

The electronic library: almost here

For some time now AIP and other scientific publishers have been working at developing the electronic journal (in which the reader would query a remote data base to select journal articles that would be transmitted back to him by facsimile or mail). At this time the full text of 11 of the journals published by AIP is regularly digitized and stored in computer memory. The American Chemical Society likewise digitizes 16 of its journals. It is natural for scientific journal publishers to think of moving up to a common computer system that links together their individual systems to provide the user access to all their journals at once—in other words to create an “electronic library.”

Significant progress being made from the top down toward this goal by libraries themselves was reported in a recent news story in *Business Week* (30 March, page 104). “Already, electronic hookups to remote computer data bases and computer-controlled regional library networks are enabling local libraries to specialize and to borrow from other libraries what they lack,” reports *Business Week*. The news story quotes Carlton Rochell, dean of libraries at New York University: “It doesn’t matter where [library] materials are located, because they can be accessed remotely or sent by facsimile machines.”

The card-catalog part of the electronic library is already in full-scale operation—for example, a phone call to the Online Computer Library Center at Dublin, Ohio gives access to the titles of the 7 million catalogued holdings of 2400 libraries across the US. The part of the electronic library we still lack is the equivalent of the reference stacks of bound volumes. As Charles Goldstein (Lister Hill National Center for Biomedical Communication) pointed out in a recent address before the AIP Assembly of Society Officers, the current technical problems are to develop

- ▶ an acquisition scanning system for converting source documents (including figures and halftones) into electronic signals with requisite accuracy and efficiency and
- ▶ a mass-memory system large enough, fast enough and cheap enough to function as archival depository.

Goldstein reported that these problems may now have largely been solved as a spin-off of the enormous commercial effort that has been devoted to developing the optical videodisc player for home entertainment. Even after we improve the resolution of the acquisition scanner from the commercial standard of 200 lines per inch to 500 lines per inch, we can expect to store 500 000 journal pages on a single 12" videodisc (about five times the number of pages produced by AIP annually).

A study for the European Community by Arthur D. Little Corporation has confirmed the feasibility of establishing an electronic library for Europe. Individual user terminals to connect to such a system are becoming much more widely available. As an example, over the next decade every telephone subscriber in France will be provided free with a small CRT terminal (worth less than \$100) to consult an electronic phone directory; this terminal could also be used to communicate with an electronic library.

Clearly both the electronic journal and the electronic library will have a major impact on how scientific literature is disseminated. It is important that the members of the physics community, both individual and organizational, become aware of the rapid development of this spectacular new technology and cooperate in planning how it can best be used to the benefit of all.

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