadsheets.

Users define rules which successively narrow the list of selected companies. A rule consists of a mathematical expression with minimum and maximum permissible values. For example, the rule "all companies in the agricultural chemicals industry with between \$100 million and \$200 million" is written:

| Expression | >= Min. | <= Max. |
|------------|---------|---------|
| SICALL | 2870 | 2879 |
| SALE | 100 | 200 |

Compustat uses a formatted floppy disk to store the search strategy and results.

Although the program is fast and responsive to keyboard commands, the search procedure is slow. Creating the set of all companies in the agriculture chemical products business takes more than five minutes—fast, considering that the system is actually scanning 22 companies per second, but still making it one of the slowest CD-ROM systems at Columbia.

When the program starts, users have the option of running a tutorial that describes the system's commands and follows the above-mentioned example from start to report generation. The system gives users a menu of the acceptable options—from function names to file names—that may be typed at any point.

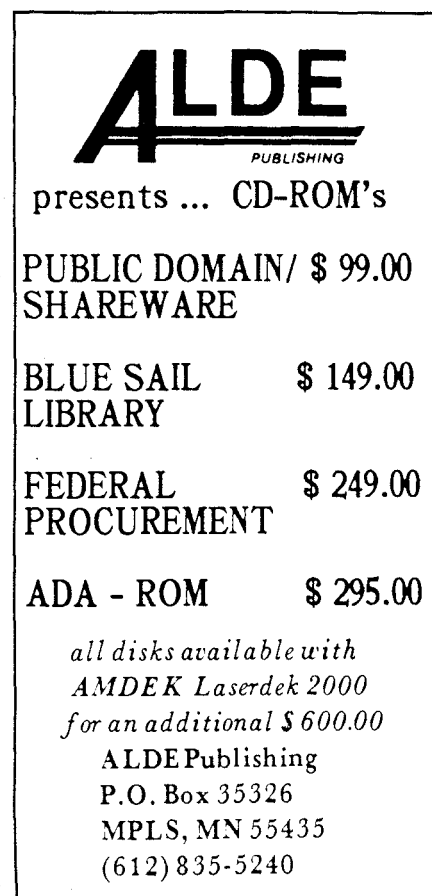
Nevertheless, according to reference librarian Jim Coen, Compustat PC Plus is the most difficult CD-ROM system to use in his library.

Suggested price: \$12,000 to \$45,000 with updates. Standard & Poor Compustat Services, 7400 South Alton Court, Englewood, CO 90112, (303) 740-4510. ●



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