COMMUNICATIONS, THE FUTURE, AND THE RURAL PUBLIC LIBRARY

Sheryl Bish, Coordinator of Children's Services
Jefferson County Library System
Brookville, Pennsylvania

There is no longer any doubt that society in the decade of the 1980s is well on its way to establishing the basis for an "information age," a technical, economic, and social revolution as far reaching to society as the previous industrial revolution.

E. B. Parker sees this transition from an industrial society to an information society as featuring information processing dominating industrial production as a labor activity.[1] He goes on to predict that future economic gains will be made through the information sector rather than the production sector, and that governments in the long run have more to gain from investment in improved information processing than from further investment in industrial productivity. Daniel Bell uses the term "post-industrial society" to refer to a changing social structure, one characteristic of which is the evolution from a goods-producing economy to one that is service-oriented.[2] In his study, employment in service activities increased sixty percent during the 1960s in comparison to less than ten percent in the goods-producing industries. M. U. Porat has found that between 1970 and 1980, the information occupations formed the largest component of the work force.[3] Alvin Toffler sees this present technological force as the "third wave" following the previous waves of agricultural and industrial civilizations.[4] Thus, as the industrialized world has entered the information age, the most dynamic business growth has taken

place among enterprises that search out, organize, package, transmit, or otherwise process information. Societies once dominated by agricultural and then industrial activities are now information societies. Technological advances are making more data available to more people, and more quickly, than ever before and information is becoming a rich resource.

The communication and exchange of this information resource is increasingly dependent upon electronic technology. Computer processing has already had a substantial impact throughout society: in banking, air traffic control, airline reservations, retail stores. The rapid advance of technology in the area of computer and communications is making the storage and transmission of written material in electronic form cheaper than current alternatives such as books, magazines, newspapers, and letters.

It is estimated that a majority of the workforce today is engaged in the handling of information and that this proportion will continue to increase. As a growing number of digital networks are established to handle the flow of information, society may be moving toward the point where most information will initially be created in electronic form, resulting in a paperless communication system.

F. W. Lancaster describes the present transitional phase in this evolutionary process, as having three major characteristics: 1) computers are used to print on paper and the resulting publication is distributed in a conventional manner through the mails; 2) printed data bases exist side by side with their machine-readable equivalents, but the latter have not yet replaced the former; 3) new data bases and data banks (non-bibliographic) emerge in machine-readable form only.[5] This transitional phase will give way to a completely electronic publication system in which computers and telecommunications are

used throughout the communication process: in composition, editing, data base construction, and actual distribution of published information.

Technological developments are bringing this paperless communication rapidly nearer. Computer and information technology is becoming widely available and affordable to the general public. Edward S. Kornish, president of the World Futurist Society and editor of Futurist magazine, predicts that half of the U.S. households will have a computer terminal by 1987.[6] With a greater amount of use of computers at home as well as at work, a growing population of individuals and organizations will be able to utilize a wide range of digitally based information and communication services. At the same time that tremendous improvements in power, cost, and size of computers have occurred, there have been similar improvements in methods and cost of telecommunications, including cable, satellite, and fiber optics.

Technology and Libraries

The widespread utilization of technological advances for facilitating human communications has important implications for public libraries, librarians, and the services they provide society. The concept of today's library is still concerned with the storage and retrieval of information in printed form. Historically, libraries have existed to provide access to information and to communicate knowledge and culture from one generation to another. Designed to ensure that the information they contain is available to everyone, regardless of means, libraries have been funded by the public at large through government subsidies. Today and even more in the near future, there will be pressures on libraries to change and adapt to new roles in a society based on the proliferation and dissemination of information.

Technological capabilities are now being applied in imaginative and innovative ways to the solution of communication and information handling problems. Some of these applications are likely to have implications for public libraries. For example, interactive television has been introduced in Great Britain, France, Japan, and the United States. These utilized home television receivers as terminals which can receive and transmit various kinds of information when linked to a cable.

In Great Britian a Viewdata service known as Prestel,[7] supplied through the Post Office, provides homes with computerized and telephone-transmitted information on train schedules, theater and movie listings, weather, financial data, and entries from reference works housed in libraries. Prestel is being used experimentally in public libraries in London, both as an additional reference source and as a medium for making available local information of interest to the community.

The Qube[8] system in Columbus, Ohio, is a two way cable system which permits subscribers to communicate with the station and its computer by push button. This has been used for voicing opinions in local political debates, conducting garage sales, comparision shopping, and making dinner reservations.

Another application of technological development which has implications for public libraries is computer conferencing, whereby individuals communicate with each other through online terminals. This system makes substantial improvements possible in both formal and informal communication and could replace many types of communications now handled through telephone conversations, correspondence, or face to face meetings.[9] This system, known as EIES (Electronic Information Exchange System) is structured around the communication requirements of specific interest groups (e.g. scientists, legislative

advisors) and provides capabilities for messages, conference, notebooks, directories, and word processing. Users need only a terminal and a telephone to access the system from anywhere in the country. Murray Turoff believes that computerized conferencing represents a "combination of both information and communication systems. It is the forerunner of a technology that will have drastic impact on the way people deal with information and communications."[10]

Other paperless communications systems which are being developed or are in experimental use are electronic publishing and electronic mail. In effect now, the great masses of data communications are a type of publishing without paper, ink, or press. Information which has previously been sought in materials stored physically in libraries can now be transmitted easily, quickly, and inexpensively by electronic means. There are presently data bases and data banks for which there are no paper equivalents and are accessible only on-line. Other electronic forms have recently emerged, including a computer magazine on a tape cassette for use with a home computer, and bilingual dictionaries in the form of hand-held microprocessors.[11]

Electronic journals are being planned and some now exist informally within computer conferencing and other networks. Electronic journals would resemble paper journals in being issued by professional societies and commercial publishers, and having editors, editorial boards, and acceptance criteria. Acceptance of a contribution by an electronic journal would mean that it would be added to a particular data base rather than being collected with other contributions and put out as a regular issue. Also, electronic information can be published on a continuing basis as it is accepted by the journal instead of on a interval basis as paper journals are released now.

An electronic mail system called ATOM (Automatic Transmission of Mail) is currently being used by a company in Connecticut, and systems such as this are becoming widely used in industry. The system retrieves data (mail or messages sent by other members of the network), composes and edits with the use of a word processor, distributes mail, disposes of unwanted items, and instructs if needed.[12] Forecasts suggest that within the next decade mail of a non-business nature will begin to be handled electronically in the United States.

As a result of new communications technology and changing concepts in the dissemination of information in a knowledge-based society, the role and image of public libraries will have to change markedly in order to maintain their relevance to society. As an institution whose mission has been to provide access to diverse sources of information, the public library has the potential for providing important services to a growing group of information seekers.

The view taken by Turoff and Spector[13] is of the public library as an institution where the utilization of information implies not only storage and retrieval, but creation, organization, and manipulation as well. The use of technology to allow patrons to directly perform these latter operations implies that development of many information services that have not previously been possible: provision of transient information (as opposed to factual and permanent information) needs of the user community; provision of mechanisms for patrons to exchange information; establishment of the library as a learning resource center for information systems.

In this environment individuals would be able to develop their own personal data and text files on electronic storage media and to manipulate, update, and edit these "notebooks." They would be able to enter these into library holdings for use by other patrons and for other patrons to add their material

to the content. Also, as the ability of a citizen to function in society becomes more dependent on his access to a variety of information systems and services, the library should become a place where an indvidual of any age can go to learn how to utilize these services.

With technology available today a public library could introduce services for a wide variety of community communication which would allow discussions and bulletin boards among its patrons as well as text processing services.

The increasing interest and recognition for the concept of community information and referral could provide the impetus for experimenting with the capabilities of the new technologies. Some topics and areas which might be explored in these information services are: electronic public hearings, current news such as rezoning of property in the community, dialogues with local government officials, hobby oriented discussions, comparison of services on various products or equipment, recipe exchange, club news, counseling - anything from the ordinary to the intellectual. Included in the public library's media collection may be the floppy discs used with microcomputers, and loaning terminals may be part of its circulation policy. Some patrons may be strictly dial-up users, whose physical presence may never be known to the library. Even the reference librarian herself may not be present at the library, but may be working through the terminal at home. As more people are able to access these services from home units and more information is exchangeable electronically, it is foreseeable that many people will be working out of their own homes rather than commuting to offices.[14]

Even the smaller and rural public libraries can introduce important community information services utilizing computers, including the compilation and maintenance of community resource directories which can be accessed through

domestic television receivers as well as other terminal devices, and the organization and handling of municipal or county records of all types. Public libraries can also provide information services to small businesses in the community. Information and referral services would be expanded with the proposed establishment of national library networks, where even the smallest library would have a computerized link to national data bases with access to far greater resources than are financially feasible at the local level.

One of the most important issues relating to the expanding information resources in a knowledge-based society is that of accessibility. If information has value as a commodity, then those who are in a position to access it or purchase it will have the advantage over those who are not in that position, thus further widening the gap between socio-economic groups. In this regard, public libraries can build on their traditional role of ensuring that access to information is available to all. No matter how rapidly computerized information systems may spread, many people will not have them, and many will not know how to use them. Public libraries can provide community access points for such systems and assistance in using them. The atmosphere of political neutrality associated with the public library can be helpful in ensuring the delivery of these services.

It would seem that in order for public libraries to play a meaningful role in the information society of this decade, it will no longer be sufficient for them to provide only the information, but they must also become the source for providing the technology and the systems which support information as it will be handled and disseminated. As the images of libraries changes along with societal changes, those libraries which are successful in adapting to the new technologies will become viable information and communica-

tions centers for the public. Libraries ideally should continue to serve the needs of the developing information society by embracing new technologies and establishing the importance of their role in the utilization of information.

Footnotes

[1]E. B. Parker, "Background Report," Conference on Computer Telecommunications Policy: Proceedings of the OECD Conference, February 4-6, 1975. (Paris: Organization for Economic Cooperation and Development, 1976), pp. 87-129.

[2]Daniel Bell, The Coming of Post-Industrial Society. (New York: Basic Books, 1973), p. 26.

[3]M. U. Porat, The Information Economy. (Washington, D.C.: U. S. Department of Commerce, Office of Telecommunications, 1977).

[4]Alvin Toffler, The Third Wave. (New York: Wm. Morrow, 1980; Bantam Books, 1981).

[5]F. W. Lancaster, "Libraries and the Information Age," ALA Yearbook 1980. (Chicago: American Library Association, 1980), p. 10.

[6]David Sleeper, "The Electronic Homestead is Coming," Country Journal. (February 1982): 78.

[7]Carlton C. Rochell, "An Information Agenda for the 1980s," ALA Yearbook 1981. (Chicago: American Library Association, 1981), p. 7.

[8]Alvin Toffler, The Third Wave, p. 163.

[9]F. W. Lancaster, "Libraries and the Information Age," p. 12.

[10]Murray Turoff and Tom Featheringham, "Libraries and Communication-Information Technology," Catholic Library World 50 (April 1979): 369.

[11]F. W. Lancaster, p. 12.

[12]Linda C. Smith, "Report: The Role of the Library in an Electronic Society," Bulletin of the American Society for Information Science 6 (December 1979): 37.

[13]Turoff and Featheringham, p. 370.

[14]Toffler, p. 194-207.

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