

WALTER W. CURLEY  
President, Gaylord Brothers  
Syracuse, New York

## The Minicomputer and the Computer Gap for Libraries

Much has been written on the use of computers in libraries but until recently the promise has exceeded the performance. Colleges and universities, by virtue of equipment on campus and the fact that in many instances research-oriented faculties were present, made progress through the 1960s and even into the early 1970s. Public libraries found it considerably more difficult and their progress was mostly with tab card equipment in which they struggled with report-oriented systems. For decades transaction card circulation control systems using the punched card in one form or another have been used in a variety of libraries, both public and academic.

Many libraries found it difficult to move upward from tab equipment because of the problem of size and cost of the computer, and the lack of sophistication of staff necessary in-house to cope with the new demands made by the next level of computer. In the last five years—perhaps really the last three—minicomputers and time-sharing, which can compliment the efforts of the minicomputer or act as a competitor, have provided libraries with the ability to not only move up to the next level of sophistication, but to do so without dramatically increasing the costs to the library.

Networking appears to be on the verge of becoming a reality. Certainly OCLC, BIBNET, the program developed at Stanford University, NELINET, the Medical Library Program and others all point to the fact that networks are either here or just around the corner. Either networks or minis can fill a need to receive answers, not just reports, and to develop fast turn-around response time to questions that, when the answers were provided from a card file, were provided within a matter of minutes.

The mini can either act as a terminal or stand alone as a computer. Dozens of manufacturers in the United States are providing the hardware

which is dramatically reducing in size and at the same time reducing costs. Minis are becoming the fastest sellers in the computer business. On the consumer side, for example, is a new jogging computer. At prototype licensing stage this simple, tiny computer strapped to belt or wrist keeps a jogger informed of his progress via buzzer and floating crystal dial.

IBM predicts that 50 percent of the manufacturer outlays for automation equipment by the mid-1970s will be for minicomputers. *Business Week* says that the \$2000 minicomputer of today equals the \$100,000 machine of a decade ago.

My first exposure to a minicomputer occurred five years ago when I was in the employ of a large consulting firm. It was important for that firm to be able to charge correctly costs related to any client's account. For example, a telephone call made on behalf of a client should be charged to that client's account. At that time, independent of the telephone company, a mini-computer was available which would capture the dialed information, telephone number charges, client number, etc., store it, and daily feed it into a large computer which was on the premises. It provided the ability to capture the information and, by also providing the storage facility, allowed the material to be transferred at a minimum of cost and interruption of service.

A firm in the mailing machine business has produced and is selling a machine which will weigh a package, automatically produce the right amount of stamps via a postage meter and provide backup information, such as item shipped, date, cost, destination, etc., which then can be transported back to the basic computer. The machine consists of the usual conveyor belts, etc. but contains within it a small minicomputer which does the work and is supposed to be accident- and mistake-free. The operator merely indicates the area code and selects a United Parcel, U.S. mail, or foreign shipment button and the program takes over. The processing and estimates as to the amount of stamps, etc. normally would have been done by people and would have been subject to a certain percentage of error. The producer claims that the machine is not only 50 percent faster but will pay for itself in one year due to the number of errors, etc. that will be eliminated. The machine also provides a unique number, which is put on each package, which will allow for controls to be developed when it becomes necessary to trace a package which is lost, damaged, strayed or stolen. This machine is really not very far away from a circulation control device which libraries could use, and with minor adaptations might find a role in the library field. There are now many examples of minicomputers being used in the library field principally in the areas of acquisitions, circulation control and/or budget and personnel functions.

A major competitor for the mini is time-sharing, which may or may not be used in conjunction with a minicomputer using as terminals either cathode ray tube or other, with direct or indirect lines into a computer located elsewhere and paying for the storage cost. At Gaylord Brothers this is the present approach for the internal management work load.

It seems that as the mini becomes smaller and less costly and density of storage increases, the competitor for the mini is going to be the terminal. In other words, it seems that the computer, as being used by libraries, will either become much smaller or libraries will avail themselves of the very large computers which are particularly useful in storing massive amounts of information (data banks) and, of course, where networks are being used. Whether to use a mini or a terminal has to do with cost and that depends to a certain degree on the type of use.

There are implications here for the way in which total systems are being contemplated and will be contemplated in the future. There are very few total systems, and most prudent administrators find it necessary to have thresholds of achievement visible at regularly stated intervals. This is important because of the money involved and the frequently low tolerance level on the part of boards and trustees when one begins to talk in terms of six-, eight- or ten-year pay-outs. Developing systems piece-meal or on a modular basis using mini-computers and/or the time-sharing approach can be considerably easier and still allow for a system approach to become operational on a full-blown basis. This would make computers available to libraries to cope with problems that have needed resolution for many years. It should allow for systems to be re-developed at the end of five, six, seven years—whenever they become obsolete—at a minimal cost. The former solution usually was to upgrade to more expensive equipment. The new approach should allow the library to take advantage of vastly improving technology which in five, six or seven years ought to reduce the cost considerably and make the solutions now achieved even more desirable and palatable.

Library functions other than the major ones—circulation, acquisitions, etc.—are important and yet serve almost discreet functions. For example, the audiovisual department or film bureau may need a reservation system to schedule use of materials well in advance, always maintaining knowledge of their present location. There is a limited number of items (perhaps several thousand) to be found in the audiovisual collections of many libraries. The need for information and fast turn-around in these libraries is provided by clerks rather expensively and often inadequately.

Service to the blind entails a discreet number of borrowers, a well-defined collection, a need for an accurate reservation system and quick

response. There are at least fifty such institutions offering this service. Cleveland Public Library, for example, mails out 1000 talking books per day and, with less than 10,000 talking books in supply, there is need for eliminating delays and for the ability to respond quickly when telephone calls requesting reservations are received. The reader usually makes known his need via telephone or mail, and mailing of items is the usual delivery system. A reader profile, including reader interest, is often maintained. Use of a minicomputer with software providing a matrix allowing for a reservation system is not only a possibility but a reality.

One problem, particularly in libraries, is that batch-oriented systems with centralized processing units do not readily succumb to decentralization. People are involved and a level of sophistication is involved. This is a problem that should not be minimized. Placing a minicomputer in an order department and with it the responsibility for producing on it means that the computer is visible and accountability is squarely placed within the department. It places the responsibility on the head of that department to manage it and it eliminates the remote fall guy (the centralized unit).

I have had personal experience with one minicomputer system in a traditional area of library service—acquisitions. As an administrator I felt the need of a mechanized system that provided information when needed and for specific questions. Report-oriented systems provide reams of paper which, when produced, frequently indicate the state of things three weeks ago and then become increasingly less useful with the passing of each day. It is important to an administrator to obtain quick response to questions like: What books have been held in cataloging over thirty days? or What is the status of a branch book budget this week?; or to have an *automatic* assignment of vendors, cancellation of dated orders or breakouts on any one of dozens of data compilations to answer specific questions. The minicomputer offers opportunity to the sophisticated and nonsophisticated in computerese to cope with the needs of the day both inexpensively and efficiently.

The library world has accepted change slowly. The minicomputer is at hand and with it, at last, comes the opportunity to provide mechanization to many library activities in segments but on a scale previously not practical. It deserves careful consideration, and opens the door for a major thrust forward and continued progress for and by librarians.