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## Introduction

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THIS ISSUE OF *Library Trends* on contemporary technology presents a view of the impact of technological change in libraries. The nine articles examine the ways in which librarians are applying technology to their collections, to their services to users, and to the management of the library. As librarians, we are aware every day of changes brought about by technology. This phenomenon is not new to the profession, as Susan K. Martin reminds us in her article in this issue. Libraries have always been among the first social institutions to utilize new technologies, whether it was the introduction of incandescent lights in the stacks or public access copy machines.

As we face the last decade of this century, librarians are beginning to feel at ease with the most recent technological changes that have been introduced to all aspects of our professional lives. Wallace and Boyce have observed that our profession "is inherently dependent upon technology and must respond to new developments or risk becoming obsolete" (Wallace & Boyce 1987, p. 159). We relish the opportunity to rearrange reference departments to provide space for another piece of equipment to access yet another database. We enthusiastically abandon the Postal Service for electronic communication of interlibrary loan requests. We are certain we have made the right decision about the software and microcomputers that are (or are not) in our libraries. But are we as knowledgeable and comfortable with technology as we think we are?

Librarians are aware that their newest employees may be more familiar with technological applications than their more seasoned colleagues. Library schools have revised and enhanced their curricula to

provide courses on information technology, online retrieval, general library automation, and online technical services. Some master's degree programs now require a minimum level of "computer literacy" of all of their graduates. In order to keep up with these technological changes, experienced librarians must search for ways to upgrade their skills. In 1987, when the Association of College and Research Libraries surveyed its membership, it was reported by almost half the respondents that they want access to continuing education, especially courses covering technology updates (Rader 1988, p. 55).

Most members of the profession, however, do not attend such courses. Instead, they have relied on the old-fashioned printed word as the basis for continuing education and to learn what their colleagues are doing in other libraries. This issue of *Library Trends* can serve as a review of the role of contemporary technology in libraries today.

Although there have not been any other issues of *Library Trends* devoted per se to the applications of technology in libraries, various aspects of technology and their impact on libraries have been addressed. Within the past five years, for example, there have been articles on copyright protection for databases, electronic security systems, the evaluation of software, and electronic publishing in library and information science literature (Miller 1983, pp. 199-209; Bahr 1984, pp. 29-38; Hannigan 1985, pp. 327-48; Lee et al. 1988, pp. 673-98). There have also been issues devoted to significant technological subjects, such as "Public Access Online Catalogs" (Spring 1987) and "Automating Intellectual Access to Archives" (Winter 1988).

In the opening article, William Saffady reminds us of our history. He traces the historical development of automated circulation control from "precomputer" data processing systems to the current circulation control programs and turnkey systems for microcomputers, minicomputers, and mainframes. The alternatives to card catalogs and automated reference services are reviewed, leading up to the latest applications of technology. Saffady concludes by highlighting aspects of acquisitions and serials control systems in libraries.

Danny Wallace and Joan Giglierano examine the role of microcomputers in libraries, from the identification and selection of appropriate hardware and software to specific library applications. The use of general purpose software—such as word processors and spreadsheets—by library managers is examined, and examples of the use of such software for library networks, desktop publishing, and statistical analysis are provided. Microcomputer systems for library-specific purposes are also described. They conclude by providing a look at the future of microcomputers in libraries.

Librarians buy software for their own use but may also find that their patrons expect them to introduce microcomputer software into the library collections as well. Beth Paskoff looks at the selection, cataloging and classification, storage, and circulation of microcomputer soft-

ware collections. Given the diverse nature of libraries, there is not always agreement within the profession about the best way to introduce software to library collections, and Paskoff cites examples of the ways libraries have dealt with the problems that this format has created. The issue of compliance with copyright laws is also addressed.

F.W. Lancaster provides a cogent review of electronic publishing and the ways that it has evolved since the early 1960s. In tracing the development and application of this technology, he takes us from the use of computers to expedite printing to the use of electronic publishing in computer conferencing and electronic distribution of information. Recent developments in hypertext and hypermedia publications are also considered.

In Pamela Andre's article on optical disc technology, she discusses this newest of technologies to be applied by librarians. She begins by reviewing the current projects that are underway at the Library of Congress, the National Library of Medicine, and the National Agricultural Library, as well as a recent CD-ROM product from OCLC and the Western Library Network. These projects include such diverse applications as the distribution of the MEDLINE database as a CD-ROM product, CD-ROM collections of material on such diverse topics as Agent Orange or irradiation of food, and the Input System for the Optical Disc (ISOD). Actual optical disc applications at several academic libraries are evaluated. Three statewide systems of public libraries that are using optical disc technology are also explained.

Steven Brown discusses the application of telefacsimile in libraries as well as its mechanical and financial limitations. This technology enables librarians to meet the demand for "instant" document delivery and as such has been considered for use in libraries for several decades. It was not until the newest generation of telefacsimile machines that fast, clear, and economical transmissions have been available. As a result, library applications are being reconsidered. Brown describes the impact that telefacsimile has had on document delivery in individual libraries, as well as the growing network of telefacsimile users, and he reports the results of recent regional and national studies of telefacsimile.

Focusing on another means of interlibrary communication, Becki Whitaker describes the application of electronic mail in libraries. She presents both the benefits and obstacles to use of this technology. General office applications such as correspondence, committee work, and teleconferencing are explained, as are library specific applications such as electronic acquisitions, document delivery, and reference services.

We can imagine the distress of patrons who *thought* they knew how to use a library but are confused when confronted with the newest technologies. Loretta Caren describes "Library Connections," a new bibliographic instruction seminar that was developed to introduce faculty to the full array of electronic information retrieval services at the

Rochester (New York) Institute of Technology. This program includes access to the online catalog, electronic mail reference services, online and CD-ROM databases, and document delivery. She notes that the seminars were intended to explain the various library connections to the users, but they have also helped to establish new connections for input from patrons about future library services.

In the final article, Susan K. Martin writes about the effect that emerging technologies are having on library management. She reminds us that libraries are not all the same, and they will each cope with new technologies in different ways. Changes caused by technology in libraries include the delivery of information and the organizational structure of libraries. Martin concludes with several projections about the library of the future.

We began planning this *Library Trends* issue more than two years ago. Contemporary technology is a very dynamic aspect of librarianship, and some of the applications of technology that were considered innovative at that time have now become well established in libraries. Other applications of technology are still in their formative stages or have not materialized as we expected them to. It will be interesting for us to read in some future issue of *Library Trends* how librarians in the next century will evaluate the ways their predecessors utilized technology in the 1980s.

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