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Turning the Key

The first four articles in this issue were presented as speeches during a program conducted by the Library Administration and Management Association (LAMA) at the ALA Dallas Conference. That program focused on problems posed to library managers by the implementation of systems for automated circulation control. The article by Nelson continues this theme by tracing the early history and experience of implementation at one particular site. The Sirkin article should be of considerable interest to members of the Video and Cable Communications Section of LITA as it provides an up-to-date and comprehensive guide to a variety of video source materials. And the Bortnick article transcribes a provocative discussion of future information technologies as they relate to the political process. As usual, the communications department contains several shorter original contributions of interest as well.

Returning to the first five articles, which as a group touch on the single theme of automated circulation control, a few points deserve further emphasis.

These articles concentrate their attention on "*turn-key*" packages. And rightly so. Turn-key systems have become the dominant mode for the automation of circulation control, and one would have to search hard for a reason not to take advantage of the substantial investments represented by this development work. But on reading these articles it seems that "turn-key" is something of a misnomer. Indeed there are many turn-key systems in the business world—for payroll, accounting, and inventory control—that live up to the name. Turn the key and you are ready to make full and good use of them. But what emerges from this collection of papers is a sense of the great amount of preparation needed before one thinks of turning the key on a system for library circulation control.

Implementation planning, requirement specification, vendor evaluation, file conversion, contract negotiation, personnel training, and public relations are just some of the areas in which the library remains primarily responsible. An extensive job of preparation, often with the help of outside consultants, must be carried out with care.

In these papers there is also the underlying suggestion that we should scrutinize more closely the life-cycle costs of the systems we implement. We should become more aware of start-up costs and long-term changes in staffing patterns as part of the impact of the system on its environment.

When one considers that the market for circulation systems is extremely thin, that libraries have very little money these days, and that each site seems to have different requirements, it is surprising that so many companies have shown the requisite entrepreneurial zeal to develop systems for this marketplace. We might hope that someday other areas of library automation will also benefit. Meanwhile, however, the main point to remember is that much of the burden of implementation remains with the library staff; much else must be done besides turning the key.

WILLIAM D. MATHEWS

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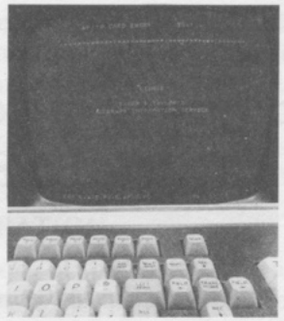

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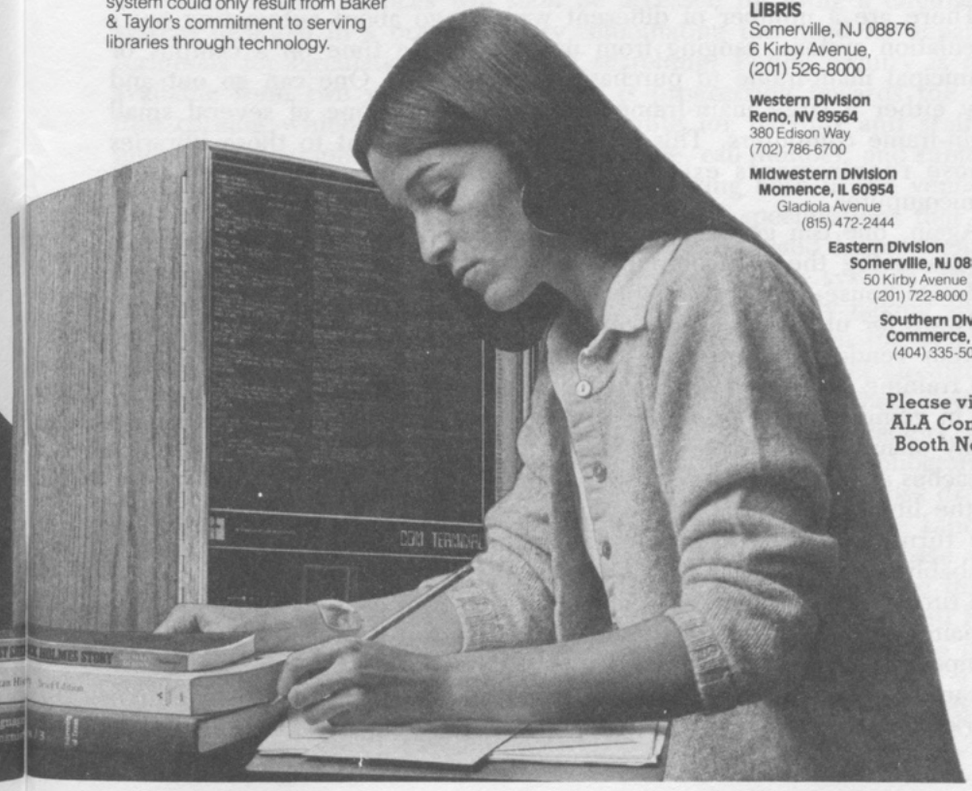

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General Trends in Implementation of Automated Circulation Systems

Richard W. BOSS: Information Systems Consultants, Inc., Boston, Massachusetts.

Building automated circulation systems has become a sizable business activity. Overall trends in the turnkey system market are described. These include tendencies toward greater functional integration, improved user interfaces, and shared facilities linking many libraries together in a single system. The role of bibliographic utilities is also briefly explored.

INTRODUCTION

There are a number of different ways to go about automating one's circulation system, ranging from using available time on a campus or municipal main-frame to purchasing a computer. One can go out and buy either a large main-frame computer or any one of several small main-frame computers. This is particularly important to those libraries whose requirements exceed those that can be accomplished on a minicomputer.

Again, one can go out and buy a minicomputer and do the work of programming the minicomputer in-house, or one can contract with a software house—a firm that specializes in developing special application software for utilizing a computer system. Or one can rely on a turnkey system vendor who provides the hardware, the software, installation, the training, and the maintenance all in one package at a fixed price.

I'm going to focus primarily on the turnkey system market, although many of my comments will apply to the other types of automation approaches as well. The large majority, possibly two-thirds to three-fourths of the libraries that are automating circulation these days are selecting the turnkey approach. Recent indications are that turnkey sales will probably exceed $18,000,000 this year, which represents a doubling of the turnkey system market from a year ago. So it continues to be a very dynamic and very vigorous market, despite the fact that recently one company (DECICOM) withdrew and Proposition 13 fever has hit many libraries. We seem in fact to have an even more vigorously competitive market than ever before. At least one more company, DataPhase, has

become a major force in the marketplace. With the recent sale of its fourth system, ULYSIS of Canada also has to be considered a significant contender. Systems Control has sold a second system, a million-dollar countywide system. Cincinnati Electronics has likewise installed a second system and the British firm of Plessey is beginning to market in the U.S. Further, Canada's GEAC is exhibiting at ALA for the first time.

FUNCTIONAL INTEGRATION

Now that more and more of the basic functional requirements are becoming standard features in circulation modules of the various turnkey systems, we see the companies beginning to offer other modules or subsystems besides circulation. One significant trend is a move toward integrated systems supporting several functions. Among the first options to be offered will be an acquisition subsystem, including not only the internal acquisitions requirements but on-line ordering as well. One of the vendors has already contracted with a major jobber. Others are negotiating. Material booking, for those who have film collections and other nonprint materials that have special bookings requirements, is now available from one vendor, and two other vendors have set delivery dates for late 1979 and early 1980.

On-line search services will soon be accessed by using a circulation system terminal in a branch library, eliminating the need for separate terminals for circulation and on-line searching. Public inquiry is now available from two vendors, and work is progressing towards the on-line catalog which would make it possible for patrons and staff to query a bibliographic data base by author, title, call number, and subject. This trend toward integrated systems is occurring both in the vendors' development of their systems and in the newest specifications that are coming out. At the same time we're seeing larger and larger Central Processing Units to support these more complex on-line systems. When one starts talking about on-line catalogs, one is obviously talking about many more terminals and about a much heavier strain on the system. We're also talking about longer records than the very brief circulation records that were common when automated circulation first began. Files of 100–200 characters are now expanding to 500 or more characters, and in a few cases libraries are even thinking about full MARC bibliographic records in the data base. These longer records require larger disk drives or storage devices. In 1973–74 when the Marin County Public Library installed a CLSI system, the disk drives on which the data base was stored were ten megabytes each. Just a couple of years ago, the thirty megabyte disk drives were common, then sixty, and now you will find that most of the vendors will put as many as four 300 megabyte disk drives on a system. That is 1.2 billion characters of information. That means that one could put as many as 1,700,000 bibliographic records on a minicomputer-based system.

It would appear as we move toward these integrated systems with these much larger files that there will be a point over one million records at which the library should seriously consider an alternative to the minicomputer, possibly one of the new small main-frame computers that is now being marketed at less than one-half million dollars. This is in sharp contrast to past years when one could not get main-frame computers for less than two million dollars.

IMPROVING THE USER INTERFACE

One of the trends that is not yet evident, but which I suspect is going to be evident as libraries begin to go to on-line catalogs, is the phenomenon that people at the Lister Hill Laboratory for Biomedical Communications have entitled the "user-cordial" terminal. To the user the computer is not the central processing unit or the entire system, but the terminal. The quality of the user interface is most important, since the users' experiences with the terminals determine their attitudes. I was in an academic library in the eastern United States recently and I watched people using terminals in the stacks. The library provided call number access to the collection so that patrons could determine the status of materials. The instructions on the new terminal said: "Enter a backward slash, enter each element of the call number separated by a slash, and enter the dollar sign to escape the system." Now you may be familiar with the typewriter keyboard, but would you know where to find that backward slash? Moreover, most people couldn't remember what the elements of the call number were. I heard nothing but negative comments from users of that system.

Contrast that with an experience at Guelph University in Ontario, Canada, where the terminal says: "Hello, which of the following would you like to do? (*a*) Inquire about a book by author, (*b*) Inquire about a book by title, (*c*) Inquire about a book by call number, (*d*) Inquire about your own records. Select the letter for the particular query you want to make." If (*a*) is selected, the user is asked to enter the full name of the author or as many letters of the last name as are known. One drawback is that the staff members get a little tired of having the computer say "Hello" to them several hundred times each day. They want a system that doesn't prompt them. They want to command the system. Of course, all staff and patrons are not alike. Cordiality means different things to different people. To some it means that the system leads them through. To others it means the system turns over control to them.

We recently did a library consulting project in which we used our experience with a bank installation. We realized that a turnkey vendor would not want to modify their standard terminal that was programmed for patrons to initiate a title search by entering a semicolon. Instead we specified that we wanted the key for the title search to be in blue, we wanted the key for the author search to be in red, and we wanted the

escape key to be in green or what have you. We provided a name and address of a company that would provide us the substitute keys so that the old could be lifted off and the new could be put on. Then one could merely tell people to hit the colored button. This way we were able to provide an element of user cordiality at very, very low expense. I think that certainly one of the important trends is to get the user increasingly into the act without staff help. We may be unnecessarily interposing library staff members between users and the information they need.

SHARED FACILITIES

Another trend in implementation that appears to be gaining headway is the idea of sharing the central processing unit and sharing the central site expenses among several libraries in order to get lower costs per library and also to facilitate interlibrary loan. It's interesting how this type of thing has a snowballing effect. Such cooperation is very extensive in Connecticut, Illinois, and Utah and to a lesser extent in other states. Neighboring groups of libraries are far more receptive to this idea than those located many hundreds of miles apart. This sharing of CPU appears to be having not only the effect of reducing costs per library but also the effect of showing dramatic increases in interlibrary loan activity among the libraries that are so linked together. There are some good reports available describing those activities both in the professional literature and in special reports from Illinois's Suburban Library System and the LEAP Library System in Connecticut. The two I cited happen to be both by the same vendor, but the capabilities are not limited to a single vendor.

ROLE OF BIBLIOGRAPHIC UTILITIES

One of the most important areas concerning implementation of automated circulation in the future will be the role that bibliographic utilities play. The Washington Library Network (WLN) has taken the posture that they will interface with library-selected systems. Basically they have said that a library that gets a circulation system should in its specifications set forth that the system have certain interface capabilities with the WLN system so that cataloging information can be pulled off for the circulation system and vice versa. This way interlibrary loan can be achieved throughout the state. The initial commitment is to work with the DataPhase circulation system that will be used by Tacoma Public Library. UTLAS is also offering an interface but only with their own circulation system. They have designed a software package and will offer a total turnkey system to the library that will initially stand alone in the library but will ultimately be part of a distributed system in which the UTLAS main-frame computer will be the heart. In a distributed system one keeps all bibliographic records on-line on very large main-frame computers; on the minicomputer one keeps short bibliographic records.

There is a Toronto study now going on which suggests that perhaps as few as 2 percent of the users of a library catalog actually have reason to seek a full bibliographic record. So it makes sense to keep these at a remote site. Therefore, you have only one full bibliographic file instead of having that bibliographic file in many different libraries around an area.

OCLC has yet another approach. We do not know yet exactly what it will be, but I think one can conjecture at this point. OCLC has for some years talked about and looked at various alternatives for a circulation subsystem. Their basic philosophy has been that anything that is interconnected with the OCLC system must be of OCLC's design and under OCLC control. Their solution will probably be to offer some part of a centralized processing unit to the library and have the library pay as it uses it. Optimum efficiency could be realized because libraries could be added to or dropped from a particular CPU as activity warranted it. It will be a number of months before OCLC makes a decision on its circulation system, and that decision may not meet the needs of all libraries, so libraries should continue their active investigation of all alternatives.

Certainly enough is happening to justify the prediction that the utilities will play a major role in future developments and that integrated systems are likely to be the most common library automation approach in the future.

CONCLUDING REMARKS

No publication is able to keep up with the rapid changes in this dynamic field. The best way to remain abreast of developments, in my opinion, is to spend some time on the telephone regularly to query those vending, installing, evaluating or otherwise working with automated library systems. Keep in mind, however, that the latest system isn't always the best for one's library just as a high-performance automobile isn't best for every driver's requirements.

Dick Boss is president of a library consulting firm that advises on a variety of issues of concern to library management. The integration of automated circulation control systems has been an area of particular interest to him.

Staff Training Aspects of Circulation System Implementation

Bonnie JUERGENS: Austin Public Library, Texas.

Developing an adequate staff training program is a critical implementation concern. Advice is given on ways to structure the training sessions. Particular attention is paid to personnel considerations and the important qualities of the training coordinator. The problem of developing reasonably comprehensive documentation is also discussed.

INTRODUCTION

When Pat Barkalow asked me to participate in this program by addressing the topic of staff preparation and training for circulation system implementation, I was delighted to accept. I thought it would provide me with an opportunity to cuss and discuss my pet theories about adult education and training approaches. In four years of traveling about the country doing systems training, I've had plenty of time to sit in airplanes and develop such theories! But then Pat's program outline arrived, pulling me back to the practical application at hand and reminding me that you would expect to hear definite and practiced implementation guidelines. So I'll save my theoretical discourse for a later audience.

In fact, Pat's outline suggested that I cover five specific areas in this presentation. These include: qualities and qualifications of the training coordinator; levels of training; training and use tools; vendor responsibilities; and timeframe. I shall have very little time per topic, so please bear with me if my transitions are brief. One additional caveat: my remarks will be in reference to the implementation of turnkey systems; however, with minor adjustments, they can be applied to the implementation/training aspects of any automated circulation system, whether purchased from external sources or developed internally.

IMPORTANCE OF THE TRAINING COORDINATOR

Select a training coordinator early in the search stage of planning a circulation system. The coordinator should be involved from inception through implementation. In addition, although this may seem like a luxury, dedicate one full-time individual to this role if at all possible. To

put this comment into perspective, let me remind you that most automated circulation systems cost from $125,000 to $500,000 in outright purchase cost; yet automated systems, like manual systems, will not be successful without adequate training and preparation on the part of the staff. If your library is large enough to automate your circulation activities, then you are economically capable of designating a full-time staff member to coordinate the implementation. It is a small investment to make toward a successful implementation. If the training coordinator is running a department, a section, or perhaps even the entire library, in addition to planning, investigating, assisting in negotiation, and actually learning the system in order to train others in its operation, the library will clearly suffer.

Qualifications and qualities: I had dinner at a Chinese restaurant last night, interrupting my last minute preparation for this presentation. My fortune cookie read: "Your mentality is alert, practical and analytical." I couldn't help but think that those qualities represent the bare minimum of what is required for the training coordinator! In addition, look for someone who has well-developed communication skills. The coordinator must be able to communicate up, down, and across all organizational lines, and outside the library among vendor and data processing personnel. It is advantageous for this individual to have some basic technical understanding of automation in reference to library applications, but this is not mandatory. In fact, it is more important to understand *library needs* and be able to translate them into a functional description for data processors to work from, than to have a technical background in data processing. However, in dealing with vendors, a technical background or familiarity with other library systems can alert the coordinator to possible "flaws" in logic in a functional description that has been presented by vendors in a competitive situation.

Give the training coordinator the authority necessary to support the responsibility. Such authority may be formal (a high slot on the organization chart) or informal (obvious, public, and continuing support by the library administration), but without it, the coordinator's success is doomed.

The training coordinator must be capable of seeing the total picture: How the implementation of the circulation system affects all aspects of the library's service approach, and how it will fit in with information needs; which departments and levels of personnel will be affected in what ways. Add *patience and stamina*, and you have the basis from which a good training coordinator can emerge. If you are lucky, such an individual is already on your staff, and should be reassigned as a full-time training coordinator.

TARGETS FOR THE TRAINING EFFORT

There are three major categories or levels of personnel to whom the training coordinator will be directing the training effort. These are in

addition to the public, whose training falls into the "public relations" category which will be addressed by another speaker. The three internal levels are: (1) library administration; (2) middle management; and (3) clerical or support staff.

My remarks and advice at this point are directed toward the training coordinator. It is the coordinator's responsibility to provide the library administration with a description of the training and implementation plans: numbers, time frames, purposes. A description of the general system approach and hardware configuration should also be included. Such information is important to the public relations aspect of the administrators' jobs. In addition, projected pitfalls, bottlenecks, and initial negative staff reactions (general, not personal) should be outlined to ensure administrative understanding and support. Updates on all such information should be scheduled on a regular basis. What further training efforts should be directed toward the administration? Anything more, even at the technical level, that they want to learn!

Middle managers—department heads—need to have a general description of the system, along with implementation projections. Zero in on how use of the system will affect each department. Schedule staff training (if appropriate) and *always* invite the manager to attend. Ask for assistance, patience, and support.

TRAINING THE CLERICAL STAFF

Clerical staff training requires much more delineation. General guidelines, which apply to the training of all clerical staff, the actual operators of the system, include the following:

Take a functional approach in organizing the training sessions. Group the training sessions according to specific functions and levels of staff members who will utilize those functions. Break the training down into *many sessions* rather than one long, all-inclusive session. Allow for much practice, review, and some mechanism for feedback. *Insist* that newly created computer operators and terminal operators talk to you. Introduce new terminology gradually and thoroughly and be consistent in your use of the system's special jargon. Above all, remember to place your introduction of a program or activity within your own library's context: How *we'll* take advantage of a grace period to allow additional "library handling time," perhaps, . . . or why *we* don't use system-generated hold notices . . . what *we're* trying to accomplish in the assignment of statistical categories for patron records . . . and what limitations the system will place on previously established procedures or policies.

The functional approach to which I referred tends to divide into three categories the activities associated with running a circulation system. These are: (1) console or computer operations; (2) file building and maintenance; and (3) explicit circulation activities. All three levels of system users need a general system description, a review of the im-

plementation time frame, and some picture of the activities that will be undertaken by others if the staff is large enough that responsibilities do not overlap. Each staff member must have a clear understanding of how his or her department will use and be affected by the system.

Console operators must understand the level of responsibility each one is undertaking, and whom to call for technical support while "monitoring" the console. They must have careful, thorough training about the use of the equipment, the care of the equipment, and security requirements. Usually, this will be the group of staff members receiving the first technical training.

Input operators must be trained not only in the mechanics of operating a CRT, but also in library guidelines concerning the data to be entered. They must understand the level of responsibility they are assuming in making "cataloging decisions," and where to turn for help in making those decisions. In fairness to input operators and for personnel planning, establish your expectations concerning amount of input: so many titles, items, or patron records per hour. Let operators know that they will be evaluated based on both quantity and quality of input. Establish revision procedures.

Finally, circulation terminal operators must be trained in the use of the equipment, but this training is of a different variety altogether. The circulation clerk deals with the public. This person must learn to use terminals as tools that function smoothly and discreetly around conversation and assistance to the patron. Here more than anywhere else, use of the automated system must be learned within the context of the library's policies and service guidelines. I heartily recommend role playing as part of the training, and much practice before the first day of use with the public.

For all system users, introduce the importance of TLC (tender, loving care) in handling system equipment as part of the first training session. Proper use and cleaning of the peripheral equipment can add precious months to its active life.

The advantages of careful training introduced over a time frame lasting several months will become apparent in the staff's PR efforts with the public. Your objective is to develop staff confidence in themselves, the system, and you.

TRAINING AND REFERENCE TOOLS

Training and reference tools provide the bridge to comfortable use of the system. These are of two categories—vendor-provided and locally developed—and both kinds are absolutely necessary. Vendor-provided user documentation, however, tends to have the following characteristics: written as if the user already knew the system, it is inadequate, boring, poorly organized, poorly (if at all!) indexed outdated, and often wrong. It is also the system user's Bible.

Locally developed manuals always come about too late; yet one doesn't know enough about the system until it's been in use for a while, which seems to present an unsolvable dilemma. The best compromise is the loose-leaf binder approach. Include policy, actual system use descriptions, rewritings of technical details to which operators must refer often but which somehow are not "made clear" in the vendor documentation. Establish consistent terminology and provide information from a local viewpoint that will assist in the transition from the replaced circulation system. Appoint staff members from varied backgrounds and departments to assist in compiling local documentation. Update as frequently as possible (*make* it possible!) and make sure that any training session presented includes references to and a review of the documentation.

Documentation for the public? The possibilities are varied: bookmarks, brochures, articles in campus or public newspapers. Whatever approach you choose, remember to take your patrons into your confidence early on to prepare them for changes and improvements.

VENDOR SUPPORT

In addition to documentation, vendor support means people: hardware and software trainers, troubleshooters, and people to answer increasingly complex questions as the questioner becomes even more sophisticated in system use. Find out about vendor support *before* the contract is signed. What level of vendor staff member is responsible for library training and follow-up? What are the communications channels? Do not agree to a contract that specifies number of days of training rather than level of training to be achieved by a certain number of library staff members, and how that level of understanding will be tested. Remember that the vendor's responsibility in training is exactly what the contract specifies—no more, but no less.

IMPLEMENTATION TIME FRAME

And finally, I would like to say a few words about implementation time frame. At least three months before installation is due, begin to conduct sessions that cover system description and departmental involvement projections. Prepare the library's "profile" of local options with the assistance of the vendor's training representative and the library's public and technical services staff members. Prepare public notification and PR, both within and outside the library.

Upon installation, schedule sessions for console operators, input operators, and circulation operators in that order. Administrators and department heads should be fitted around actual system users. Space out the sessions so that the trainer and the trainees cover the material function by function, establishing a progressive level of understanding in the same order that staff members are likely to use each function. Let

the training time and practice time establish confidence and respect for all aspects of the system and its various users. A minimum of three months of training and file building (assuming machine conversion or a massive input effort) should be planned to precede going on-line. For a large library or multiple branches, six months is a more reasonable minimum.

In general, phase in all training and each new use aspect of the system in this order: console handing, input operations, first circulating location, successive circulating locations, subsequent functional enhancements and retraining. Finally, remember that training never stops. PR never stops. And the training coordinator's learning should never stop!

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Conversion of Files for Circulation Control

Pat BARKALOW: University of Tennessee, Knoxville.

Bibliographic file conversion is a labor-intensive task often costing more than all other aspects of system implementation combined. Suggestions for reducing labor costs, improving accuracy, and maximizing computer use are presented. At the same time, libraries should be aware of regional, state, and national plans for resource sharing prior to engaging in conversion projects in the first place.

INTRODUCTION

Conversion of a library's files to machine-readable form is frequently the single most difficult problem in implementing a new circulation system. Depending on the size of those files, it may also be the most expensive. Many libraries have discovered that the actual cost of conversion is greater than the cost of the hardware and software conbined. Therefore, one should give this process very careful study even before choosing a system. Some aspects of the conversion process should be included in the requests for proposals. Certainly any obligations on the part of the vendor or any additional equipment will need to be specified in the contract.

Conversion is a most appropriate word to describe this complex task that seems often to have religious overtones. If we consult a dictionary, we find that the verb *convert* means "to change or transform," "to persuade or be persuaded to adopt a given religious belief," and also "to misappropriate." In the process of library file conversion we do indeed change human-readable information to machine (nonhuman) readable data. We are persuaded (many of us take it on faith) that the machine can transform it back again to human-readable form on demand. When this transformation occasionally fails, we believe that something has been misappropriated: our faith, time, money, etc. I personally believe that any faith, religious or otherwise, should be critically examined and studied prior to acceptance. Automation in general and file conversion in particular should not be accepted on mystical terms.

From my own experience, I hold two basic assumptions about file conversion. The first is that staff time is far more costly than machine

time throughout the conversion process. Secondly, accuracy, especially in key areas of the converted records, is critical. The first commandment of automation could well be the familiar *GIGO*: garbage *i*n, garbage *o*ut. Therefore, my own goals in any conversion project are to use staff wisely, maximize the use of the computer, and stress the accuracy of key record elements.

My presentation today will outline some general procedures to follow in planning for conversion. Each library's requirements will differ depending on its own situation as to size, quantity and type of holdings, future automation plans, and local resources. I will not talk about the numerous methods of accomplishing conversion. A thorough discussion of any one method would consume the entire time allotted. Hopefully, if my suggestions are followed, you will become familiar with the various alternatives and be able to determine the best way to proceed for your own situation.

RESEARCH THE TOPIC

The best place to begin planning for conversion is to read and study the literature. We sometimes forget to do this. You might begin with the usual indexes and abstracts, but I recommend a few specific titles. "The *Annual Review of Information Science and Technology* always has one or more chapters summarizing progress in library automation. Each chapter is followed by an extensive bibliography of important articles published in preceeding years. Many will deal with conversion methods and techniques. *The Journal of Library Automation* and *Library Technology Reports,* both published by ALA, as well as the various American Society for Information Science publications frequently contain articles relating specifically to conversion. Handbooks or encyclopedias on data processing techniques will provide background information on file structures and storage techniques. The Association of Research Libraries will publish a report later this year entitled *Alternatives for Future Library Catalogs: A Cost Model.* The report will summarize a study performed by more than seventy research libraries using techniques developed by King Research to evaluate four methods of implementing AACR 2. Two of these, COM and on-line catalogs, involve conversion of files to machine-readable form. The report will also contain extensive background information prepared by Dick Boss, a previous speaker today, which is very helpful in planning for file conversion. Contact the ARL offices in Washington, D.C., for more information.

VISIT 'CONVERTED' LIBRARIES

My second suggestion is to visit or telephone several libraries similar to yours who have experienced file conversion. Prepare a list of questions beforehand. Find out what they did wrong as well as what went smoothly. Ask for a copy of their procedures manual for conversion. Study it carefully to determine how procedures can be improved for

your own situation. The main goal for this exercise should be to learn from others' experience and mistakes.

DETERMINE CONVERSION REQUIREMENTS

A number of different files must be converted depending on the type of library. These include the user file; the bibliographic file; the file of materials on reserve; the file of materials on hold; and the file of materials in circulation when the system is actually implemented. For each of these files, determine the following: the number of records that will need to be converted; the number of anticipated additions each year; the size and specific content of each record in the file; the access points required for each file, e.g., title, call number, user name; and the degree of accuracy required for each portion of the record. For example, the call number in the bibliographic record may require a higher degree of accuracy than the imprint. Specify this requirement so that procedures can be developed to focus on those elements that require a high degree of accuracy.

Since the bibliographic file is invariably the largest, the following remarks will deal specifically with that file. However, the process of examination will be similar for other files as well.

EXAMINE THE ALTERNATIVES

A number of options exist for converting the bibliographic file. One may contract with a vendor who has a large bibliographic data base, use one of the bibliographic utilities such as OCLC or RLIN, borrow a data base from another library with similar holdings, or manually key all the records from scratch. In evaluating the alternatives you will need to develop a model that relates quantity, quality, and cost. Minimum criteria will include the hit rate, i.e., the percentage of your library's records that can be expected to be found in the data base; the process for entering the nonhits; the quality of record content; the fullness of the records; the accuracy of the data; the cost per record; the amount and level of library staff time that will be required per record; the equipment needed; the transferability of the converted files, i.e., the additional effort that may be required to put the files on your circulation system; the credibility of the vendor or supplier; the elapsed time required to complete the process; and the method of updating after the process is complete. Careful cost estimates for staff time, equipment, and transferring the files must be prepared and added to any direct vendor costs. The lowest cost model may not be the best if the quality of the data is poor. Each library must weigh its own priorities and judge accordingly.

MAXIMIZE THE USE OF THE COMPUTER

In preparing for file conversion several methods can be used to assure that the computer handles its full share of the workload. Generally, information will be entered either through visual display terminals di-

rectly or by filling out preprinted forms and sending them to a vendor for keyboarding. In either case, the input format should be carefully designed to provide clear prompts to the staff. Adequate spacing and field definitions will assist training and minimize errors. For data input directly through a terminal, the fields can sometimes be preset to accept only specific types of data such as numbers. Range checks can likewise be performed automatically to prohibit data from being entered that is outside prescribed limits. Further, coding tables can often be used effectively to reduce the quantity of information that must be entered. For example, zip code tables can be constructed for the user data base. The table links the town and state to the code. The staff need enter only the zip code; the balance is provided automatically. Where feasible, codes should be mnemonically related to the actual data to facilitate easy recognition and reduce errors. The output format for editing and verifying data should receive equal attention. Key elements of the record that must be most accurate should be highlighted. Locating the data on the printout in a spacing pattern similar to the original record will allow easy visual scanning. For example, setting the call number off to the left surrounded by adequate white space will enable the staff to readily check the printout with the shelf list card.

USE STAFF WISELY

One of the best ways to reduce staffing costs during conversion is to provide careful, thorough training and close supervision. Be sure such person understands the importance of the task at hand. Stress accuracy. Always provide written, clear, logical instructions. Allow short breaks every two hours for staff who are confined to a terminal or desk. If possible rotate jobs every two to four hours. Monitor each person's work regularly. If the error rate is too high or the progress too slow in comparison with others, switch the person to another job. Accuracy requires intense effort and may be expensive. On the other hand, using inaccurate records may cost the library its credibility with its users and can be a source of extreme frustration for its staff.

ADDITIONAL CONSIDERATIONS

Examine future automation requirements before beginning conversion. Do you want to eventually add an acquisitions module, on-line catalog or serials control? Determine the data requirements now for future projects to prevent a massive and expensive reconversion project later. If you plan to store only a brief bibliographic record in your circulation system, I urge you to include one of the standard record identifiers such as the LC card number or ISSN/ISBN. These short numbers will enable you to convert to a more complete bibliographic record at a later date at a greatly reduced cost than returning to the original card file.

Consider also the reports and management information that will be needed or wanted. Often one can add a short code or a counter to a record to generate important statistics that can be used for collection management or evaluating user patterns. At the same time, do not enter information that is unnecessary. For example, are card expiration dates really needed in a computerized system? If library privileges can be blocked for overdue materials, excess fines, or incorrect addresses, do we really need to go through the labor-intensive process of revalidating or reissuing cards?

A library should also examine regional, state, and national plans for automation. You may want your files to be compatible with others in the area so that resource sharing is accommodated. If the state is building a statewide data base, funding might be available to assist in conversion so long as the library conforms to a given standard. You should also be aware of the national MARC standard for bibliographic records whether or not you choose to use it.

BACK-UP PROCEDURES

Last, but certainly not least, once you begin conversion, be sure that adequate safeguards are provided to prevent loss of converted data. If you are sending forms to vendors, make photocopies before mailing. If you are converting in-house, insist on frequent copying of files for backup. Ideally, one back-up copy should be stored at a separate location from the original data base. Procedures for safeguarding the converted files should be specified in detail in the contract and closely monitored in the library.

CONCLUDING REMARKS

To summarize, study the literature, talk to experienced librarians, determine requirements carefully, evaluate alternatives, maximize the use of the computer, use staff wisely, stress accuracy, consider your own future needs as well as regional needs, and back up the converted files. When we finish file conversion we frequently feel that we have been baptized by fire. Nevertheless, I personally believe that computers are the best option available to improve services, hold the line on staffing costs, and reduce drudgery in libraries. The pain of conversion well done is worth the price.

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The Public Relations Component of Circulation System Implementation

J. Michael BRUER: California Library Authority for Systems and Services (CLASS).

Apart from having a system so good that it literally promotes itself, a well-designed public relations program plays a pivotal role. Public relations should be no mystery; it is basically a form of communications directed toward staff and patron alike. The circulation librarian is the key person in this communications effort.

INTRODUCTION

Public relations, in terms of automated circulation system development, is essentially an implementation problem. But it is difficult to deal with implementation in the abstract, since so much depends on the nature of the system being installed and the system being replaced. Problems associated with implementation such as staff and patron preparation and systems transition should not be glossed over when the library reaches that stage of development. But generalizations are difficult to construct in the absence of environmental details.

START-UP PROBLEMS

It may be useful, however, to reemphasize the problem of file conversion dealt with in more detail by the previous speaker. Conversion is likewise an implementation problem in that, presumably, one does not begin to convert records from one format to another unless a decision as to what system is going to be adopted has already been made. But it is also a public relations issue, and one that will certainly have undesirable repercussions if it is not done properly. Indeed, it is one of the biggest problems facing the library in bringing up any kind of system, and it is often underestimated. Administrators are frequently chagrined to learn that, largely due to conversion requirements, operational costs and staff size may actually increase in the early stages of implementation. Even if administrators have adjusted to the fact that the new system is likely to cost more than the old one, though it may also be worth a lot more, it is nevertheless alarming to find the circulation librarian demanding more staff for conversion. The problem is that conversion is usually not

counted as part of the cost of the system, but in fact it should be.

But more important, from the public relations perspective, conversion must be carefully planned and implemented. The circulation system selected by the library may be the greatest thing since red-lined catalog cards, but a poorly designed conversion method may very well diminish, or even destroy, credibility in the system as a whole.

Fortunately, the library usually has a number of options that can be exercised in the conversion process. In the first place, conversion may be treated as a separate project, or, depending on local circumstances, it may be made part of a larger operation such as conversion of the public catalog or the shelflist. A second option allows the library to choose between full conversion of all bibliographic records, or a partial conversion that would result either in full conversion of a subset of the collection or a truncated record entry for the whole collection. A third option allows the library to decide whether to convert all records in advance of start-up, or to deal with the problem while operating the system by converting all or most of the records on-the-fly, that is, as books are presented by the borrower at the circulation desk. Whatever approach is selected for conversion, it is well to remember that there are no panaceas, no cheap shortcuts, and no ways to finesse the problem.

If the library chooses to undertake a full retrospective conversion prior to going on-line, it may realize a side benefit that will have an impact on public relations. I refer to the fact that full conversion of catalog records for input to the circulation system offers the opportunity to inventory the collection at the same time. One might even say that this is a necessary component of total retrospective conversion that will have positive implications for the library in terms of how it is viewed by the public. Book availability is the real issue, insofar as the patron is concerned, rather than bibliographical comprehensiveness.

OPERATIONAL CONSIDERATIONS

Another aspect of implementation and staff relations (the latter being fully as important as public relations) is related to the question of who will operate the system. In my view, the circulation staff should run the circulation system, not the computer center systems staff. But all too often, systems people remain heavily involved in operations, long after development, installation, and testing have been completed. The reason for this is sometimes traceable to the intentional perpetuation of the myth that only computer people know enough to operate a computerized system. But in fact, if a system has been bought or built that can't be operated by departmental staff, then the systems people and the library management have not done their job.

The computer is merely a tool that is intended to help staff do their job better and to assist the institution in meeting its objectives. It may have more impact than a typewriter, but it has no more status. It is not

mysterious and unknowable; it will not take away jobs nor will it create large budgetary savings; and access to it should not be restricted to the self-annointed.

Indeed, virtually all of the staff should be "trained" on the system to one degree or another. In addition to the circulation staff, who will of course be fully conversant with all aspects of the system, varying amounts of hands-on experience should be accorded to other staff, including reference, interlibrary loan, branches, technical services, and, yes, even the administration. Thus, in a very real sense, public relations really begins with staff relations. And the key staff member in the implementation and operation phase is the circulation librarian.

I emphasize the word librarian, since I do *not* agree with the opinion expressed to me by one library director to the effect that placing a librarian in charge of circulation is anachronistic, wasteful, and unnecessary. I should also note parenthetically, for the sake of clarity, that I have known quite a few circulation librarians who did not have an M.L.S., degree but who were professionals nonetheless. The same director was also given to outrageous statements such as: "Every library I go to, the first thing I do is take apart the Circulation Department, and put it back together in a different (that is, his own) mold." I suppose that every time he changes automobiles, the first thing he does is remove the engine and replace it with one he nailed together in the basement. When you have this kind of attitude in your own shop, you can forget about *public* relations for a while; you'll have all you can do to keep your professional relations from self-destructing.

NO MYSTERIES

Assuming, however, that you have an administration that is both reasonable and knowledgeable, and dare I say enlightened, the major public relations effort will obviously be directed toward staff, particularly circulation staff, and the library's patrons. The first thing to remember, I believe, is that public relations is not some kind of alchemical mystery known only to the initiated. In a real sense, public relations is simply adequate and appropriate sensitivity for the feelings and perceptions of others with reference to the objectives you intend to implement. It's a job we can do ourselves as well as it needs to be done without the need to hire a public relations firm.

The second thing to remember is that automation is not a mystery either, nor is it the equivalent of time-warping into the year 2525. Computers have in fact been defined in some quarters as machines that allow you to make bigger mistakes faster. Of course, automating circulation means change, and changes are always difficult. But deifying automation will only make matters worse in public relation terms.

The third thing to remember is that you had better have a good product. You can probably get by with promoting an Edsel for two or

three years, but I believe that the public will eventually separate the wheat from the chaff in most cases, at least in terms of consumer products if not in artistic taste. Even if you could use PR techniques to get your public to accept an inadequate system, I don't think you should. The big payoff for a good product is that, to a large degree, it will sell itself and your public relations problems are thereby mimimized.

It is probably easier to sell your patrons on a bad product than it is your staff, especially if the new system is replacing one that didn't work very well to start with. If the new system is heavily print-bound with lots of output of marginal use, if down time is too high or response time is unacceptably slow, if error correction procedures are cumbersome and unresponsive, if system improvements are too slow in coming and seemingly at the whim of the vendor or systems staff, if conversion procedures add 25 percent to the workload and you've already reduced staff by 10 percent to justify purchase of the system, the only way you're going to PR your staff into submission is to fire them all and replace them with people who don't know any better.

THE INVISIBLE SYSTEM

From the user point of view, the new system should, in many respects, be transparent. That is to say, the circulation system to be interposed between book and reader should be no more obvious, and therefore no more inhibiting, to the user than the one being replaced. System demands on the user should in fact be considerably less than previously, the ultimate objective being to move from transparency to invisibility. In this connection, it is important to try to keep current circulation policies as stable as possible; in particular, one should not allow system design to determine policy. It is probably enough of a public relations problem to ask the user to cope with a change in the system; to overturn most of the policies as well as the procedures, because of system constraints, is almost certainly to go too far.

Good public relations depends on candor and simplicity. It is better therefore not to advertize the capabilities of the new system in too much detail prior to implementation. If the vendor or systems staff turns out to be, shall we say, overly enthusiastic in describing the actual or potential attributes of the system, the circulation librarian may have a real problem in back-peddling from initial information given to patrons. In addition, the simplier and more straightforward the explanation of the new system, the more likely it is that the public relations campaign will be successful.

As a general strategy in public relations, you need, first of all, to know exactly what it is you are doing and how you are going to do it. This is not as simple and obvious as it sounds and is more often observed in the breach than in actuality. But it is essential if you are going to prepare others for the anticipated system change. Given this caveat,

however, the public relations plan is relatively unambiguous: Tell 'em what you're going to do, do it, and tell 'em what you've done.

BASED ON COMMUNICATIONS

The most basic point to remember about public relations is that it is actually nothing more than a form of communications. Unlike the PR we have seen practiced in some high political circles in recent years, it is not a method for covering up what you don't want to be communicated. At all costs, you'll want to avoid invoking Clopton's law: for every credibility gap, there's a gullibility fill. If you're going to be fair—and communicative—you've got to tell it like it is. This, of course, puts a premium on your analysis, judgment, and product selection. If your proposed system is really needed, you should be able to communicate this to the administration; if it is cost-effective, you should have no trouble with funding authorities; if it delivers better service, your relations with the public should be excellent; and finally, if the system makes your staff look like a bunch of geniuses, what more could you ask for.

These are big ifs I'll admit, but without the presence of these conditions, no public relations effort can, or at least should, be successful. I am arguing here for substance over appearance, a Naderesque approach, if you will, as opposed to Madison Avenue. If the real world is worth having, and you tell the people what it is, how can you go wrong? If you've got a good story to tell, you won't have any trouble relating to your public.

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Implementation of On-Line Circulation at New York University

Bonnie R. NELSON: Bobst Library, New York University.

Front line experience with the implementation of a turnkey circulation system is described. Involvement of the staff in a careful planning process is vital to success. File conversion of both patron and bibliographic data is covered in some detail. Weaknesses and strengths of the automated system are also summarized.

INTRODUCTION AND HISTORICAL BACKGROUND

New York University began implementation of CLSI's LIBS 100 Circulation System in November of 1974 and went on-line October 1, 1975. Since that time we have learned much about dealing with vendors, about on-line circulation, and about the LIBS 100 itself. This paper is partly a history, an elaboration on the scores of meetings and telephone conversations held with other librarians interested in the LIBS 100, and a practical guide for all those considering purchase of on-line systems.[1]

We decided to replace our manual circulation system by purchasing the LIBS 100 partly out of desperation, which, I am afraid, is the way many libraries make major decisions. In September 1973, the New York University Libraries merged from numerous small libraries around Washington Square in New York City into the new Elmer Holmes Bobst Library and Study Center. The borrower population of about 40,000 students and faculty members that had previously used different departmental libraries and circulation desks now was all funneled into the single large circulation desk in Bobst Library. In the 1973–74 academic year, circulation increased 250 percent over what it had been in the old main library. However, staff increased by only 17 percent, and although the entire staff worked hard and efficiently, basic functions of circulation, such as sending out overdue notices and bills, began to fall by the wayside, as the filing and clearing of charge cards overwhelmed all other tasks. Automation seemed to be the best solution, both to put a lid on what appeared to be an inevitable and unending

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escalation of staff costs, and to provide better service to the students and faculty.

We wanted an on-line system, if possible, because it is important for our users to be able to know at any moment the exact status of books they need, and for us to be able to trap holds and delinquent borrowers on the spot. Our first idea was to ask the NYU computer center to design the exact system we wanted, which it seemed eager to do. That idea was abandoned primarily because we were afraid that we would not be able to get the kind of commitment from the computer center that we needed to run an on-line system. We feared that if seasonal demands suddenly placed a heavy burden on the computer center, the circulation system would become a second-class citizen. Nor could we be sure how long the programming would take, and what the quality of maintenance of both hardware and software would be. Finally, someone would have to pay for the programming and computer time necessary to develop and run such a system, so the costs would not be negligible.

At that time, there was already an on-line turnkey system on the market manufactured by CLSI that seemed to offer most of what we wanted. It was the only on-line circulation system then available; it used lightpens and bar-coded labels rather than book cards which would have required us to put book pockets in every book; it offered guaranteed maintenance and telephone support in the form of a "Trouble Desk" available every hour we were open; and it was a package that was available almost immediately.

DESCRIPTION OF THE SYSTEM

Hardware

The hardware of the LIBS 100 comes from many different manufacturers; CLSI combines the equipment, provides the software, and maintains both software and hardware. This eliminates the problem of dealing with different maintenance companies, all of whom may claim that a problem in question is not theirs. The LIBS 100 central processor (the minicomputer) is housed in a console, which looks like a large desk, and which also houses two to four disc drives of 10, 33, 66, or 300 megabytes each. On top of the console are two printers, one of which prints reports (overdue notices, etc.), and the other of which is used to communicate with the system, i.e., to turn it on and off, to run maintenance operations, or to use as an input terminal. Emanating from the system via local wires, or telephone lines if over a long distance, are various terminals used for input and output. In the past the system has been able to support no more than sixteen terminals, but CLSI is now experimenting with systems that can handle a greater number.

Functions

A basic checkout transaction on the LIBS 100 involves reading with a lightpen or an OCR wand either bar-coded labels (which CLSI calls

zebra labels) or OCR labels which have been affixed to patrons' borrower cards and to books. The system checks the patron for delinquency status (overdue books, fines not paid, invalid card, etc., depending on the parameters the library decides upon), and checks the book for exceptional status (e.g., not previously checked in, or, on renewals, the existence of a hold). If exceptions are found, the system notifies the operator, who can then take whatever action is dictated by library policy. On the simplest terminal, the lightpen, the reason for a patron or book delinquency is not displayed; an inquiry must be done on a keyboard display terminal. If there are no exceptions, then the system simply makes a match between the numbers represented by the bar code or the OCR characters and keeps in its memory the fact that patron number X has borrowed book number Y, along with information on date charged out and due back. Of course, to make these transactions more meaningful it is necessary to know which patrons and what books the numbers represent. Information on the identification of patrons and books must be entered into the system at some time. This brings us to the problem of conversion, which will be discussed later.

IMPLEMENTATION

Planning

Implementation of the system requires careful planning before any information is ever entered into the computer. At New York University we did not recognize until after we had implemented the system all the consequences of our early decisions. It is now obvious that a planning committee should be formed, consisting of representatives from public services, technical services, and circulation. All members of the committee should be thoroughly familiar with the system; i.e., they should all be trained to operate it and know what is flexible and what is fixed in the system. Then, when important policy decisions have to be made, the person responsible for implementing the system in circulation will have the advice of those who not only are experts in their own department but who also understand the new circulation system. For example, the LIBS 100 has no field in which to enter the copy number of a book; for circulation purposes the zebra number takes the place of a copy number (and far more efficiently). But technical services operations may rely heavily on copy numbers and may need at times to know the copy numbers of books that are out in circulation. Should circulation just ignore copy numbers? Should technical services switch to zebra numbers? Should some kind of system be set up to correlate copy numbers with zebra numbers? Early collaboration between departments on questions like this can save grief and finger pointing later.

Site Selection

Among the problems that must be faced early on is deciding where to place the central processor, or console, as CLSI calls it. If only circula-

tion department staff will be using it, then it should be placed close to the circulation desk. Until recently, when CLSI began to offer a printer that could print what was displayed on the keyboard display terminal screen, the only printers available on the system were the two on the central console. At NYU we found it very convenient to have the main console located behind the circulation desk, so that whenever we needed a printout of a patron's current overdue record to give to him or her, or to check ourselves, we could just go over to the console and print it out. The console can also be used as an additional terminal when the circulation desk is unusually busy. And when it is not busy, it is possible to have one person run notices and reports on the console while taking care of desk operations at the same time. However, one must consider the weight of the central processor and the strength of the floor, the noise it makes (which can be considerable if the area is small and enclosed), its air conditioning and heating requirements, and the number and sizes of the doors it would have to go through during installation when deciding where to place the console.

Configuration

Figuring out the number of terminals needed is more difficult. At last count CLSI was offering at least six different types of terminals: a lightpen terminal, a keyboard-display terminal, a combination lightpen and keyboard-display terminal, a combination OCR reader and keyboard-display terminal, a portable lightpen, and a laser bar-code reader combined with a keyboard-display terminal. There is also a keyboard-display terminal that can be placed in a public area and used for inquiries on books only. How many and what kinds of terminals are purchased will depend of course on how busy the library is, what kinds of transactions are done at the circulation desk, and how you plan to enter books and patrons into the system.

We found it inconvenient to use the same keyboard-display terminal for entering books or patrons and performing other functions, since initiation of the patron or book entry functions takes additional time. Consequently, we have two keyboard-display terminals that are used primarily for book conversion (which is still going on five years after we started) and patron conversion, and another two keyboard-display terminals that are located next to a cash register and are used for clearing fines and placing holds on books. We have two lightpens that are used only for checking out and renewing books, and another lightpen used only for clearing returned books. Although a lightpen alone is not as flexible as a combination lightpen and keyboard-display terminal, it is much less expensive, and if the aim is to keep the checkout line moving as fast as possible one may not want to use a terminal for any function but checking out books at that part of the desk. We send elsewhere all

delinquent patrons as well as patrons who want to place holds on books in order to keep the charge-out line moving.

Also, by separating the functions and the terminals, we are able to put newer or part-time staff at those positions where they do not need as much training. We also found it desirable to keep at least one terminal in a back room where work requiring concentration can be done in peace.

One should also consider whether the need for terminals will change over time; i.e., whether after most of the conversion is done fewer keyboard-display and more lightpen terminals will be needed, or fewer or more combination terminals. It may be possible to arrange with the vendor to change the number or proportion of terminals after several months. Also, no matter how many terminals were planned for, one always seems to need more, so the original estimates should be generous.

Staff Preparation

It should go without saying that before a computer is even brought into the library, the circulation staff, and any other library staff that will be involved in using the new system, should be involved in the planning for it and should understand exactly what is to take place. The primary fear is usually that jobs will be lost or that staff will be rendered obsolete. At New York University the opposite turned out to be the case. No positions were dropped from circulation; instead the circulation department, which had been severely understaffed, was finally able to carry out all its functions efficiently and on time—sending out overdue notices daily, for example, instead of once a semester—and was even able to absorb some work from other departments. Rather than being rendered obsolete, all of the staff were trained to use the new system (even those who didn't type were able to develop enough speed on the keyboard for the relatively short entries in the patron and book records), and this new skill resulted in a job reclassification upward for the entire full-time staff. While this situation may not be possible or desirable in many libraries, it behooves the administration at least to be honest with the staff regarding possible reductions in personnel.

The decision makers should also seek out the advice of the workers on the front line, whose knowledge is necessary for adequate planning. Staff members who view the introduction of a computerized circulation system as an exciting challenge will be quick to offer improvements in procedures and to find computer or human errors. The attitude of the staff can have a significant effect on the success or failure of the system, especially if they are doing the actual conversion.

Before implementing the system—in fact before final purchase of a system—it is wise to find out from the vendor exactly what plans there are for changing the system. CLSI has plans to greatly expand and improve the LIBS 100 over the next few years in a series of program re-

leases, as they have done over the past several years. While it is often impossible for vendors to predict accurately when a certain feature will become available, it is important to know what changes will be made and how they will be made compatible with the existing system. Plans should be structured so that it will be possible to take advantage of a new feature when it becomes available, and so that any proposed system of entering books or patrons or of circulation materials will not be inconsistent with later changes. For example, at present the field in the patron record called "patron category" determines only the length of the loan period a patron receives. The fine rate is determined by the type of book. However, even though doctoral candidates and faculty at NYU receive the same loan period, we assign them different patron categories so that when, as we expect, patron category will also determine fines, we will automatically be able to eliminate fines for faculty members and maintain them for graduate students.

CONVERSION

Patron Information

Both information about patrons and information about books must be converted into machine-readable form in order for a computerized circulation system to work. Usually, conversion of patron data is much simpler and cheaper than converting books. At New York University we expected that we would be able to get magnetic tapes from the university computer center with student information (name, address, etc.) and simply reformat the information on the university computer so that the LIBS 100 would accept it and then just enter it into the circulation system via its tape drive. Changes in patron information could be handled the same way—with updated data fed into the tape drive. This type of system is simple, inexpensive, and works well—provided the information acquired is up to date. However, we discovered that the university computer center could not provide us with name and address information on registered students until well after the current semester had begun, when most of the students who use the library would already have come in to borrow books.

We finally decided to use a manual conversion system that is still simple and works quite well but takes much more staff time. When a student registers with the library, we place a zebra label on his or her ID card and place a duplicate number on a card that the student has filled out. We then check books out and enter the registration information in batches at another terminal hours, days, or weeks later. The LIBS 100 will allow the student to borrow books with this zebra label even if no information has been entered (a kind of conversion "on-the-fly"). Once patron conversion is substantially complete, the library can enter into the system a date after which all patrons who have not had information entered for their zebra labels will be trapped at check-

out. It takes about one minute to enter a patron's name, alternate access key (used instead of a zebra number to retrieve a patron's record, since the "name" field is not searchable), address, telephone number, code for patron type (student, faculty, adult, child, etc.), and statistical category (used in computing patron use). This procedure is still used at NYU for entering new patrons, but we hope it can be phased out if the computer center's student records become more current.

Bibliographic Data

Deciding on conversion of books is a much more crucial and difficult decision. Since the LIBS 100 is an "inventory" system, bibliographic information for circulating books need be entered only once. The system will retain in its memory data for every book that has circulated. Also, information about different copies of the same title is simply attached to one bibliographic record; author and title data need not be entered anew for each different copy. Nevertheless, conversion of books is a mammoth job.

If a library has machine-readable bibliographic records in any form, it should be possible to use them to form the nucleus of a data base for the circulation system. If there are punched cards from a batch processing circulation system, CLSI has a terminal that should be able to convert that information and use it in the LIBS 100. Cataloging data in machine-readable form is an even better source of data, since the records are usually more error-free and fuller than circulation records would be. At NYU, our systems librarian developed a method for using the archival tapes we receive from OCLC to input new books into the LIBS 100. Very simply, the operator at the OCLC terminal, when cataloging a book, puts a zebra label in the book and types the zebra number into a free field in the OCLC record. When we receive the archival tape, a program developed by the systems librarian is used to pull out all the records with zebra numbers, reformat them, and form the author-title key (of which more will be said later). The reformatted data is then fed into the circulation computer via the tape drive. A similar method can be used for converting older books if the library has OCLC archival tapes for them, or any other bibliographic tapes for that matter. Any information already in machine-readable form that can be used for this purpose reduces the amount of staff time needed for conversion, reduces errors, and allows a library to go on-line faster. If there are no machine-readable records, it might be possible (and some libraries have already done this) to use another library's circulation data base if both libraries have similar collections.

Conversion Methodology

The library must also decide if it wants to convert its entire collection (probably feasible only for small libraries) or just those books that circu-

late. It is possible to arrange with a vendor to have a complete shelflist keypunched into machine-readable form. Or the library can enter the information into the system itself from its shelflist or directly from the books at the same time zebra labels are put on them. NYU chose the latter option. However, we found that the staff had difficulty in determining from the book what the author or main entry was, where titles left off and subtitles began, when a work should be considered a monograph and when part of a series, etc. Checking the shelflist for each title would have increased the accuracy, but only at an increase in cost that we could not afford. Clearly, direct conversion by the staff poses many problems and is the method most prone to error, but where no machine-readable data base is available it nevertheless might be the easiest method. "Quick and dirty," the phrase often used to describe this type of conversion, succinctly emphasizes its advantages and disadvantages.

Data Elements

No matter what method is used to convert, it is still necessary to decide how much information to enter into the system for each book. CLSI has recently expanded the size of the title record to enable libraries to enter more information than just what is necessary for circulation purposes. Of course, the desirability of more information must be balanced against the cost of the additional disc storage needed for it and the extra time it takes to enter it manually. Theoretically, the circulation system would work perfectly well with only zebra numbers. Call number and abbreviated author and title might be sufficient for most libraries, but inclusion of the Library of Congress catalog card number or the ISBN number makes it possible later to link up the circulation record with other data bases if it should be desirable in the future to add more information (at present it is not possible to edit the LIBS 100 data base in this manner). Inclusion of publication date and publisher might make it easier to help determine which book is wanted for a patron. Our experience at NYU was that the entry of (and determination of) the author-title key, fairly complete author and title, date of publication, book cost, LC card number, zebra number, and statistical category took, more than two minutes per title.

An important element of the CLSI file structure is the author-title key. This consists of seven characters and is the main identifier of a book record in the system. Since, at present, books are searchable in the LIBS 100 only by author-title key and, if the library chooses, call number (only if call numbers are unique for each title) great care must go into the formation of the author-title key. CLSI suggests that this key be formed from the first three letters of the author's last name and the first letter of the first four words of the title. Since it is the operator entering the record into the system, however, and not the system itself,

that decides on the title key of a book, the library can choose any set of rules for its formation it pleases. At NYU we found that using the first three letters of the author's name and the first letter of the first four words of the title worked well, in general, because the seven characters were usually unique for each title and enabled us to call up a record quickly. However, we encountered problems with corporate authors, abbreviations, acronyms, and numbers and dates in titles. We also had problems in that we decided on a number of rules—such as spelling out numbers, dates, and some abbreviations—that could not be easily carried out by a computer. Probably, those rules that are the simplest, that require the least knowledge and decision making on the part of the operator, and that can be carried out easily by a computer are the best to use. This would mean, for example, that if a corporate author's name were an acronym, or abbreviated, it could be treated as one word as it is, and the title key formed only from the information available on the title page or the shelflist card; if there is a date as part of a title, it could easily be recognized by both computer and clerk as a single word, and the first digit could be used to form the title key. This kind of simple approach should reduce the need for elaborate rules and exceptions, or the constant referral of problems to supervisors.

Staffing Requirements

If conversion is being done manually at the library, as NYU did it, then thought should be given to hiring additional staff to help with the project. The more staff hours are pressed into the project, the sooner the library will be able to go on-line and reap the benefits of the computer. It is possible to go on-line with no books previously converted, put zebra labels on books as they are presented for checkout, collect the book's bibliographic information somehow (by keeping a book card, perhaps), and enter the information in batches, as was described for patron conversion. This is feasible only for small libraries, since the backlog that would develop in a large library would result in overdue notices and bills going out with no indication of what the book is. This procedure can be used effectively, however, even by large libraries if a substantial number of books are converted before going on-line.

At NYU we converted 42,000 books before going on-line in October 1975. The first month of on-line operation we circulated 36,400 books of which only 30 percent had been previously converted. By April 1976, six months later, 73 percent of the books that were circulating already had zebra labels when presented for checkout.[2]

Our method of conversion after we went on-line was unique. We wanted to use the "on-the-fly" method already described, but we did not have book cards or any similar methods of capturing the bibliographic information for later batch entry. Instead, at time of checkout, we entered into the system, via a keyboard-display terminal at the desk,

only the call number of the book and its zebra number. We entered the rest of the bibliographic information when the book was returned. This resulted in long lines during the first six months we were on-line but has worked quite well since. The major problem with conversion now is that it is still going on. More than two years after going on-line almost 15 percent of the books being charged out still did not have zebra labels, even though most new books received labels when they were cataloged. This figure is in keeping with the nature of circulation in an academic library, where a small percentage of the books that circulate is continually made up of those that circulate very rarely.

WEAKNESSES OF THE LIBS 100

Living with Limitations

It is vitally important to understand what a particular automated circulation system cannot do, and what it will do that may be considered undesirable. Recognition of a system's limitations and willingness to "live with" them will greatly improve a library's experience with it. This is especially important to understand with the LIBS 100, since only CLSI can make program changes in the system, and they have been reluctant to make changes for individual libraries.

Before I proceed any further, let me say that almost everything I am about to object to in the LIBS 100 is recognized as a problem by CLSI which has made a commitment to eliminate these problems in a series of future program releases. However, as I mentioned earlier, it is difficult to predict when a promised improvement will actually be available.

Control of Reserve Books

Probably the largest problem for academic libraries is the lack of a reserve book room subsystem. Currently, the loan period is measured only in days, not hours, so that it is not possible to check out books for two or three hours as is commonly done in a reserve room. Nor is it possible to indicate that a book belongs permanently to one collection (the main library, for instance) but is now located elsewhere (the reserve book room) and is currently on loan to a student, and that it was placed on reserve for a particular professor, or course. At NYU we do check books out to the reserve reading room as a borrower, so that we know where they may be found, but actual charges and discharges from reserve are handled manually.

Reregistration

Another substantial problem is the "reregistration" procedure. When a patron loses his zebra label or it wears out, it is necessary to give him a new label. The procedure to do this results not in the elimination of the old zebra number and its replacement with the new number, but in

the duplication of the patron's record with a new zebra number. The patron will now have two records, one with the old invalid zebra number, the other with the new number. But the information about the books charged out under the old zebra number will not transfer to the new number. Further, if the patron were delinquent under the old number, the new number becomes delinquent, but the delinquency reason (i.e., the list of overdue books) does not transfer to the new record. If books charged out under the old number subsequently become overdue, the new number is unaffected, although overdue notices will be printed with information from the old number. Some of these problems can be circumvented with careful procedures at the circulation desk, but it becomes difficult to maintain good control over delinquent patrons.

Recall Procedures

One of the weakest parts of the system is the recall procedure. All the recall procedure does (if the operator requests it when a hold is placed) is to print a notice requesting a book's return. It is not possible to have higher fines levied for recalled books that are not returned, or to change the due dates of books that have been recalled. The best the LIBS 100 can do is to produce a "purchase alert" if the number of holds on a title passes a library-specified threshold. It is also not possible to know when a book is being charged out, if there are holds on it waiting to be filled. It is possible, therefore, for a faculty member to borrow a book on an extended loan when there are several other people waiting for the same book, and the system will do nothing automatically to shorten the loan period or send a recall notice.

Calculating Fines

This leads to another problem with the system. As I mentioned before, loan periods are determined solely by type of patron and not by type of book, while fines are determined by type of book and not type of patron. Thus, in an academic library, where we do not charge fines to faculty members, the system automatically levies them if a book is returned late, and the staff must spend a lot of time cancelling the charges. It is also not possible to have a class of books designated for shorter loans, which might be subject to different recall rules.

Customized Reports

Another source of frustration is our inability to get meaningful machine-readable output from the LIBS 100. It is possible to "dump" our entire patron file or title file onto a computer tape that can then be analyzed on another computer, but this "dump" may take several days if there are tens or hundreds of thousands of books or patrons involved. We cannot ask the computer selectively to write out, for example, all

delinquent patrons so that we can give our bursar's office a machine-readable list of current delinquents, or place all books in a certain Library of Congress classification, so that we can compile machine-readable bibliographies.

Reliability and Servicing

Down time on the system (the time when it is not working) has varied greatly over the years that we have had the system. Periods have gone by when the system was not down for several months, followed by periods when problems occurred every day. In the last year and a half, unfortunately, it is the latter situation that has predominated, causing great inconvenience to our patrons and extra work for the staff. This situation is probably not common to all LIBS 100 systems. When a problem occurs, we call CLSI's "trouble desk," where diagnosticians attempt to locate the problem and treat it via a telephone consultation. Often simple repairs are made by circulation staff under the direction of the CLSI trouble desk. Sometimes, however, hours can be spent trying to locate the source of the problem, with the final result that a repairperson must be sent out anyway, but several hours later than he or she should have been.

Servicing of any automated system is of crucial importance. An automated circulation system that works only intermittently can be much worse for staff morale, a library's public image, and the accuracy of circulation records than the most overburdened manual system. Service contracts should clearly spell out the level of service to be provided and how rapid that service will be. Even with a good contract, however, service can be adversely affected if the company loses key personnel or if the number of its contracts grows more rapidly than its service department.

Additional Costs

One other drawback to the CLSI system is the cost of improving it. As our storage space has filled, we have had to upgrade our disc storage four times. Each upgrade has been more expensive that anticipated, and CLSI had not really prepared us for the costs involved. The cost of adding additional terminals is also much more expensive than the purchase of a keyboard-display terminal from most other sources. In considering purchase of any system, care should be taken to determine not just the exact purchase price but the ongoing costs of maintenance contracts and upgrading the system; and as closely as possible, it should be estimated when the system will need upgrading so that the costs may be budgeted in advance.

STRENGTHS OF THE LIBS 100

The System Works

One of the LIBS 100's strongest assets is the fact that it works, and has worked in what now amounts to hundreds of libraries around North

America. It performs all of the major functions necessary in circulation: it charges books in and out; it traps delinquents at checkout and holds on books at check-in and renewal; it sends up to three overdue notices, when you wish and in any time sequence you set; it calculates fines on overdue books if the fine is not paid when the book is returned; it sends out bills and collection notices for very overdue books and automatically makes their borrowers delinquent; and it keeps statistics on how many books are checked out on each terminal at each branch.

In addition, the LIBS 100 keeps statistics on how many books are checked out in each library-determined category (this could be call number classification or type of book), and how many books each different type of patron has charged out. For the first time, NYU knows for sure what parts of the collection are heavily used, and which departments are its large borrowers. The system does not, however, tell you which patrons are borrowing which books.

Flexibility

The system is sufficiently flexible so that New York University was able to enter into a consortium with two nearby institutions to allow mutual borrowing of books using the same LIBS 100 computer in all three libraries. This shared data based with its author-title key access is the nearest thing the consortium has to a union catalog. Each library was able to retain its own fine schedule and loan periods and to control borrowing by students from the other institutions. The LIBS 100 generates statistics on patron and book use at each institution and on the use of each library by the patrons of the other institutions.

Improved Performance

One of the biggest advantages is that the expected improvement in service did materialize. Checkout is faster and requires no work on the part of the patron. More patrons use the hold procedure because it is easier and yields better results than the old manual system. It is also easier to tell if books are lost or just temporarily missing because the system keeps track of the last activity date of all books. Overdue notices go out promptly one week after a book is due, and bills after five weeks. We have no statistics with which to compare the number of books that are not returned before and after installation of the LIBS 100, but we do know that the amount of money we take in in fines has skyrocketed; daily receipts are often double or triple what they were before we went on-line. Finally, although the number of staff hours is approximately the same now as it was before, the staff is handling a higher circulation with far greater output in terms of notices produced and different types of tasks performed than ever before.

There are many other items that could be mentioned as strengths of the system and an equal number of things that it does wrong. The LIBS

100 is far from perfect. In fact, there is no perfect on-line circulation system. Libraries must be prepared to choose a system that comes closest to fulfilling their individual needs and to deal with it within its own limitations.

REFERENCES

1. For comparisons of different on-line circulation systems see the following: Barbara E. Markuson, "Automated Circulation Control Systems: An Overview of Commercially Vended Systems," *Library Technology Reports* (July–Sept. 1975), 40p.; William H. Scholz, "Computer-based Circulation Systems: A Current Review and Evaluation," *Library Technology Reports* 13:231–325 (May 1977); Paula Dranov, *Automated Library Circulation Systems* (White Plains, N.Y.: Knowledge Industry Publications, 1977).
2. For a discussion of the characteristics of book circulation in academic libraries see: Richard Trueswell, "Some Behavioral Patterns of Library Users: The 80/20 Rule," *Wilson Library Bulletin* 43:458–61 (Jan. 1969).

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A Guide to Video Resources

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Four years ago, the LITA Video and Cable Communications Section published a guideline document. One of the chapters in that document gave several source lists for material related to the use of video. Because of the enormous growth of video and the dramatic increase in video utilization by libraries, much of that material is now out of date. This article provides an update on those lists together with a brief review of the status of video resources generally.

BACKGROUND

In the four years since the first edition of the *Video and Cable Communication Guidelines* was published, there has been a considerable increase in video resources.

The use of video in libraries has grown accordingly. This increased utilization is well documented by a 1977 survey done by the Video and Cable Communications Section (VCCS) of video use in all types of libraries.

In 1975 many librarians had never seen videotape equipment. Today, most librarians and many patrons are aware of its existence through extensive advertising of video equipment for consumers. Further, more and more frequently librarians have been exposed to the equipment at libraries, conferences, or workshops.

With the introduction of the new ½-inch cassettes, and the accompanying reduction in price for equipment and programming, there have been even more libraries adding video to their collections. Videodisc, long promised and now an actuality, though limited in availability, will spread video even farther. These last two video formats are designed for the consumer home market. The ability of manufacturers to divide their fixed costs over the much larger market that results from mass consumer demand should significantly lower costs.

Originally video programming (software) was very limited. Collections in most libraries consisted primarily of what they could produce themselves (if they had production equipment). Commercially produced

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tapes were hard to locate; often all that were available were film productions transferred to video—and these were only available by special requests and through special arrangements with film companies for a widely varying fee (ranging from 25 percent to 115 percent of the film price plus duplication charges). Locating the person in the film distribution company who could even tell you if video rights for a particular title were available could normally take several letters and/or phone calls. Print reference tools were very limited, reviews nonexistent.

Today we have made much progress, though there is still a long way to go. Unlike the situation for most reference librarians, traditional print reference tools are only one of several categories of source/access information for the video librarian. Although the last few years have brought a 100 percent growth in reference tools devoted solely to video, they still are limited.

AVAILABLE TOOLS

Many of the standard tools are indexes, or listings that primarily focus on film and/or audiovisuals with video only one of several formats. Additionally, much of the information is found only in journals.

List A indicates basic bibliographic information for most of the standard reference tools now available that heavily focus on video or provide a unique access. These citations include full address and current price information.

Many titles found in these tools were originally produced in film. Although most people do not find this a problem, there is some change in the visual image when converted. This is of most concern to those interested in film as art.

The limited number of titles in the list accurately reflects the limited resources. Hopefully, with the increasing availability of equipment and software, we will see the accompanying development of appropriate tools.

List B also includes reference tools, but focuses on independent video. Virtually all of this material was originally produced in video, often taking advantage of the unique properties of video. This type of material is particularly difficult to locate and not often found in tools such as those in List A. This is an area that is not explored as often as it could be by librarians new to video.

List C is a directory of "rights and permissions" officers at the various distribution companies. These are the people to contact to negotiate for video rights. Frequently if a title is already owned by a library in film, the video rights can be purchased for a greatly reduced price. These are also the people to contact about fees for the use of the programs in closed circuit and cable systems.

Another source of programming may be right in your own backyard. More and more programming is being produced locally, particularly at

libraries, schools, junior colleges and universities, local networks and public access/cable stations. Usually these people would be thrilled to have a copy of their program used and/or duplicated by the library.

Since the 1977 ALA Annual Conference, VCCS annually has had a suite in which, for two or three nights, we share the video that libraries have produced. Often this leads to arrangements to exchange, loan, and/or buy tapes from one other.

The VCCS Distribution and Exchange Committee is currently investigating the possibility of setting up a VCCS-sponsored video exchange. Further information on the progress of this committee will be available in the JOLA report on the VCCS committee meetings at this year's ALA Annual Conference.

CONCLUSION

In using these lists it should be remembered that the needs of video libraries differ depending upon the type of library (i.e., school, public, academic, business, or government), the type of programs needed (i.e., topics), the library's budget, and the equipment formats. Notwithstanding these variables, all users of video require knowledge of contents, quality (if possible), format, and availability. These lists provide access to such information.

LIST A: INDEXES/LISTINGS/REVIEWS

American Folklore Films & Videotapes: An Index. Center for Southern Folklore, P.O. Box 4081, 1216 Peabody Ave., Memphis, TN 38104. 1976. 338p. $15.

Beta Video Cassette Program Catalog, 1978, C. S. Tepfer Publishing Co., Inc., 51 Sugar Hollow Rd., Danbury, CT 06810. 93p. $4.95 (plus $1.00 shipping).

Booklist. Published semimonthly (Sept.–July and once in August) by American Library Association, 50 E. Huron St., Chicago, IL 60611. $28 per year.

CableLibraries. Published monthly by C. S. Tepfer Publishing Co., Inc., 51 Sugar Hollow Rd., Danbury, CT 06810. $25 per year.

Chicorel Index to Videotapes and Cassettes. Marietta Chicoral, Editor. Chicorel Library Publishing Corp., 275 Central Park West, New York, NY 10024. 1978. 379p. $66.

"Directory of Program Sources," *Educational and Industrial Television,* Nov. 1978, p.38–66.

Educational and Industrial Television. Published monthly by C. S. Tepfer Publishing Co., Inc., 51 Sugar Hollow Rd., Danbury, CT 06810. $15 per year.

Educators Guide to Free Audio and Video Materials (25th ed). Educators Progress Service Inc., Randolph, WI 53956. 1978. 188p. $11.25.

Feature Films on 8mm, 16mm and Videotape. 6th ed. Edited by James Limbacher. R. R. Bowker, 1186 Ave. of the Americas, New York, NY 10036. 1979. $24. 447p. (includes 1,500 films available on videotape).

Film and Video Review Index—bimonthly, Supplement to *International Index to Multimedia Information.* Audio-Visual Associates, 180 East California Blvd., Pasadena, CA 91105. $39 per year if purchased separately from the International Index to Multimedia Information.

"Guide to Video Software," *Videography,* June, 1978, p.21–27.

Index to Educational Videotapes. 4th ed. National Information Center for Educational

Media, University of Southern California, University Park, Los Angeles, CA 90007. 1977. 410p. $29.

International Index to Multi-Media Information 1970–1972 V.1–3: Bowker, 1180 Ave. of the Americas, New York, NY 10036. $30. V.4–10: Audio-Visual Associates, 180 E. California Blvd., Pasadena, CA 91105. V.4, 5, 6, $51.85 (total); V.7, 8 (1976–1977) $69; V.9, 10 (1978, 1979) $130.85—included with the subscription are 10 issues of *Film and Video Review Index*.

Media Review Digest. C. Edward Wall, editor. Pierian Pr., Box 1808, Ann Arbor, MI 48106. 1973–74 & 1974–75, $65.00, others $79.50. 1978 V.8, $79.50 paper. 704p.

Televised Higher Education (THE Catalog). Edited by Byron E. Lauer. Pruett Publishing Co., 3235 Prairie St., Boulder, CO 30301. 1978. 563p. $25.

Urban Focus: a catalogue of films & videotapes focusing on urban issues. Columbia University Graduate School of Architecture and Planning, 405 Avery Hall, N.Y., NY 10027. 1975. 227p. $5.

Video Programs Index, (3d ed). Compiled and published by Ken Winslow, 923 6th St., SW Washington, DC 20024. 1978. 11p. $3.

Videography. Published monthly by United Business Publication, Inc., 750 Third Ave., New York, NY 10017. $12 per year.

The Videolog: programs for business and industry, 1979. Esselte Video, 600 Madison Ave., New York, NY 10022. 218p. $35.

The Videolog: programs for general interest and entertainment, 1979. Esselte Video Inc., 600 Madison Ave., New York, NY 10022. 197p. $20.

The Videolog: programs for the health sciences, 1979. Esselte Video, 600 Madison Ave., New York, NY 10022. 399p. $35.

The Videoplay Program Catalog: for 3/4 inch "U" videocassettes. (2d ed.) C. S. Tepfer Publishing Co., Inc., 51 Sugar Hollow Rd., Danbury, CT 06810. 1973. 127p. $3.

The Videoplay Report. Published biweekly, C. S. Tepfer Publishing Co., Inc., 51 Sugar Hollow Rd., Danbury, CT 06810. $60 per year.

LIST B: INDEPENDENT VIDEO

Afterimage. Published by the Visual Studies Workshop, 31 Prince St., Rochester, NY 14607. $15 per year.

Film and Video Makers Directory. The Film Section, Museum of Art, Carnegie Institute, Pittsburgh, PA 15213. 1978. 105p. $3.50. Annual free with subscription to *Film & Videomakers Travel Sheet*.

Film & Videomakers Travel Sheet. Published monthly by the Film Section, Museum of Art, Carnegie Institute, Pittsburgh, PA 15213. $1.80 per year.

Film Library Quarterly. Published quarterly by the Film Library Information Council, Box 348, Radio City Station, New York, NY 10019. $12 per year.

Independent Film and Video: factfile #6. Compiled and edited by Abigail Nelson. American Film Institute, National Educational Services, John F. Kennedy Center for the Performing Arts, Washington, DC 20566. 1979. 70p. $3 prepaid only.

The Independent Film/Video Guide. Published quarterly by the Educational Film Library Association Inc., 43 W. 61st St., New York, NY 10023. $10 per year.

The MERC Directory. Young Filmakers/Video Arts, 1977. Order from Center for Arts Information, 152 W. 42nd St., Room 1238, New York, NY 10036. 96p. $1.

The Sixth International Video Exchange Directory. Satellite Video Exchange Society, 261 Powell St., Vancouver, BC V6A 1G3. Free if participating in the exchange.

Televisions. Published quarterly by Washington Community Video Centers, Inc. 2414 18th St., NW, P.O. Box 21068, Washington, DC 20009. $10 per year.

Video. Video/film study center, Donnell Library Center, New York Public Library. 1978. 46p. $5. (Order by mail prepaid from the Office of Branch Libraries, 8 E. 40th St., New York, NY 10016, checks payable to New York Public Library).

Video Art, by Ira Schneider and Beryl Korot. Harcourt, 757 Third Ave., New York, NY 10017. 286p. $9.95.

Video Guide. Published 5 times a year by Satellite Video Exchange Society, 261 Powell St., Vancouver, BC U6A 1G3. $5 per year.

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Information and Communications: A Chautauqua for Congress

Edited by Jane BORTNICK: Science Policy Research Division, Congressional Research Service, Library of Congress, Washington, D.C.

The technologies supporting information and communications have become a major driving force in our country's economy. A sophisticated understanding of these technologies by our nation's lawmakers is a matter of great importance to all of us. In March 1979, the Congressional Clearinghouse on the Future, an agency of the Congress, conducted a series of meetings focusing specifically on the consequences of this rapid growth in information and communications technologies. Two of these meetings are summarized here. The first part of the text that follows is an edited transcript of a panel discussion during which four experts were each asked two questions bearing on these technologies. General comments from the audience were also encouraged once the panelists had an opportunity to respond. The second part of this text is a digest from a set of workshop discussions on critical policy issues surrounding the probable future use of these technologies. Some seventy participants from industry and government worked in small discussion groups on these issues, each group addressing a single issue. In doing this, each group envisioned some likely future events that would affect the topic under consideration, and their reports recommended specific congressional actions that would be responsive in light of these future events.

INTRODUCTION

During 1979, the Congressional Clearinghouse on the Future sponsored a comprehensive program of weekly seminars, "Chautauquas for Congress, 1979," thereby providing a forum for discussion of some of the most critical issues to be faced by our nation in the coming decades. Each month was devoted to a specific major area of identifiable concern and provided an opportunity to explore the emerging "worlds" of the future through a variety of formats.

The theme for the month of March was communications and information, which as stated by the chair of the Clearinghouse, Congressman Albert Gore, Jr., "has opened up dramatic new opportunities for optimizing our resources and exploring new frontiers." Congressman Gore underscored the fact that "all sectors of our society are being affected as computers permeate the home, the office, and the business environments. However, the impact of these trends on the consumer, the busi-

ness community, and the government has yet to be fully comprehended."

Several activities were organized under the direction of Anne W. Cheatham, staff director of the Clearinghouse, to focus on the issues surrounding the growth of information and communications technologies, as well as to illustrate some of the capabilities that these modern technologies offer society. Additional support from the Congressional Research Service, Library of Congress, in the planning and execution of these events was coordinated by Roger L. Chartrand, senior specialist in Information Policy and Technology. Included in the month's program were:

- an all-day series of (eight) workshop discussions on the critical issues in this area and the potential role of Congress in addressing them;
- a luncheon speech by John LeGates of the Harvard University Program on Information Resources Policy entitled "The Arenas, Players and Stakes of the Communication/Information Issue";
- a "Technology Fair" featuring exhibitors of teleconferencing, word processing, microform, personal computing, and other computer systems;
- a panel discussion featuring several authorities in the field; and
- a member's dinner offering an opportunity for legislators to interact with representatives from the information community.

The following text provides an edited summary of the remarks from the March 28, 1979, panel discussion on information and communications, as well as brief highlights from the reports of the March 7, 1979, workshop discussion groups.

PANEL DISCUSSION ON INFORMATION AND COMMUNICATIONS

Moderator: Charles Jackson, Staff Engineer, Subcommittee on Communications, Committee on Interstate and Foreign Commerce, U.S. House of Representatives.

Participants: Manley Irwin, Professor of Economics, University of New Hampshire; Andrew Glass, Washington Bureau Chief, Cox Newspapers; George White, Corporate Vice-President for Research, Development, and Engineering, Xerox Corporation; Joanne Egan, Information Manager, Air Products & Chemicals Corporation.

Question 1: What Major Social Impact Might We Expect in the Next Decade Due to Changes in Information and Communications Technology?

Panel Responses

MANLEY IRWIN: I see four major changes taking place.

1. The technology of information is spreading and broadening rather rapdily. The breadth of expertise, knowledge, and know-how is broad and, I would argue, is increasingly moving laterally—that is, spreading into other industries.

2. The rate of change of information technology is quickening. You can see the acceleration in terms of product obsolescence. The rate of change, the rate

of obsolescence is something that we are not very well prepared to live with, and yet it seems to be very much a part of our future.

3. A third development is that the number of firms getting into the telecommunications and information business is increasing and growing beyond all expectation. The information economy contains not only the telephone industry and the common carrier industry, but also the manufacturers of equipment, office products, integrated circuits, computers, software, computer peripherals, and aerospace firms, as well as chemical and petroleum suppliers. Thus, the amount of resources that are being brought to bear in terms of talent, in terms of money, in terms of capital, and in terms of investment is a major change that we can expect in the future.

4. The traditional markets that have been identified and associated with the information or communications industries are quickly becoming "soft" and obsolescent. Today, the boundary lines between voice, data, video, and facsimile are rapidly disappearing, and tomorrow we will see very little difference between the markets enjoyed by regulated firms and the markets that are going to be occupied by competitive firms.

These trends raise questions in terms of what is the role of regulation, what is the role of antitrust, what is the role of market structure, and what is the role of public policy. It suggests that a lot of our old institutions may very well be anachronisms, that the type of management required to deal with these changes will be different, and that policy people will have to be less rigorous and perhaps more flexible in terms of drawing the rules of the game.

ANDREW GLASS: I class myself as a consumer of information, and in the chain of newspapers with which I am involved in the Washington Bureau, we have recently gone through some of this rapid change described by Irwin. Specifically, the advent of terminals in the newspaper business has had two major effects:

1. There is now no need for rekeystroking any story that a reporter writes, other than for editing purposes.

2. The terminal, which has many uses, is also an excellent writing device, and we find that on our staff the writing has dramatically improved. It is easier to keep track of the number of words written, and it is possible to do things that were difficult or improbable before. We are now in a position to take any story that is written and make it available to any other newspaper or news organization in the country and vice versa.

One aspect of this is the possibility, and indeed the desirability, of the electronic press release. The story would then be available within our system in some storage mode where it can be handled more flexibly instead of having to work with a piece of paper.

It should be noted that there is a need for a truly portable computer terminal—something with a screen—that is not well filled at this point.

It also makes sense for newspapers and magazines and related areas of journalism to use these terminals as *research* devices, thus eliminating the need for large newspaper libraries. For example, I would favor the ability to interconnect the Library of Congress' automated information retrieval system with the major news bureaus in towns.

GEORGE WHITE: I would like to place my remarks in the context of the GNP—or the industrial perspective in the United States. I think it is indisput-

able that the next major, macro, super industry in the U.S. economy and in the world economy will be the information industry in toto. The information industry enjoys greater economic privileges due to the productivity of the industry, and material privileges because it does not pollute or consume raw materials; this allows tremendous value added per dollar of capitalization. I see nothing in the industrial perspective in this country or elsewhere that will forestall the information industry over several decades from simply becoming the world's number one industrial sector.

First, I would like to look at why changes are occurring in the office:

1. In the office, the sociology at the present time is also undergoing a revolution that is synergistic. Career enrichment, particularly for the role of women in offices, is such that the position of a classical secretary is not going to be an attractive career. A significant fraction of our labor force will look to becoming managers, administrators, and analysts who use the new information technology rather than be a human alternative to it.

2. A second reason for change will be economic. The office is the last great pool of undercapitalized labor in the United States. In 1977 the U.S. had $53,000 worth of invested capital per worker in the agricultural industry, $31,000 per worker in the manufacturing industry, and only $2,300 per worker in the office.

3. A third major reason for change is technology. The generalized function of composing—all of those transactions that add value to the field of information and its context by manipulating the information—will be done electronically, on-line. In communications technology the combination of broadcast capability and very low channel cost is going to be like nuclear bombs in the deployment of communication channel capacity. Finally, in regard to storage and file capacity, video disc technology will support storage of data for many purposes with very low access costs.

4. As a result, paper becomes too expensive to use as an information interchange media; it becomes a personal choice for some special purposes. By and large, most systems will not interchange paper, but rather electronic representations of the information because this method is cheaper and more flexible.

Second, I would like to look at what these changes will be:

1. The typewriter will be replaced by an electronic work station—display-oriented with flexibility that transcends anything the typewriter can handle today.

2. I would expect that video conferencing would be the generalized extension of today's telephone.

3. The copier will become a terminal for electronic mail, electronic filing and retrieval, electronic composition, makeup, and manipulation.

4. Finally, two institutions—the U.S. Postal Service and the Library of Congress—will operate on an electronic base rather than on a paper base.

Certain social consequences can be identified for the political and governmental processes of the United States—as well as for the U.S. as a whole—since the government itself is, in fact, a collection of massive information systems.

1. The tremendous pool of people with civil service ratings and qualifications, the heels and wheels of the U.S. Postal Service, are going to face a massive threat of technological unemployment, and it is not clear what national policy

in that situation should be. State and local government will be under much more severe pressure. Government has been, in a personnel sense, the fastest growing component in the GNP for some time, and technological unemployment is the counterpart of that $2,300 per office worker of capitalization. This is a very specific area that should be looked at.

2. In industry there will be new operating modes. It should be a countertrend against inflation and should be economically effective, but the labor displacement problem will come up again.

3. Finally, there will be new markets. There will be a boom in capitalizing instead of expending the costs that go in offices. We need a regulatory philosophy that allows us to proceed with pace to assure that the United States ends up in front of the international trade race as this happens.

JOANNE EGAN: I totally subscribe to the statements that we have an incredible information proliferation because of our technological advances in composing, communications, and storage capacity. What concerns me is the social impact of these advances—what we will do with them.

The "office of the future" is beginning to impact industry and the potentials for it. The change that is going to be required in management style and technique, and in capacity, is incredible. It's going to have an impact on our work force and a very important impact on how we do business.

These new technologies and systems are also a very important national resource and will be a big industry. Questions arise concerning how we will sell it, use it for the future, and export it. We have to face the fact that as the country's economy becomes more service-oriented, the products that we manufacture will not necessarily be hard products.

We have to know how information is thought through, how it needs to be retrieved, and what the intellectual bases are for finding facts. Problems of intellectual retrieval will have to be solved on a personal and on a management basis, in addition to the technological aspects.

Competitive industry is going to look for the new technological developments to make their products cheaper and to get a larger market share.

The impact of this quickly changing technology on a personal level will be extensive and will require considerable analysis in a variety of areas.

1. As persons we all will applaud the revolution in communications and information as new devices for health care, entertainment, and home management become less expensive and more widely available.

2. Individuals have begun to accept change as a rule of life, and it happens more quickly each day.

3. We have to understand what we think will be our use of these technologies for our own moral selves, for our own fabric of society—to know as a consumer what we want to do with them.

4. The biggest displacement problem we will have has to do with the displacement of persons as we shift into a very sophisticated technological environment.

5. We will have a larger and larger gap between skilled and unskilled persons, and we will have to face the issue of how to deal with those people who cannot handle our highly technological modes of operation.

General Commentary

ANDREW GLASS: At Cox, we think of ourselves as being in the information

business, not in the newspaper business, and it may not be long before printing a newspaper on paper and trying to get it through a downtown area for delivery to homes and selling points by truck will be an extremely inefficient and expensive, time-consuming way of doing business.

I see three devices as being crucial in our change to new procedures for disseminating news information. Putting all three together, it is easy to see how people could not only get their newspaper at home through the television screen, but also store it for viewing at a convenient time.

1. One is the television set that is a ready-made information screen.
2. Second is the telephone that is, particularly when digitized, an excellent computer terminal.
3. Finally, there is the video tape recorder.

All of this suggests that if these systems come on-line in the decades to come, federal regulation will decrease rather than increase, since this type of opening up of the communications channels to an infinite number takes away the very reason for which broadcast regulation was initially instituted.

I think that the meetings that are planned for Geneva [World Administrative Radio Conference] are going to strictly circumscribe the ability of home television sets to pick up foreign TV broadcasts due to fear that that kind of potent direct mail, if you will, is too much for governments to cope with.

MANLEY IRWIN: I have a couple of examples that I think augment Mr. White's observations.

1. In 1972, satellite cost per circuit per month was $22,800. In the 1980s the cost is expected to approach $30.
2. In 1960, a medium-size computer cost $30,000—today the price is below $4,000.
3. In 1974, one megabyte of memory cost $32,000. Last year one megabyte cost about $1; in the 1980s the cost is projected to be $.10.
4. Of the 25,000 possible applications of the microprocessor, experts argue that only 10 percent of that potential has been tapped.
5. In 1960, a desk calculator cost $30,000; comparable equipment today costs $5. Integrated circuit costs have dropped 10,000 times in the past fifteen years.
6. A child can carry in a brown bag a glass fiber cable with more message carrying capacity than the maximum amount of copper cable that can be carried on a truck without causing the road to cave in.
7. A minicomputer in 1970 cost $10,000, in 1980 it will be $100, and in the 1990s $1.10.
8. By 1986 the number of electronic functions incorporated into a wide range of products each year is expected to be 100 times greater than today.

Today, there are government regulations on a number of elements of the information technology industry. For example, there are regulations on:

1. computer terminals and on computer software;
2. remote data and response systems;
3. electronic funds transfer;
4. brokerage services with a profit mark-up;
5. computer storage, buffering, and program storage;
6. minicomputers utilized for packet switching and transmission; and
7. data processing and computer message switching services.

There is a proposed government regulation on cable TV linking banks and terminals, and the postal service may find itself beholden to the Federal Com-

munications Commission because it is in the communications business, not in the mail business.

I therefore see a juxtaposition between the promise of the technology of information and a government policy that seems to want to embrace it for whatever public end.

ROBERT CHARTRAND (Congressional Research Service, Library of Congress): There has been a remarkable involvement and commitment on the part of the Congress in trying to remedy some of the situations that the members perceived to be critical—not only today, but in the forseeable future.

Perhaps the panelists should address whether or not the first initiatives by Congress, for example, the creation of clearinghouses for various kinds of specific information, is the proper first step, or whether we are going to be in danger of loading a system without the capability of people to consume these data and know how to work with them.

ANDREW GLASS: All of you recall the early resistance to even the most rudimentary forms of computerization of congressional functions, and I believe the barriers were broken for two reasons:

1. The general wave of reform that swept through Congress in the aftermath of the Watergate period and the reassertion of congressional authority;

2. The feeling on the part of congressional leaders that unless something was done, they too might drown with their less informed colleagues in government.

Still, there's a feeling around here that the closer you play it to your vest, the more you have in your vest, and I think that Congress is going to be nominally reluctant to be a leader in information transfer, not because they don't have the money, but because they don't have the will as an organization to set the pace.

WILLIAM WELLS (Staff Director, Subcommittee on Science, Research and Technology, U.S. House of Representatives): I would like to make the point that Congress's attitude is shifting radically with the influx of a large number of younger and newer members.

With the great fragmentation of power among the subcommittee chairpersons, the clustering of issues related to the information industry does not receive attention from a broad perspective.

Congress may not be the appropriate place to deal with the wide scope of issues, and perhaps a commission would be a useful vehicle for trying to pull together all these disparate strands concerning broad technologies and the structure of industry.

DENNIS LITTLE (Congressional Research Service, Library of Congress): I'm wondering in an information rich society what happens to the people who are not in the system initially and therefore are information poor.

JOANNE EGAN: We can address the question possibly easier with respect to the United States and where we can develop remedial programs to bring people into the information community, to teach them how to use the tools that we have, and to teach them how to think in the framework that they need to be part of.

With respect to the underdeveloped world, there is the question of exporting our information expertise as an actual product and being able to be reimbursed for it so that we can sell to the developing countries this resource to be used by them in becoming information rich.

RICK RUTHERFORD (Congressional Clearinghouse on the Future): It seems to me that minorities in this country might just as easily qualify as an underdeveloped country for receiving "information aid."

Persons in the information and communications industries have to deal with how to market the technology, the product, to consumers, and the Congress in its decision-making capacity. We need to do what is necessary to foster some of the excitement and lessen some of the intimidation of the information revolution.

GEORGE WHITE: If you were to ask the question, What is the best electronics systems house in the world, you would get either one of two answers, either AT & T or IBM—it would depend completely on your criteria. Both of them are exceedingly competent systems houses, but if you ask a marketing executive in IBM what can be done with their system, he will say something about accounts receivable, inventory control, production management, booking and billings. If you ask an AT & T marketing executive the same thing, he will respond, "Anything you want."

Part of the charm for the users of information systems and part of the challenge for the industrialists is to make sure that we come up with adaptive, personalized, friendly systems that will do whatever you want, rather than ones that require master's degrees to energize and exercise them.

PAUL ZURKOWSKI (President, Information Industries Association): If we are going through essentially a neo-renaissance, it is because we have the ability to deal with the information equivalent of every event and to manipulate that information. That provides a whole new level of human capabilities, an extension of man.

The most important thing that I think is likely to come of the logical extension of treating information as a national resource is a whole new foreign policy debate as to whether it should be given away, and whether that natural resource can continue to be the principal link in our foreign policy.

Question 2: What is the Single Most Important Action, from the Point of View of the Members of the Panel, that the Congress Can Take in the Next Four Years to Deal with the Impacts of These Changing Technologies?

Panel Responses

MANLEY IRWIN: The single most important action Congress can take is to get out of the way. I'll stop right there.

ANDREW GLASS: We sit on top of a mountain of legislation that needs to be diffused. I think we need to see that regulation in the traditional view makes less and less sense when unregulated, and traditionally regulated segments of the information industry become, in effect, seamless webs that cannot, for practical purposes, be pulled apart without being rendered meaningless or inoperative.

Therefore, I think we have to have a whole new regulation philosophy that goes back to the basic tenets of the antitrust act, as enacted eighty years ago, to prevent restraint of trade, and to prevent monopoly. Those two tenets being met, I think we ought to open the throttle.

We ought to think about the continuing problem in American society of minorities, the underclassed, the have-nots and what government can do in its way to bring them into the system.

GEORGE WHITE: As a result of the large number of people in government employment whose previous training will become largely obsolete, I think the governments—plural because more than the federal government is involved—need to be aggressively sponsoring career retraining and redirection activities of a major sort.

I do not know of a single department of the federal government that really is not in the information business. The product of government is either manipulation or dissemination or ingestion of information, and government is going to be the portion of our national economy most directly and immediately affected by this revolution.

The antitrust policy is obsolescent. The objectives of the antitrust laws need to be enshrined in a modern vehicle. They need to be redrafted completely. I say that completely neutrally. The Patent Act is almost irrelevant as well, as indicated in a recent court case where the judge said we have to be very careful how we apply the details of subsequent legislative actions when we finally consider the very motivation for innovation itself.

There is going to have to be a tremendous amount of well-stimulated and well-rewarded innovation for some decades to come to encompass this revolution and to make sure that it is a principal national asset of the United States in contrast to other industrial powers.

JOANNE EGAN: It boils down to information control and proper retrieval and the means for accomplishing that.

I think, from the federal government's point of view, there has to be some kind of a focal point for systematic consideration of both national policy with respect to both information and communication, and a focal point for the issues and the resolution of them.

It may mean realignment of federal agencies to manage information differently; it may mean that we have to reclarify roles. What we want to do is to foster our telecommunications, our communications, and electronics industries to protect the competition and to protect innovation. As one of our most important national resources and in consideration of the normal free enterprise system, we have to protect the natural market place incentives.

MANLEY IRWIN: I was being overly terse before and hoping to attract debate, but if we are about to enter a capital investment that will change our lives and hold out all kinds of benefits, services, and promises, then the first thing that ought to be done is to abolish the capital gains tax. The people who are on the leading edge of this are the risk-taking people who are being crushed and anesthetized because they are different.

By getting out of the way, I mean to cut the tax laws to let innovation take place, to let productivity take place, to let the market make some decisions to employ people and let them reach their potential.

Do not take these obsolete institutions of the nineteenth century—the patent laws, existing markets, antitrust laws, current regulations—and roll them into the future just because we are nostalgic.

ANDREW GLASS: The question of privacy has already come up in another context, but we have to be very careful that the new technology not be used in some Orwellian sense as a tool for control by the state.

GEORGE WHITE: As a recent participant in a panel of the Department of Commerce's Domestic Policy Review of Industrial Innovation, I was shocked to

find the feeling that government, as an institution, is so prone to failure that no government is better than correct government.

There are cases, such as in Japan, where beneficial government action has been a tremendous force. I believe that government should and can do that, and I believe that we have to support them in their efforts to catch up with the wave of the future as well as industries.

General Commentary

STEVEN DOYLE (Office of Technology Assessment): I think from the perspective of the Congress, if we look at the telecommunication and information systems as they exist in the world and in this country, what we see is not just a technological imperative in these areas, but a technological imperative impeded.

To the extent that the imperative is impeded, it is impeded out of fear, out of lack of understanding, and out of traditional economic constraints and traditional economic mechanisms.

When one discusses what the issues are in this field, essentially two lists emerge:

1. One based on fear, misunderstanding, distrust, and traditional economic approaches.

2. The other based on the promise, the prospect, the hope, and the excitement of the technology.

The role of the Congress has to be to minimize the impact of the first list of issues and to maximize the second list.

There are levels of fear and concerns that have to be dispelled through education, and Congress can provide the mechanisms to do that through hearings and studies:

1. What is lacking is the neo-renaissance man and the training process to create him.

2. Congress needs to look not only at the education of the public generally, but also at how well we are educating ourselves to manage these capabilities.

ANDREW GLASS: One of the implications of the growth of information technology is that people will have more choices—that with the help of a computer people will have an infinite amount of choices.

1. Along with these choices will also come losers.

2. As an example, the networks are either going to go the way of the dinosaurs (in which case they are not going to go without a loud fight) or Congress is going to hear a lot from the networks asking for a "piece of the action" in the new information environment that is developing.

WILLIAM WELLS (Staff Director, Subcommittee on Science, Research and Technology, U.S. House of Representatives): I think there is going to be debate in Congress on these issues, and it will be imprudent to think that the political process is not going to have some negative impacts on what happens. However, it is too important to the future of us all to leave these decisions to any one sector of society.

RICHARD MURPHY (National Food Processors Association): In terms of institutional change in Congress, I think there are a couple of things that have to be done, although I am not very sanguine that they will be:

1. One is to realign the structure of congressional committees so they can

deal more comprehensively with some of the major public policy issues.

2. The other is that Congress has overloaded its legislative circuits by trying to oversee and superintend what the executive branch does. The number of annual authorization bills combined with the budget actions tie up Congress in so many issues that it is not free to stand back and take a look at some of the long-range problems such as the impact of information technology.

CURRAN TIFFANY (American Telephone and Telegraph Corporation): If we try to deregulate some markets where deregulation seems reasonable, such as intercity communications, where do we draw the boundaries between deregulation and continued regulation?

In a scheme where there are multiple networks messages flowing that we want to keep going, how do we ensure proper connectivity of that network and who will be responsible for managing that network?

MANLEY IRWIN: I will state it my way—is there a natural monopoly? What I suggest is that every two years somebody evaluates what part of the natural monopoly has melted away. Or another simpler solution is to let the market make that decision and abolish the public utility commissions whose principles need reevalution.

The new natural monopoly is called privacy. This is the new vehicle to have regulation and sanction and due process.

The issue of interconnectivity seems to be one where the competitors with intercity services are concerned about one competitor having privileged access to connections and the other competitors not.

GEORGE WHITE: I would like to speak in support of some of the national interest that has been handled very well by AT & T. People tend to lose sight of the fact that the reason we have this revolution, in many degrees, stems from pioneering work done by AT & T and paid for by AT & T. The institution of taxing the national phone system to support high technology has worked magnificently.

In my opinion, the classical economics of competition is the most understandable of economic doctrines and has been overanalyzed and overdefined in terms of the questions of how industry should compete. The competitive model has no role for innovation or relatively revolutionary technology.

The key issue regarding government standards is not the codifying of them but the enforcing of them. The problem comes when technology cannot tell which are the dangerous or inappropriate decisions for the future as we are legislating that certain standards are mandatory.

Standardization as a service is a very good idea, but the problem with saying that one must follow exactly a certain structure is that it will freeze out as much unknown technology benefit as it will incorporate in terms of synergistic advantages.

HIGHLIGHTS FROM EIGHT WORKSHOPS ON INFORMATION AND COMMUNICATIONS

Workshop 1: Consumer Services

Focus

Through innovations and technological advances, new low-cost computing and telecommunications capabilities are becoming available to individual consumers. The impact, that these devices and systems will have on the consum-

ing public will affect their work environment and enrich the breadth and depth of the individual consumer's cultural, educational, entertainment, and recreational needs. Some of the emerging systems will make extensive use of cable television and voice and data networks for such things as telepurchasing, telemedicine, home-based education, electronic banking, teleconferencing, electronic mail, and home management.

Recommendations

1. Congressional support staffs should provide for such educational activities as seminars, research reports, selected readings, and demonstration programs for members and their staffs in order that Congress can be better informed about the emerging technologies.
2. The appropriate congressional committees should hold hearings in order to study federal policies and practices for dissemination of federal information and services, including into the home.
3. Congress should foster demonstration programs of new technologies with direct consumer participation as an input to the policy-making process.

Commentary

1. Electronic funds transfer may be the initial information-related service that will introduce consumers to home-based digital transmission equipment and procedures.
2. It is expected that one or more large companies will decide to invest large amounts of money in operational teletext/videotext systems for in-home consumer-oriented information delivery.
3. Through the continued expansion and use of cable television, a whole range of interactive entertainment/information services suitable for consumers may be developed and transmitted to the home.
4. The impetus for the mass marketing of home computers possibly will come from the home video game industry. Acceptance and utilization of entertainment-oriented systems by the general public may cause a trend resulting in the entwining of broadcasting technology with the home computer to provide a variety of information services delivered through electronic means.
5. AT & T may enter the home information field which could impact the pace at which devices, and hence remote information services, are installed in the home.

Workshop 2: Sharing versus Restricting Information

Focus

A fundamental element of modern society is the continuous and complex flow of information. Whether access to that information is made freely available or whether it is restricted can have identifiable impacts on economic, social, and political activities. Society, and hence government, operates within a context of specific areas relating to information and communication policy, such as privacy, freedom of information, electronic message systems, electronic funds transfer, transborder data flow, and criminal justice information systems.

Recommendations

1. Congress should attempt to develop legislation that provides for the

gathering, dissemination, and use of data within specific guidelines and that limits the collection and indiscriminate exchange of data.

2. Congress should provide mechanisms for analyzing and assessing the effectiveness and implications of new information systems, including a consideration of both the technology and the potential ramifications of new data handling practices.

Commentary

1. An example of a potential management/planning mechanism would be a societal impact statement similar to an environmental impact statement.

2. Other avenues for addressing access to and dissemination of information would include a federal privacy focus and strengthening of federal government agencies to more effectively manage information flow.

3. Improved Hill-wide communication on topics of information policy would be beneficial to both the House and Senate.

Workshop 3: The Role of the Media

Focus

In an era where the amount of available information continues to rise, the question revolves around how the members of Congress and their constituencies can be best informed and in what ways the media may be utilized for this purpose. The role of media is changing so rapidly that it is difficult to comprehend the impact of the information explosion. In spite of the great strides that have been made in developing techniques for disseminating information, making certain types of information more readily available remains a problem. It is important to look at economic, legislative, *and* social barriers to making information available in order to comprehend all aspects of the issue.

Recommendations

1. Congress should hold informational hearings to learn how the present economic and organizational structure of our media organizations either encourage or restrain the availability of information.

2. Restrictions under the Freedom of Information Act should be loosened to increase the availability of information such as financial data maintained by the FCC on commercial broadcasting stations.

3. Information should be collected regarding the way people learn, how they respond to the three different kinds of media—print, visual, and audio—and which ones are most supportive in both the formal and informal learning processes.

4. Congress should utilize these hearings in developing a national information policy that would be similar to the statement of national goals established in such areas as housing and space.

Commentary

1. It is difficult to discuss regulations or legislation without first comprehending the new technologies that are being developed at such a rapid pace.

2. Before changes to current regulations and legislation are addressed, it is important to understand fully what rules and laws now exist.

3. A concern exists about the social effects of introducing these various technologies, particularly as they affect possible divisions between people who

have access to and know how to use new technologies, and those who do not.

4. A lot of proposals exist that would make very technical, sophisticated information available to members of Congress to enhance the decision-making process, but it is also important to see that this kind of information is made available to the public.

Workshop 4: Intergovernmental Information Sharing: Federal-State-Local Focus

Because of the resources available to it, the federal government has become the main focus for assistance to nonnational public jurisdictions. At present, however, there is neither a delineated national policy nor established guidelines for intergovernmental transfer of this information. Each federal department or agency presently operates under internally developed policies that may in turn be nonstandardized and dispersed among its components and programs.

Recommendations

1. Congress should authorize and fund pilot projects that would result in the creation of an on-line and indexed distributed network for making available working drafts of policy memoranda, policy reports, research information, and contact person lists within the federal agencies. This network would be available to state and local governments and all federal agencies.

2. Congress should undertake to define and assess activities that would improve the information made available to state and local decision-making groups, including the establishment and support of what are referred to as "broker groups," or the strengthening of already existing groups. An example of such an organization is the Federal Laboratory Consortium.

3. Congress should determine jurisdictional responsibilities for the dissemination of federally collected information in both the executive and legislative branches in order to eliminate overlap, duplication of effort, and ineffective provision of information to other federal agencies, states, and localities. Examples would including looking into the improvement of field delivery systems, such as the federal regional councils, federal information centers, and federal commissions. Congress should also explore the idea of restructuring federal agencies to improve the delivery of information to such existing regional centers.

4. Congress should undertake some coordinated efforts to assess the impact, both explicit and implicit, of federal laws and regulations upon the information requirements and practices of state and local governments.

Commentary

1. Congress should be made aware of the excellent information resources available in state and local governments that may be useful to the federal government.

2. Better coordination between the public and private sectors should be achieved so that government agencies can be made aware of available private vendor resources and the commercial sector can develop new products where a demand exists among government users.

3. Mechanisms should be developed so that when a state receives information it may be channeled selectively down to the local level.

4. Modern techniques such as word processing, microforms, and automated indexing should be utilized fully in order to facilitate intergovernmental information transfer.

Workshop 5: Federal Government Policies and Practices

Focus

The federal government faces an array of issues, concerns, and consequences as a result of the emergence of modern information and communications technologies. Questions have arisen regarding who should be the federal government participants-actors, where we currently stand in the stream of advances in communications, and what basic posture the federal government should take in this arena. The emergence of new information and communications technologies have been accompanied by some evidence of the alienation and disenfranchisement of individuals, as well as some confusion as to the role of newly emerging information-oriented associations and industries.

Recommendations

1. The roles, authorities, and responsibilities of existing agencies in the information and communications fields need to be clarified for the purpose of identifying and resolving overlaps, gaps, and inconsistencies among existing authorities, responsibilities, policies, and laws.
2. A central federal focal point for the systematic consideration of national information and communications policies and issues should be established.
3. Congress should exercise more oversight in seeing that pertinent existing laws—featuring both policies and programs—are fully implemented.
4. Congress should adopt a posture of not attempting to overregulate the emerging information/communication industry and marketplace, but rather should encourage putting into place "natural marketplace incentives."

Commentary

1. The structures of the information/communications industries must be better defined in terms of their components—markets, suppliers, clients, etc.
2. Information may be viewed on the one hand as a property right and on the other as a human right; this can cause conflicts in how information is handled as an organizational resource.
3. There are both pros and cons concerning the creation of a central focal point in the federal government for handling information/communications issues, with some seeing this as a "premature" organizational solution to a set of problems that have not yet matured or been sufficiently identified.
4. The definition of the term *user* is changing as computers become increasingly available to the public and are applied in more sectors of society.
5. Much of the information/communications legislation was passed in an era when the dissemination of information occurred through the use of paper media or over radiowaves, while in today's environment information transfer increasingly takes place through the medium of electronic pulses.

Workshop 6: Private Sector Information Activities and Services

Focus

Information activities and services in the private sector today are comprised of such things as large centralized data bases, data communications networks,

and diversified inquiry retrieval capabilities. The proper role of the government in these private sector data processing activities is an issue of increasing concern in an age of growing reliance on technology-supported information systems in all sectors of society.

Recommendations

1. Congress should assess the cost impact of complying with the reporting requirements of any new legislation to demonstrate that the benefits of providing the requirements for individual programs are being correctly implemented.
2. Sunset legislation should be fully enforced to ensure that information reporting requirements for individual programs are being correctly implemented.
3. The government should sponsor information programs using such mechanisms as tax relief incentives in cases where the information product ought to enter the public domain on a timely basis and be widely available.
4. Congress should hold oversight hearings on whether the implementation of Brook's bill (P.L. 89–306) by the agencies adheres to the original intent of the legislation.
5. Congress should establish a national policy on the flow of corporate data across international boundaries.

Commentary

1. There is a lack of retrospective accountability on data that are collected.
2. It is important to identify significant programs that should receive public funding and to prioritize these programs on the basis of the significance of the information that is collected.
3. The Office of Management and Budget's circular A–76, which calls for the use of contractors and external services by government agencies in certain circumstances, is not being fully implemented.
4. The private sector feels that invisible trade barriers are being established among countries that can have an economic impact on multinational corporations that may be closed out of certain markets.

Workshop 7: International Information Exchange

Focus

The United States has traditionally been preeminent in information generation and in information technology, but that position is currently being challenged by other advanced nations of the world and even by some countries in the so-called second world. Many feel that it is still in the best interests of the U.S. to promote the free flow of information across international borders, but there is also a sense that the great outflow of information may be unjustified and that the U.S. is not capitalizing on this important national resource.

Recommendations

1. A special, joint committee of Congress should hold exploratory hearings to determine the U.S. objectives and policies with regard to international information exchange, identify the proper government role in this area, and indicate any required mechanisms or legislation. Included in such a hearing should be an examination of the upcoming 1979 United Nations Conference on Science and Technology for Development and the president's recent message to Congress on international communications.
2. Congress should create or designate an existing governmental or private

sector center with the specific responsibility of continuously acquiring and disseminating to the U.S. community factual information about what information resources and activities exist around the world.

3. Congress should provide a dynamic forum to address this issue area on a periodic basis with participation from all sectors—labor, industry, commerce, defense, research and development, and government (federal-state-local).

4. Congress should request that a study be conducted to identify the sources and media by which information flows internationally, including a survey of existing international agreements and treaties that affect information exchange.

5. A referral center should be established to act as the single-switching point for developing countries to have access to U.S. sources of information. Conversely, a data base or referral center should be created to provide information from abroad to the U.S. community.

Commentary

1. The activities in this area are very fragmented with little teamwork among the various sectors in the U.S. regarding international information exchange.

2. Our foreign policy is neither taking full advantage of this resource to further the U.S. foreign policy objectives nor using it to service adequately the information needs of the U.S. community.

3. The domestic and international aspects seldom can be separated when discussing information policy issues.

4. A referral center for developing countries could also often be used effectively by the states.

5. We need to address how people are using the vast amounts of information that the U.S. provides to foreign national libraries.

Workshop 8: Impact of Information Technology

Focus

Information and communications technologies offer the potential, particularly through the "office of the future" and electronic networks, for major improvements in the productivity and effectiveness of the American economy. The information and communications industries are major growth industries that have had a combined positive effect on our balance of payments.

Recommendations

1. Congress should recognize the economic value of the computer and communications industries in future legislation that is designed to improve the national economy and the U.S. position in worldwide markets.

2. Congress should explore the economic, social, and political impacts of information as a commodity in international trade.

3. Congress should review existing studies in this field with the goal of drafting legislation that would create a better environment for innovation.

4. Congress should resist attempts to legislate standards and rely on cooperative standardization efforts, technical innovations, and the forces of the marketplace to create better compatibility between systems and data bases.

5. Congress should review existing legislation and executive orders with a view to allowing or encouraging longer term procurements, which should make it easier for government agencies to acquire better, more highly integrated systems.

Commentary

1. Increasing office productivity as a result of automation may lead to temporary unemployment and serious displacement of many office workers. However, the automated office has the potential for creating new jobs in the long run, much like the industrial revolution.
2. The concept of "information brokers" acting as an interface between information producers and users is becoming more widespread in the communications and computer industries.
3. Barriers may have to be established to protect our national proprietary rights with respect to computers and communications.
4. The question of whether most information should continue to be free such as traditional library services or whether charge mechanisms will have to be established should be addressed.
5. The issue of the impact of the new technology on the poor, the powerless, and the disenfranchised and their ability to gain access to information should be considered with a view toward developing methods for meeting this problem.

Jane Bortnick is an analyst in information sciences in the Congressional Research Service, Library of Congress, where she has worked for more than five years in the application of information technology to government and society. She is coauthor of the book *State Legislature Use of Information Technology* and has contributed to many professional journals.

Highlights of LITA Board Meetings

The highlights of LITA board meetings are published here to inform division members of the activities of their board. The highlights are a condensed and edited version of the official minutes of the meeting.

1979 ALA Annual Conference
Dallas, Texas

First Session
June 23, 1979, 2:00–5:30 p.m.

Those present: *Board members*—Susan K. Martin (president), Maurice Freedman (past-president), Donald P. Hammer (executive secretary), Kenneth Bierman, Lynne Bradley, Lois Kershner, William Mathews, Mary Jane Pobst Reed, Ronald F. Sigler, and Loreta Tiemann; *Staff*—Casey A. Connely (administrative secretary); *Visitors*—Arnold Hirshon (Duke University), Karl Nyren (*LJ Hotline*), Michael Malinconico (New York Public Library, and Charles Husbands (Harvard University).

The meetings was called to order by Susan K. Martin, LITA president, and additions and changes to the agenda were made.

APPROVAL OF 1979 MIDWINTER MINUTES. A motion was made and passed as follows:

That the minutes be accepted as amended.

LITA AWARD (Susan Martin). Sue Martin, as chairperson of the Awards Committee, reported that the LITA Award would be presented to Frederick Kilgour for his contributions to library and information technology.

APPROVAL OF NEW LITA BUTTON AND BACKDROP (Donald Hammer). The new LITA button, "LITA Better Life," which was conceived by Casey Connely, and the cloth backdrop and banner for use with LITA exhibits were reported on and approved by the board.

RESULTS OF LITA ELECTIONS (Donald Hammer). Don Hammer reported the following election results:

LITA Division
Vice-President/President-elect: S. Michael Malinconico
Director-at-Large: Kandy B. Brandt
Councilor: Ronald F. Miller

VCCS Section
Vice-Chair/Chair-elect: Marilyn J. Rehnberg
Secretary: Judith A. Sessions
Member-at-Large: Linda L. Hillman
AVS Section
Vice-Chair/Chair-elect: Wesley A. Doak
Member-at-Large: Mary Ellen Soper
ISAS Section
Vice-Chair/Chair-elect: Bonnie Juergens
Member-at-Large: Stewart Debenham

ANNOUNCEMENT OF CHOICE OF LAMA EXECUTIVE SECRETARY (Donald Hammer). Don Hammer announced that Roger Parent would take over as the new LAMA executive secretary as of August 15, 1979, at which time Hammer would be relieved of that position to act as full-time LITA executive secretary.

LITA STAFFING COMMITTEE (Susan Martin). Sue Martin proposed that the ad hoc LITA Staffing Committee continue for another year and that chairpersonship be turned over to president-elect Barbara Markuson, as there is still a need to define and evaluate job descriptions, goals, expectations, and roles. It was suggested that the matter be delayed until Markuson could be present to accept the acclamation.

PROPOSED BIBLIOGRAPHIC CONTROL AND NETWORK DISCUSSION GROUPS (Donald Hammer/Sue Martin). Sue Martin reported that she had not been able to start the petition for a Network Discussion Group yet.

To the question of overlap with discussion groups from other divisions, it was pointed out that a division must speak to the needs of its members in order to build membership; that every division overlaps to a degree but as long as LITA concentrates on the technology of a subject, it should be permissible to pursue it. It was pointed out that some of the topics involved are covered by the MARC Users and the Library Automation discussion groups. A suggestion was made that these two groups assess interest in the topics. It was suggested that discussion groups should grow out of the membership and sign-up sheets could be placed at the membership meeting. Sue Martin volunteered to bring up the subject at the meeting. The question was raised as to whether these discussion groups should be ISAS sectional groups or divisional, and the consensus was that the interests involved cross over all the sections, which seems to indicate divisional groups. Questions were also raised as to the status of all discussion groups—whether they should all be divisional, and from where should the leadership arise—but no conclusions were reached.

The problem of communication among units was raised, and the LITA AVS's attempt to bring together representatives from ALA A-V committees was cited as an example of a solution.

PROPOSED EXECUTIVE SECRETARY'S FORUM (Donald Hammer). Don Hammer proposed a forum in the form of a program to be planned by the executive secretary of the division and covering new topics relating to the divi-

sion but not already adequately represented. The executive secretary would be responsible for choosing the subject, obtaining speakers, and fulfilling any other planning responsibilities. The program would be sponsored and funded by LITA but an attempt would be made to defray costs by timing the program prior to Annual Conference as a half-day program and charging a registration fee to pay speakers when necessary. Hammer was encouraged to offer a proposal for a topic for the following Annual Conference with formalization of the forum as a standing event delayed until evaluation on a yearly basis has taken place. Hammer was directed to coordinate the program through the Program Planning Committee. A motion was made and passed as follows:

> That the LITA executive secretary be encouraged to present a proposal at the Midwinter Meeting for an executive secretary's forum for the ALA annual meeting, 1980.

PUBLISHING OF "AUTHORITY CONTROL . . ." INSTITUTE PROCEEDINGS (Donald Hammer). It was reported that the institute in Atlantic City went very well; however, there were complaints about the choice of city. There has been a request to have a repeat of the institute on the East Coast in addition to the repeat planned on the West Coast as it is expected that authority control will be becoming increasingly important through 1981. It was decided to bring the subject to the attention of Kaye Gapen, incoming chair of the Program Planning Committee. Don Hammer reported that there had been no discussion or decision concerning publication of the proceedings.

The problem of choosing editors for any proceedings was raised. In the past, editing has been delegated to the program chairperson without regard to qualifications. It was suggested that the matter be turned over to the Editorial Board to set up a framework for decisions concerning publishing of proceedings (whether to publish, how, and how to choose an editor.) Bill Mathews was directed to request that a recommendation be made by the Midwinter conference. A motion was made and passed as follows:

> That the policy of editing and publication of LITA institute proceedings be referred to the Editorial Board.

PROPOSED RTSD/LITA CONFERENCE PROGRAM POLICY. It was decided that the Program Planning Committee chairperson would be responsible for handling questions of cosponsorship of programs (with RTSD or any other division) in conjunction with the LITA Directors' Board, who will make recommendations when programs are submitted for approval.

A section of the RTSD "Goals for Action" statement concerning "Technological Developments" was read and discussed insofar as it overlaps into LITA's sphere of interest. The difficulty of dealing with a subject and not taking up the technology of it and vice versa was pointed out. In this regard cosponsorship of programs could be viewed as a solution to this problem. The establishment and existence of A-V and video groups in other ALA units was also discussed at length. Ron Sigler discussed the forum he was holding at this conference to discuss these matters with members of the other units. He commented that he had had discussions with Ruth Frame concerning these problems and that she had given her support for his efforts.

Concerning the question of financial arrangements in cosponsorship of pro-

grams, it was pointed out that in the past, the division that initiated the idea usually did the work involved, paid the bills, and received the profits, and cosponsorship was generally in name only. It was suggested that there could be several levels of cosponsorship, involving more or less responsibility for each division. In more involved or complicated instances, arrangements should be exactly specified beforehand in a letter of agreement.

It was decided that it was the initial responsibility of the program planning chairperson to consider and consult with other groups and if no response is received or if that response is negative, the responsibility has been fulfilled. If there are any problems in implementing this policy, the Program Planning Committee was directed to notify the LITA Board for further consideration.

A motion was made and passed as follows:

> That the division Program Planning Committee be charged with reporting to the board regarding (from letter of William A. Gosling, president, RTSD to Robert R. McClarren, co-president, ASCLA) the following questions: (1) What other units of the division and ALA have been considered as possible cosponsors or coproducers of the activity? (2) Have these units been consulted and the officers asked if they would like to participate? and (3) What were the replies and what is the result in terms of the final planning and support for the activity?

It was the consensus of the board that a copy of the motion should be sent to each division president for consideration.

Sue Martin volunteered to meet with the chairperson of ALA/COO to discuss the problem of overlap arising over the RTSD "Technological Developments" section of the "Goals for Action" statement.

ALA CONFERENCE STREAMLINING REPORT. A report on ALA conference streamlining was considered. It was suggested that it would be more convenient for the members if substantive meetings would begin on Saturday instead of Friday to minimize regular work time loss.

Board members having strong feelings concerning the memo were encouraged to write the committee, identifying themselves as LITA board members.

REPORT ON FINANCIAL STATUS OF LITA INSTITUTES (Donald Hammer). Financial aspects of some recent LITA institutes were discussed. Income statements for the New Orleans and San Francisco institutes were submitted in writing. Hammer estimated that there would be a gain of about $4,000 on the New Orleans institute and a loss of about $1,300 on the San Francisco institute. Hammer noted that the gain in the past has been as high as $9,000. When asked the reason for the decline in profits, Hammer cited (1) choosing more expensive hotels, (2) inflation (rise in hotel costs for food, lodging, and transportation for participants), and (3) scheduling committee meetings at institutes and costs incurred by those committee members. Hammer remarked that he may have to raise registration fees above the $65–$75 bracket to compensate. It was decided to direct the Program Planning Committee to keep expenses in mind; to try to eliminate extra committee meetings at institutes; and to reduce fringe expenses for participants where possible, e.g., gratuities for speakers and planners, etc.

Hammer reported that there had been $35,113.44 in ALA overhead charges

(13 percent of all division costs) since June 1973 (starting with the Las Vegas institute). Services being provided for the 13 percent overhead include publicity, accounting, mail room, supplies, etc.

A discussion followed concerning publicity provided by ALA for LITA activities in *American Libraries*, which has the policy of one-time printing of publicity items, and by the ALA Public Information Office. The problem of securing appropriate publicity through that office is caused by their unwillingness to deal seriously with news releases sent to them for distribution. It was suggested that a motion could be passed recommending to PIO that they take greater care in seeing that appropriate publicity is provided. No action was taken.

It was pointed out that the division does not receive interest on surplus funds. These funds are used by ALA as operating funds, and it is doubtful if any interest is received by ALA itself. It was estimated that the LITA surplus is now about $80,000. A discussion concerning the justification for accumulating such a surplus followed. It was pointed out that a profit margin allows the division to allocate monies to committees for special projects, to facilitate activities that may lose money, and for such things as the new LITA newsletter. Only when monies are not put back into the division for the benefit of the members of the library profession as a whole was an accumulation seen as questionable. Concerning subsidizing an institute or preconference, it was suggested that there should be guidelines to be followed as to whether or not to proceed when it is shown that an institute or preconference will not reach the break-even point.

It was requested that Don Hammer report again on the financial status of LITA institutes at the Midwinter Meeting. Hammer stated that at that time he would also give a detailed report on the loss incurred by the Arlington, Virginia, institute.

PROPOSAL TO ESTABLISH AN "INFORMATION SPECIALIST OR MANAGER" UNIT (Donald Hammer). The term *information specialist* or *information manager* was explained as encompassing individuals dealing with information as a resource and as a concept that requires processes different from what librarians are generally using at present or have used in the past. The new discipline responds to the dynamic changes that technology is bringing to the information field through on-line facilities, new modes of transmission and display, new storage and replication tools, and the merging of all of these processes and technologies into an entirely new management environment. It has been suggested that the term may take the place of *librarian*. Don Hammer proposed to the board that, to broaden LITA's scope and as part of long-range planning, LITA investigate the area in terms of contacting people in the field to see if it would be an appropriate area for LITA to become involved in and what form a unit concerned with those new concepts should take within LITA. The unit was seen possibly as a division-wide group to encompass the interests of the librarian of the future, to help librarians make the transition, and to bring in new members. An example of the area of interest could be the interdisciplinary program being planned by the American University on information transfer, including social sciences, computer technology, and media.

It was decided that a small task force should be chosen to investigate the idea, and a motion was made and passed as follows:

That a task force be formed to investigate the role of information specialist within the division.

REQUEST TO DISPOSE OF JOLA ISSUES FROM THE WAREHOUSE (Donald Hammer). The warehouse has requested that LITA give permission to dispose of the back issues of *JOLA*. On the other hand, it was pointed out that LITA earns about $300 a year in sale of back issues. It was also pointed out that back issues are useful to send to prospective members. A suggestion was made that *JOLA* run an ad regarding sale of old issues and Bill Mathews was charged with stimulating such sales. A motion was made and passed as follows:

That LITA retain its back issues and the *JOLA* editor look for ways to stimulate sales of these items.

ANSI X-3 REPORT (S. Michael Malinconico). Malinconico stated that he had previously resigned as representative and had not been to meetings. No report was given.

IFLA REPORT (S. Michael Malinconico). Malinconico reviewed his recommendations from the 1979 Midwinter Meeting concerning LITA's sending a slate of nominees for the Mechanization Section of IFLA and forming an International Mechanization Consultation Committee. Formation of this committee had been approved at the 1979 Midwinter Meeting but no appointments had been made as yet. The committee was charged with reporting by the coming Midwinter Meeting.

End of first session.

Second Session
June 24, 1979, 8:00–10:00 p.m.

Those present: *Board members*—Susan K. Martin (president), Maurice Freedman (past-president), Barbara E. Markuson (vice-president/president-elect), Donald P. Hammer (executive secretary), Kenneth Bierman, Lynne Bradley, William Mathews, Mary Jane Pobst Reed, and Loreta Tiemann; *Staff*—Casey A. Connely (administrative secretary); *Visitors*—Arnold Hirshon (Duke University), Michael Malinconico (New York Public Library), and Blanche Woolls (University of Pittsburgh).

COMMITTEE APPOINTMENTS (Barbara Markuson). New committee appointments to date were read as follows:

Bylaws and Organization: Harriet Marshall, Gretchen Redfield, and Judith Sessions
Legislation and Regulation: David Dorman, George Abbott, Heather Nicholl, and Michael Wessells
Education: Gerald Brong, Daniel O'Connor, James Schoenung, and Theresa Strozik
Nominating: Bonnie Juergens, Marilyn Rhenberg, and Richard Meyer
Membership: [Still to be appointed]
MARBI: Elaine Woods

Telecommunications: [Still to be appointed]
Editorial: [Still to be appointed]
Program Planning: William Potter, Bernie Heyman, and Arlene Sirkin

LITA STAFFING COMMITTEE (Susan Martin). The board agreed that the ad hoc LITA Staffing Committee, composed of the president, past-president, and vice-president/president-elect, continue for another year with the new officers, as the transition from part-time executive secretary to full-time executive secretary was not complete, with questions remaining relating to job descriptions, goals, etc.

AD HOC GOVERNORS' CONFERENCES ADVISORY COMMITTEE. In considering the status of this committee, the White House Conference was discussed. Barbara Markuson, a delegate to the White House Conference, reported that she had pulled together a list of the resolutions relating to technology and networking from thirty-seven governors' conferences that she is considering publishing.

It was pointed out that the White House Conference was addressing itself to broad issues and that there may not be a section specifically addressing itself to technology. Further, the ALA position paper (published in *American Libraries*) was discussed and it was noted that technology was not covered in that paper.

It was the consensus of the board that the Governors' Conferences Advisory Committee (its original purpose to establish an advisory panel for the governors' conferences) could not be effective as a committee in influencing the White House Conference and should be allowed to dissolve. This would not preclude any LITA section from arranging to present a paper. (The VCCS section was considering doing such a paper.)

REPRESENTATION IN THE FREEDOM TO READ FOUNDATION. Representation in the Freedom to Read Foundation (FTRF) was questioned as to whether it was appropriate for LITA to be involved. The board felt that LITA should be represented concerning questions regarding secrecy or security and privacy where computers in libraries are involved. The consensus was that a new representative should be appointed. It was suggested that the representative consult with the president of the FTRF, offering the expertise of LITA and asking how we might best participate.

1979–80 BUDGET (Donald Hammer). A written budget report was submitted. Don Hammer reported that the only major changes were the anticipated AFIPS membership fee and the allocation for the *LITA Newsletter*. The estimated operating expense allocation is listed as $51,545 with total expenditures expected of $77,000. The difference will probably not be spent, but if it is, it would be charged against surplus funds. The following motion was made and passed:

That the 1979–80 budget as presented be approved.

EDITORIAL BOARD REPORT (William Mathews). Mathews reported on the selection of editorial staff and their qualifications. A recommendation has been submitted of Pat Barkalow, of the University of Tennessee at Knoxville, as

the *LITA Newsletter* editor. Sue Martin is resigning her position as *JOLA* advertising editor, and Mathews is nominating Judith Schmidt, of the Copyright Division of the Library of Congress and former *JOLA* book review editor, for the position. Katherine King has been nominated for book review editor. A question was raised as to whether Schmidt would find a conflict between her position as an LC employee and being advertising editor for the journal. Mathews said that he would investigate the matter but that his feeling was that her position at LC did not involve her in making contract arrangements with outside firms. A motion was made and passed with a contingency as follows:

> That Pat Barkalow be appointed *LITA Newsletter* editor, Judith Schmidt be appointed *JOLA* advertising editor, and Katherine King be appointed *JOLA* book review editor. The appointment of Judith Schmidt shall be made pending written clarification that this appointment will in no way constitute a conflict of interest.

MARBI REPORT (S. Michael Malinconico). A letter from William Welsh of the Library of Congress to Robert Wedgeworth was the focus of discussion. Welsh, without request for negotiation, has abrogated the previous relationship of MARBI to LC. It had been agreed in the past that no MARC formats would be published without MARBI's approval. In the new relationship, MARBI would only serve as an adviser. It was pointed out in disucssion that the old relationship had been established because LC had not been equipped to deal with the volume of recommendations, a situation that has not changed. After deliberation, the MARBI committee's recommendation had been to advise that: (1) ALA continue to have an active role in the development and maintenance of MARC formats and (2) that ALA negotiate with LC to modify the original relationship so that a body similar to the Joint Steering Committee of Catalog Code Revision be established in which each member would share equally in decision-making responsibility and in the maintenance of the MARC formats. It was further recommended that negotiations begin as soon as possible so that a decision might be reached by Midwinter 1980.

After discussion, it was determined to delay making a board recommendation until the next session after the original "white" papers defining the MARBI relationship to LC had been obtained.

End of second session.

Third Session
June 26, 1979, 8:00 a.m.–12:30 p.m.

Those present: *Board members*—Susan K. Martin (president), Maurice Freedman (past-president), Barbara E. Markuson (vice-president/president-elect), Donald P. Hammer (executive secretary), Kenneth Bierman, Lynne Bradley, Lois Kershner, William Mathews, and Loreta Tiemann; *Staff*—Casey A. Connely (administrative secretary); *Visitors*—Kate Schell (Rochester Institute of Technology), Keith Mac Laury (RLIN), Kaye Gapen (Iowa State University), Bonnie Juergens (Dallas Public Library), George Abbott (Syracuse University), Brigitte Kenney (Solar Research Institute), Ron Miller (CLASS), Stephen Silberstein (University of California), Judith Hopkins (State University of New York at Buffalo), and Charles Husbands (Harvard University).

LEGISLATIVE ASSEMBLY REPORT (Ruth Tighe). At the time of this report, the assembly had not yet met; however, the following items were to be on the agenda: a National Libraries Act drafted by the National Citizen's Emergency Commission to Save Our Public Libraries (reprint available from the Congressional Record of May 14, 1979, Bill #S.1124); a Chief Officers of State Library Agencies (COSLA) proposal for funding of the various acts; revision of Title 44; and the government's energy-saving guidelines. Discussion followed concerning problems of funding, especially concerning the provision that funding must be channeled through the state library. Tighe was going to make a recommendation that the Legislation Committee of the ASCLA Multi-Type Library Cooperative Section make a recommendation regarding that provision. Concerning Title 44, it was pointed out that William Welsh of LC was interpreting it to affect distribution of MARC tapes, Tighe reported that the ASCLA Legislation Committee had agreed to contact other ALA units for endorsement of action to have libraries exempted from the guidelines specifying temperature settings that could result in damage to library materials. It was the consensus of the board to support such action.

LEGISLATION AND REGULATION COMMITTEE REPORT (Ruth Tighe). As an information item, Tighe reported that a decision has been made by the FCC that they do not have the right to mandate to local cable companies that they provide public access channels.

The committee has tentatively planned a program for the 1980 New York Annual Conference featuring libraries that have negotiated cable franchises and what have been the positive and negative aspects. Secondly, they plan to organize a program that addresses itself to the question of the legalities of, or justification for, the government's mandating that public access be provided by telecommunications facilities. Tighe reported that the committee was represented by the VCCS and AVS sections and that VCCS would be planning the major portion of the cable franchise program.

It was reported that major work on the committee project of compiling legislation in the sphere of LITA's interests, which had been funded at Midwinter 1979, had still not begun as there had been problems in defining scope and intent.

Ruth Tighe reported that the transcripts of the Legislative Hearing at Midwinter 1979 have been published in *JOLA*.

It has been discussed in committee to hold a workshop to try to educate library faculty so that they will have a more substantive knowledge of telecommunications. Brigitte Kenney is working on a proposal for a workshop on how to incorporate the new technology of telecommunications into library curriculum.

MARBI. A motion was read and, after long discussion, passed as follows:

The LITA Board recommends that Bob Wedgeworth take the following action to resolve the issues raised by Bill Welsh concerning the MARBI Committee:

1) Reaffirm the essential role ALA has in the development of MARC as an ALA standard,
2) Request a task force consisting of Mr. Wedgeworth, the presidents of

the divisions comprising MARBI, Mr. Welsh, and others designated by Mr. Welsh be convened to take immediate action to improve the procedures for handling MARC format changes, and

3) That after new agreements are reached, the present understanding between ALA and LC described in "The Relationship of the Library of Congress to the ALA MARC Advisory Committee" be rewritten to reflect the recommended changes and be ratified by both LC and ALA.

AD HOC PROGRAM PLANNING COORDINATION COMMITTEE REPORT (Bonnie Juergens). The Function Statements of the LITA Program Planning Committee and the sectional Program Planning Committees were read and voted on as follows:

That the board accept the proposed LITA Function Statements for the LITA Program Planning Committee and the section Program Planning Committees as presented to the board as Document "A."

It was discussed that a sectional Program Planning Committee cannot plan and execute an institute but may provide input and expertise. It was pointed out that each sectional Program Planning Committee is represented on the LITA Program Planning Committee by the chair of the sectional committee, who can be appointed to chair the program. The real responsibility of the sectional Program Planning Committees should be to plan and execute conference programs so that at least every section is represented by a program at conference. All conference programs should be coordinated through the LITA Program Planning Committee.

APPROVAL OF 1980 PRECONFERENCES AND PROGRAM PLANNING COMMITTEE REPORT (Bonnie Juergens). There were no preconferences being considered at this time by the Program Planning Committee; however, Ron Sigler brought up his proposal for a 1980 A-V preconference. Sigler was directed to present it at the PPC meeting and a mail vote could be taken by the board. A brief description of this proposed program was given as follows: subject—the administration and the media librarian of the eighties; goal—to keep up with the changing technology and its effects upon the media library and administration, with a view toward problem solving (problems in the administration of film and video libraries and other projected media); concept—that the subject would have broad appeal, as A-V services in many libraries include film, video, and other projected media together; anticipated audience (in order)—public librarians, university and college librarians, special librarians, and (limited) school librarians; desired registration fee (range)—$25–$40. William Sloan (also chair of the Film Library Information Council) has been asked to head planning. The Educational Film Library Association (New York) may cosponsor or cooperate. Their conference is being held several weeks before ALA's. It was suggested that this program could be planned as an institute to be held in conjunction with the Educational Film Library Association's conference.

Timing in the planning of institutes and the extreme importance of adhering to deadlines in the completion of assignments were again stressed. It was suggested that institutes be canceled if work has not progressed to a certain state

at a given time and that there be a predetermined minimum registration by a given time. It was mentioned that the Program Planning Committee is presently working to complete a Program Planning Committee Handbook. Don Hammer reminded the board that the LITA Manual now contains instructions on holding an institute and a timetable for fulfilling each step.

The Program Planning Committee Vendor Statement was brought up for consideration. A quorum had not been achieved on a previous mail vote. It was pointed out to the board that mail votes cannot be taken if the board members do not respond. Discussion followed and Bonnie Juergens clarified the Vendor Statement by saying that it was meant to be an informational item to be sent to vendors and other speakers. The statement is to serve as a guideline with a decision with a decision being made for each institute how vendors may participate, and that unless vendor participation is requested, it will not be allowed. A vote was taken by the board and the statement approved.

Remaining institutes approved and planned for 1979–80 were enumerated.

It was proposed that the board approve an investigation into the planning of a schedule of seminars for 1980–81. The concept would be to enable shorter programs with smaller registrations to be held in various regions across the United States on the same topics. This would satisfy librarians who cannot travel farther distances or go for longer times but who would be interested in more in-depth, tutorial-style meetings. Topics considered include how to write specifications for automated library systems and/or contract evaluations. The Program Planning Committee had received numerous requests for these topics and felt they would be best handled this way. Another advantage would be to seek cosponsorship from other organizations in each region. Concerning participants, the committee foresees one or two continuing speakers, with additional speakers filling in from the region. A motion was made and passed as follows:

> The LITA Program Planning Committee has board approval to investigate and propose a schedule for 1980–81 seminars on specifications development and/or contract negotiation.

LIAISON BETWEEN LITA EDUCATION AND PROGRAM PLANNING COMMITTEE AND EDUCATION COMMITTEE REPORT (Brigitte Kenney). It was reported that the liaison idea had not been discussed in the Education Committee as yet but would be handled during their upcoming meeting. However, as a possible function of the committee, Kenney suggested that one way they could be involved with programming could be to investigate new programming frameworks, such as the idea of seminars as previously proposed by the Program Planning Committee. It was suggested by the member of the board that another approach the committee could be taking was to scan publications to keep a roster of ideas for programs.

The proposed Function Statement of the Education Committee was discussed. This Function Statement was a revision of the Function Statement rejected at the 1979 Midwinter Meeting and was based on a solution to the problem of the committee's role in planning that had been reached by the division several years earlier. In relation to the committee's role in program evaluation, it was pointed out that the subject of authority control as presented at the two 1979 LITA authority control institutes in Atlantic City and Los Angeles would be an important area for evaluation.

The work of the Education Committee to date was described as mainly work on the committee's proposed institute. This was reported on as follows: goals—to identify issues and problems in integrating the curriculum of information technology of heretofore unrelated areas of library automation, audiovisual media, etc.; to develop steps toward solution to these problems; and, if possible, to begin to develop some curriculum content. The length of the institute is planned for 2¾ days and will be open to twenty educators, twenty potential employers, and twenty students. They would like to pay the expenses of the students and charge a registration fee for the remaining forty. The program will be a workshop format with no formal presentation other than a keynote speaker to give a long-range forecast considering both technology and people impact. The students will be asked to do a short technology-based state-of-the-art paper. The educators will be asked to describe how the subject is being taught and should be not only from library schools but also from computer-oriented educational technology programs and media specialist preparation programs. Employers could be from the information industry and not just library schools. There will be resource people expert in their areas and process-oriented group facilitators to assist the groups.

The budget of the program was reviewed. The committee would like the institute subsidized by LITA. Considering expenses for the students and participants, plus any honoraria, and subtracting the income received from the forty paying registrants, a figure was quoted in the range of $9,000–$12,000. Alternatives for some of the funding were discussed, such as grants and awards or cosponsorship. The OLLR Training Institute Grant was considered not practical for the committee to pursue, as they do not have the resources to do this; however, it was possible that they could apply for the J. Morris Jones Award. Expenses for the students could be lowered by having the institute at a college or university through which the students could be housed. Kenney was advised to attend the Program Planning Committee meeting during which the regional approach would be discussed in order to investigate lowering expenses through a regional approach. The sense of the board was that they might be willing to fund the institute in the range of $5,000–$6,000 and that costs should be cut down by investigating funding by another agency, cosponsorship, lowering expenses, or raising registration fees. There was a suggestion that the Broadcast Education Association might be interested, as they are concerned with some of the issues involved.

The committee hoped to mail a finished proposal to the board by November 20, 1979, for approval by Midwinter 1980, with the institute being scheduled for anytime after November 1, 1980 (if funding is obtained through the J. Morris Jones Award, the date could be moved forward by three months). Kenney was directed to go through the Program Planning Committee.

BYLAWS AND ORGANIZATION COMMITTEE REPORT (Loreta Tiemann). A motion was made to approve the Function Statement of the Education Committee and passed as follows:

> That the LITA Board accept the proposed Function Statement for the Education Committee as revised.

The Function Statement for the International Mechanization Consultation Committee (IMCC) was presented for approval. After discussion it was decided

that the IMCC should be an ISAS sectional committee. Lois Kershner, present chair of the section, was directed to coordinate and resolve any conflict with the existing TESLA Committee; and in this regard the Bylaws and Organization Committee was directed to review the Function Statement and to ensure that intent is clear. It was pointed out that it is ALA policy that LITA cannot set standards but that it could be proposed to ALA Council that that policy be changed. A motion was made and passed to provisionally approve the statement as follows:

> That the Function Statement as modified by the board stand as approved if the Bylaws Committee determines with the International Mechanization Consultation Committee that the modified function is acceptable and, if there still remain minor modifications, especially with respect to TESLA, that these be resolved by the Bylaws Committee in discussion with Lois Kershner.

It was recommended to the board that the LITA Bylaws be amended so that the new LITA office of councilor will be a voting member of the board. A question was raised, if the position becomes vacant before election time, whether an interim councilor can be appointed and have Council voting privileges. It is expected that Council will be voting on this issue during the present conference. It was decided to table the motion to approve the amendment until the 1980 Midwinter Meeting and until the issue had been resolved by Council.

An additional recommendation was offered that the Membership, Awards, Legislation and Regulation, Education, and Editorial committees be incorporated into the Bylaws as standing committees. The Telecommunications Committee was not included in the recommendation, as it is a special committee and subject to change.

As amendments to Bylaws must be ratified by the membership, it was decided to table both recommendations until Midwinter 1980.

GOVERNORS' CONFERENCES ADVISORY COMMITTEE (George Abbott). Sue Martin produced a letter from George Abbott recommending dissolution of the committee. The committee has been dissolved by the board in an earlier decision.

ISAS REPORT (Lois Kershner). The Executive Committee would like to instigate new discussion groups, and a task force is being formed to investigate issues for discussions, assess interest, and identify leaders. These are to be new topics that, it was hoped, would bring in new members. Further, it was thought the new discussion groups would deal with highly technical issues of interest to smaller groups and approached from a state-of-the-art view. There will be a telephone poll to ensure that interests of the membership are being reflected. The task force is to report by Midwinter 1980.

The LITA Library Automation Discussion Group had been discussed in committee and the sense was that there was no complaint concerning the status of this group as a divisional discussion group; however, the committee would like to recommend to the board that, besides program, the format of the discussion group also include more time for the members to communicate their activities to one another.

Barbara Markuson, as incoming president, was requested to continue to

channel ISAS-related issues to the sectional level.

The committee has approved their 1980 annual program, entitled "Planning for Library Automation." This program will look at the administrative aspects—needs assessment, decision making, some aspects of implementing, and impact on the library. They hope to have a firm program plan, including speakers, by Midwinter 1980.

Concerning the investigation into extended character sets, Walter Crawford has delivered a draft of the report that he feels can be published in "Technical Communications," but the funding that had been allocated was not needed.

Kershner was requested to make comments regarding discussion groups at the membership meeting.

AVS REPORT (Ronald Sigler). Sigler reported that he has developed the sectional committees and completed appointments.

A flyer was distributed to all the chairpersons of the ALA A-V committees and put out as a handout concerning the AVS section's open membership meeting. At this meeting, Sigler hopes to begin making contact and opening lines of communication with the other groups and with the support of the ACRL Audiovisual Committee. An AV Future Development and Activities Liaison Committee has been developed with several AVS members willing to participate and he would like to have liaisons from other A-V committees.

Sigler reiterated his intentions to seek support from, and cooperation with, the VCCS Section as much as possible.

A sentiment was expressed to the board that LITA maintain a representative to the Freedom to Read Foundation. A-V materials can be an issue where intellectual freedom and censorship is involved. It was pointed out that another issue affecting LITA is security in data bases. As a point of information, Ron Sigler is drafting a statement, "Freedom to View," which has been approved by the Educational Film Library Association. The final form of this statement is being taken to the ALA Intellectual Freedom Committee for endorsement.

AUDIOVISUAL CONFERENCE PROGRAM COSTS (Donald Hammer). Hammer referred to two bills totaling approximately $790 that were incurred by LITA units for A-V equipment to be used in conference programs. He pointed out that money should be requested through ALA special program funds to receive funding through ALA; otherwise, LITA must pay for the equipment. Hammer pointed out that these expenses are unnecessary and that some machinery should be developed for ensuring that funding is requested ahead of time. It was also pointed out that forms are mailed out from the Headquarters office and that there is also a copy of the form with an explanation in the Manual. It was suggested that as part of coordinating programs, the Program Planning Committee could be responsible for reminding people concerning the question of whether equipment could be canceled if not needed. Hammer said he would look into it. Finally, Kaye Gapen, as new chair of the Program Planning Committee, and Don Hammer were directed to cooperate in sending out a reminder right before the Midwinter meeting.

EDITORIAL BOARD REPORT (William Mathews). Mathews reported on format changes that have been made in the journal, including changing the

name of the "Technical Communications" section to simply "Communications," in an attempt to broaden its scope.

Because of past interest generated by certain materials without individual authorship that have been published in *JOLA*, such as proceedings from hearings, a request for funding of $500 was made for a one-year experiment for a reprint service to be made available through *JOLA* for materials having a wide appeal and designated by the Editorial Board. The requests for reprints could then be turned into a promotional opportunity for the journal and LITA by including material about LITA with the reprint. A motion was made and passed as follows:

> That the board authorize a one-year experiment by the Editorial Committee to provide reprints from JOLA to be used for promotional/educational purposes at a cost not to exceed $500. The Editorial Committee will report the results of the experiment to the board in 1980.

Topics the Editorial Board is now considering include investigating procedures for the appointment and control of institute proceedings editors and questions of overlap between *JOLA* and the new *LITA Newsletter*. The Editorial Board would like to begin drafting a policy and procedures manual, which will come to the LITA Board for approval, that would, among other things, incorporate answers to these questions.

Mathews apologized for the lateness of the journal. Three reasons were cited for this problem: (1) an abundance of paperwork; (2) time spent reviewing manuscripts; and (3) a lack of qualified manuscripts (manuscripts are now being solicited to try to remedy this problem, with one being published in the June issue.) Mathews reported that a new system of reviewing manuscripts is being instituted to effect an improvement. An estimate was given that the journal should be running closer to schedule within six months but that in spite of the problems in scheduling, the quality of the journal has not suffered.

The Editorial Board would like to substantially develop the book review section of *JOLA* so that there is more comprehensive coverage. They will attempt to do this by first developing a systematic way of aggressively identifying material worthy of review, and second by employing reviewers from a broader base. A task force will be formed to investigate these questions. It was ascertained that LITA Board approval is not needed to recruit a task force consisting of non–Editorial Board members.

Mathews reported that he would like to expand the present number of the Editorial Board by two members, and it was ascertained that LITA Board approval is not needed, as there is no limitation on the number of members on the Editorial Board.

It was suggested that the new *LITA Newsletter* editor be brought to the headquarters office for orientation.

VCCS REPORT (Lynne Bradley). It was reported that the Distribution and Exchange Committee is continuing work in relation to establishing an exchange of library-produced videotapes.

The Utilization Committee has created a new survey form, which has been sent to *CableLibraries*. The results are being summarized in *CableLibraries*, and the final form will be published in the update of the video guidelines.

Some of the VCCS members have been involved with the Communications

Act and the discussion concerning off-air recording and have testified. Lynne Bradley is an alternate to the House subcommittee on establishing guidelines. Eileen Cooke is the chairperson.

Roberto Esteves is editing an update of the video guidelines. Some work has been completed. The edited version should be ready by January 1, 1980. The Editorial Board is being consulted regarding choice of publishers.

The section is planning to develop an information package about VCCS to be distributed upon request, including bibliographies, sample *CableLibraries*, and other handouts.

A collection of video and cable policies and issues relating to copyright service and collection development has been started.

The section is also planning to do a video sampler at next Annual Conference based on library tapes encountered during the year.

End of third session.

These highlights were prepared by Casey A. Connely, LITA Administrative Secretary.

Communications

Personnel Training Techniques for Automated Library Circulation Systems

Taku F. NIMURA: California State University, Sacramento Library.

The Library at California State University, Sacramento, underwent a major change recently when an automated circulation system replaced a manual one. As the circulation department head I was selected as the person responsible for training the staff. There are 18 support staff who report to me either directly or indirectly; there are approximately 100 student assistants who work in the department.

The change for our library was from a manual "keysort card" to the LIBS 100 system manufactured by C. L. Systems, Inc., Newtonville, Massachusetts. During the course of this transition it became clear that in order to avoid mass confusion, first-rate training, along with a great deal of planning, was vital.

This article is retrospective, focusing on what would be helpful if another library were faced with a similar situation. Although we use the LIBS 100 system, this article is intended to apply to any new training situation. I will provide practical suggestions to include: (1) criteria used for selection of trainers and trainees; (2) preparing lectures; (3) a sample of an instruction sheet; (4) a method of evaluating training; and (5) procedures for a follow-up.

Although a reference would have been helpful to us, there was no recent article on personnel training techniques for use in converting from a manual to an automated circulation system. A search through *Library Literature* for the past three years (1975 through 1978) under four subject headings revealed no citations to automated circulation system training for a library staff. This article will fill this gap in the literature. It is also intended as a guide for those who are assigned the responsibility of training personnel for an automated circulation system.

Main Event Management addresses training with the "PESOS Formula."[1] PESOS is an acronym that stands for:

- P Prepare the program to be followed.
- E Explain how it is to be done.
- S Show the person in a step-by-step process.
- O Observe how the task is being done.
- S Supervise or have the task done under supervision.[2]

Expanding on the concept of acronyms, four additional acronyms were developed to strengthen the "PESOS Formula." The use of acronyms improves training because it provides an easy way to follow an outline of what needs to be done. There are four major segments of personnel training, and they are divided into four acronyms: SOPWIT, SLEDS, EPOCH, and FEW. Each acronym contains key concepts.

ACRONYM I: SOPWIT

- S Select the trainer.
- O Outline the entire training program and goals to be attained.
- P Prepare the material to be presented.
- W Write an instruction sheet for each segment of training.
- I Integrate what needs to be taught.
- T Test the instruction sheet on the terminals.

Selecting the trainer is a critical task for library administrators. Each candidate's skills, knowledge, and abilities must be carefully screened to determine who is ultimately chosen for the training responsibilities. The following criteria should be used for selecting a trainer: (1) teaching experience preferred; (2) ability to function well in front of groups; (3) direct involve-

ment with the department on a long-term basis; and (4) ability to organize and digest vast amounts of reference manual material dealing with automation.

After selection, the trainer develops the entire program. If the full-time staff is larger than 20, it is recommended that two trainers be selected. Most academic libraries have circulation departments of less than 20 full-time staff; however, there can be as many as 100 student assistants who also need training. In this case the recommended method is to train the full-time staff who in turn train the student assistants.

This procedure has two distinct advantages: (1) before they can teach, the full-time staff must understand and perform the processes well; and (2) the student assistants are, in effect, tutored instead of being exposed to a lecture/demonstration situation.

The trainer must carefully outline the entire training program and must know in what order to teach each function to achieve the established goals. The trainer prepares the material to be presented. It is imperative that the trainer be instructed by a company representative (C. L. Systems, Inc., in our case) while working with the company's reference manual in order to decide what needs to be communicated.

An instruction sheet should be prepared. Figure 1 is a sample of such a sheet.

This is a step-by-step instruction sheet to be used as a reference tool by the staff for the training sessions. The trainer must digest and integrate the material to a point where the operation becomes second nature.

The last step in SOPWIT is testing, to make sure the instruction sheet actually does what is intended.

ACRONYM II: SLEDS

- S Select staff members who will receive training and select the sequence in which the material will be presented.
- L Lecture on the material.
- E Explain thoroughly by using the instruction sheet.
- D Demonstrate all the new procedures at the appropriate terminals.
- S Show how and why the procedures work and how to remedy errors.

It is recommended that the entire staff receive the kind of training that provides general background knowledge of the automated system to establish a common ground and also to have the staff familiar with automation jargon.

The trainer selects the trainees, after consultation with first-line supervisors.

CCPATRON*

ccpatron keyboard method

Process?	ccpatron	Type in the word "ccpatron" and enter.
?pa	544435434	Type in "pa" which stands for an alternate patron number and enter. Type in patron's social security number (without spaces or punctuation) and enter.
PZ?	2 0600 00041 0418	"PZ" appears and the assigned "zebra number"† is entered. The field must have fourteen digits and spaces are required. Push the enter key.

**Ccpatron* is a C. L. Systems, Inc., term that stands for "circulation control patron." I converted the "cc" to mean "capable of change" because in this case the only way a patron record can be changed is by using the "ccpatron" process.

†*Zebra number* is a phrase used by C. L. Systems, Inc. to mean the "bar encoded label." Because the label has vertical bars (stripes) that resemble zebra markings, C. L. Systems, Inc., designated them as "zebra numbers."

Fig 1. Sample Instruction Sheet.

The following are a list of possible criteria to be used for selection of trainees: (1) jobs presently performed; (2) experience with circulation work; (3) accurate typing abilities; (4) previous exposure to automated systems; (5) attention to detail; and (6) quick learning.

For example, assume that a person is selected to be a "console operator." This individual requires the same intensive training given to the person who is responsible for the overall training. After the "console operator" is trained, this person will be responsible for training others to operate the console. Depending upon how the work is divided, there have been as many as four other staff members trained to operate the console.

The trainer lectures on the prepared material using overhead projectors, chalkboards, and question-and-answer techniques as applicable. Specific routines need to be explained thoroughly, and frequent reference should be made to the instruction sheets. It is important both to point out what works well and to elaborate on the limitations of an automated circulation control system.

Following the lecture and explanation, a demonstration by the trainer at the computer terminal is necessary. Routines at either the lightpen, console, display terminal (CRT—cathode ray tube), or any other terminal are presented as outlined in the instruction sheet. Demonstrations should be made to groups of five or less. This results in repetition, but it is important to give the staff the opportunity to observe demonstrations in small groups.

At our library, the sequence of material presented was: (1) work with "ccpatron"; (2) then work with all the inquiry processes which include ways to get to patron data and book information; (3) how to change data; (4) all CRT procedures; and finally, (5) lightpen routines.

During the demonstration, the trainer shows how and why the procedures work. Another important training step at this stage could be a session on remedying common errors, e.g., what to do when an error light appears. The second segment of training is complete, and the trainer is ready for the EPOCH segment.

ACRONYM III: EPOCH

- E Encourage staff to practice whenever possible.
- P Provide every opportunity for the staff to ask questions.
- O Observe the progress of each trainee.
- C Confer with each trainee to assess retraining needs.
- H Help each individual as the need arises.

The trainer must encourage staff and provide opportunities to obtain hands-on experience. A method that worked well for us was to divide the staff into small groups. Members of the group interacted and helped one another in problem solving.

At this critical stage, it is important to allow the staff the chance to ask questions. The trainer must provide answers promptly. As in the beginning of the training cycle, questions are encouraged to facilitate communication.

During hands-on practice, the trainer observes the progress of each trainee and decides who needs retraining. A conference with the individual involved is also imperative to establish an understanding of expectations regarding the additional training. The trainer should allow sufficient time to tutor slower trainees and take special care in making sure that all trainees feel competent with their newly assigned tasks.

Now it is time to reflect upon the success or failure of the training program. The final acronym, FEW, covers an important segment of the trainer's responsibilities.

ACRONYM IV: FEW

- F Follow up on the training to assess the strengths and weaknesses.
- E Evaluate the entire program and determine adequacy.
- W Write a report to chronicle successes and failures.

Hayes and Becker mention the importance of follow-up:

> Of all aspects of system work, follow-up probably receives the least emphasis. This is unfortunate because, without it, significant gains predicted during the earlier phases of

analysis, design, and installation can be lost through inadequate attention to operational difficulties that develop only after the system has been in operation for a while.

Periodically, every system must therefore be reviewed to ensure that it is effectively performing the functions for which it was designed and continues to accommodate to the various changes affecting the operation.[3]

A formal evaluation of the entire program can be made after all staff, including the student assistants, are consulted. Questions used to query our staff as part of this evaluation included: (1) what are your comments about the training? (2) what are your comments about the system? (3) what improvements would you suggest in the training program? (4) what is your overall assessment of training? and (5) did the instruction sheets help? The responses to these questions proved invaluable to us because we were able to make changes in training methods as needed.

California State University, Los Angeles, is currently using our training guides and suggestions as a base for their training program.

Finally, the entire process should be documented with a written report. This report will be most helpful to others who are about to embark on a change from a manual system to an automated one.

SUMMARY AND CONCLUSIONS

Training personnel in the use of an automated circulation system was facilitated by the use of an organized training program. Instruction sheets are prepared and a trainer is selected, who in turn guides the program and provides hands-on experience for small groups of staff. It is important that training be evaluated both during and following the program. Acronyms are provided that outline the steps in this procedure. SOPWIT, SLEDS, EPOCH, and FEW were devised to encompass what a trainer needs to do to accomplish first-rate training techniques.

The four acronyms were extensions of the "PESOS Formula," and the concept behind the acronyms was to provide a practical guide for anyone faced with a change from a manual system to an automated one.

Training of personnel is approached from the perspective of what the trainer needs to do. This article chronicles the responsibilities of the trainer in an easy-to-follow outline.

There was no confusion at our library. The training went very well indeed and better than most expected. The success of our program was because of good planning and first-rate training techniques.

REFERENCES

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2. Ibid., "Word Model 101" unpaged.
3. Robert M. Hayes and Joseph Becker, *Handbook of Data Processing for Libraries* (New York: Wiley, 1970), p.208.

Data Processing IN THE ETH-Bibliothek

Rudolph NÖTHIGER: Research and Development Section, ETH-Bibliothek.

The ETH-Bibliothek (main library of the Swiss Federal Institute of Technology) was founded, together with the SFIT, in 1855. Its main fields of collection corresponded to the teaching faculties of the institute: natural sciences, technology, mathematics and architecture. Today it is the largest scientific and technical library in Switzerland and functions as a national library in these fields.

In the course of its development the library has taken on a dual role, that of a national library for science and technology and that of main library to the SFIT. This gives rise to sometimes conflicting demands upon its services. On the one hand, the library must provide an adequate lending service for the whole country; on the other, it must respond to the needs and requirements of the teaching staff of the institute, who expect to have immediate access at all times to the books that interest them.

The SFIT has solved this problem by making the main library responsible for both national and internal lending, while the libraries of the individual institutes of the SFIT function as direct access non-

lending libraries, rather like reference libraries.

The concept outlined above has various consequences. As a national scientific and technical library the ETH-Bibliothek is to be counted among the large libraries. Its holdings at present total some 2.5 million documents, with an annual increase of 150,000 to 200,000 units. Such figures have of necessity called for automation. Accordingly, since 1965 appropriate projects have been in progress.

Automation of the lending department was facilitated by the renovation of the SFIT main building. During the whole of the renovation period the library remained open, although the holdings had mostly to be transferred to new stacks. Before the renovation a pneumatic-tube system had served for the transmission of orders from the lending counter to the book stacks. It is true that this system gave good service, but its adaptation to the continually changing book stack locations would have been impossible. It was therefore replaced by a teletypewriter (Siemens-Selex), which is now computer controlled.

Since 1969 users have been able to type their orders directly on the teletypewriters. Our experiences with this system were so satisfactory that user self-service was also extended to an on-line lending system (since 1976). As far as we know this was the first on-line lending system with user self-service in a closed-access library.

In the cataloging department all data for catalog entries have been converted to machine-readable form since 1976. This is a pure batch system. From the stored data monthly cumulative catalogs on COM microfiche are produced. Card catalogs containing entries for 1975 and earlier were filmed, so that now the entire library catalog is available on microfiche. Thus not only space was saved by the elimination of the card catalogs, but it was also possible to decentralize the library's catalogs. There are now copies in the various buildings of the SFIT and also in appropriate official offices and private firms. Today almost all incoming orders received through the mail already bear the relevant call number, thus speeding up the handling process.

In the serials control section an on-line system for recording incoming journal issues has been in operation since 1975. A simple abbreviation of the journal title is typed; the computer displays the journal or journals that are identified by this abbreviation. The system indicates missing issues and volumes ready for binding. Moreover, since 1973 an index of serials held by the ETH-Bibliothek has been published. It is produced in printed book form by means of phototypesetting.

The research and Development Department is a department of the Library. It devotes its time to the planning, design, and realization of EDP systems for the ETH-Bibliothek. All programming is carried out by the library itself, which permits close collaboration between EDP specialists and librarians. This is very important in all phases of project realization. The effective staff of the Research and Development Department is ten persons (twelve persons are employed, some part-time). Two staff members are entirely occupied with current work in progress. The remaining ten devote approximately two-thirds of their time to systems development; this comprises both the modification and development of already operating systems and also the development of new systems. The remaining time is used for supervising currently operating systems and for research projects. The latter concern the development of suitable search strategies for automatic literature searches. The division of work among the individual staff members does not follow the schema organizer/systems analyst/programmer, but is project-oriented. Each staff member is allotted several parts of a project as his or her special sphere of activity. Where larger projects are concerned, permanent working groups are formed that are responsible for dealing with the problems that arise. Thus the R & D department staff members are involved in all stages of the various projects. The head of the R & D department is in charge of the individual projects and is responsible for the coordination among the different project parts. This type of organization minimizes the division between systems design and realization and between realization and practical operation. Thus a speedy adapta-

tion to the needs of the individual departments using EDP systems is possible. The library does not have its own computer but uses the Computer Center of the SFIT. This comprises a triple system Control Data 6400/6500/-Cyber 174 with an extended core storage of 5M Bytes. The installation does not use a standard operating system, but a SCOPE system adapted by the Computer Center and called EMOS (ETH Multi Mainframe-System). This is a batch-oriented system. For the implementation of interactive programs a special system called VENUS is available. Programming of this program has to be in a special language (SCALLOP) which is similar to ALGOL. The library had to develop its own system for index sequential file access, which is entirely written in COMPASS (the equivalent of assembler). The R & D department was therefore obliged to develop programs for functions that would normally have been performed by the operating system.

Moreover special devices had to be developed for connecting the SELEX system and for machine reading of badges (i.e., library user's identification in the form of a punched card). Both these factors, together with the impossibility of our benefitting from others' experience (the department was created in 1965), resulted in a long development period, especially for the lending project. Throughout this period the knowledge and experience gained was accumulated, which today permits a considerably faster project realization. An important factor also contributing to increased efficiency has been that the R & D department has had no changes in personnel since 1973.

Retrospective Conversion Project at Old Dominion University

Terence WALTON: Old Dominion University, Norfolk, Virginia.

A retrospective conversion project using optical character recognition (OCR) as the primary input strategy has been underway at Old Dominion University (ODU) in Norfolk, Virginia, since May 17, 1978. It was 80 percent complete by April 1979. As part of a feasibility study, a 3,000 record random sample was taken of the 286,000 titles in the ODU shelflist (excluding special collections and nonbook materials). The sample was then matched against the 2.1 million MARC records in the Blackwell North America, Inc., resource data base. The hit rate was 80.6 percent. As part of this process it was discovered that more than 80 percent of the shelflist consisted of exact matches, i.e., exact LC cataloging copy, single copy and single locations records. This is attributed to the fact that although ODU was originally part of the College of William and Mary, most of the collection growth has occurred since the 1960s when the institutions separated. Furthermore, ODU undertook a reclassification project that was completed in 1974.

The retrospective conversion project used the OCLC system and records, as well as the vendor's cataloging system and records. Each was utilized when it was deemed most appropriate. OCR scan sheets for retrospective records were matched against the vendor's resource data base. OCLC archive records were merged with the vendor records. Conversion of the nonhits from the vendor were converted under the auspices of the OCLC retrospective conversion project.

Initially the shelflist was divided into four sections: exact LC copy with LC card number; records with LC card number but requiring some change to the call number or addition of copy and/or location information; records requiring bibliographic changes; and OCLC records.

The records of exact LC copy with LC card number were transcribed onto OCR scan sheets using 10-pitch IBM Selectric typewriters and OCR-ANSI "golfball." The input rate during this phase averaged 152 records per typist hour. There was an extremely low margin of error. The scan sheets were shipped twice weekly to the vendor, "read," matched against the resource data base, and "proof" cards returned for verification by the ODU staff. The time between sending the scan sheets and returning the "proof" cards was two weeks. The proof cards were actually main entry cards identical in every respect (except for vendor codes at the bottom of the

card) to OCLC-produced cards.

The verification process was a five-point check against the original shelf-list card. The points checked were: author, title, imprint, LCCN, and call number. If there was a complete match, then the original shelf card was replaced by the proof card. If there was not a complete match and corrections were needed, then the corrections were noted by hand on the proof card which was then returned to the vendor for file updating. When the new updated proof card was returned, the same five-point verification process was performed.

The second group of cards, those with LC card number but requiring changes to the call number or addition of copy and/or location information, were next transcribed onto OCR scan sheets with the change information as fixed field data. The input rate was of course slower, averaging 64 records per typist hour. However, in the seven-month period ending December 1978, a total of 178,000 records were converted in this fashion. These records were merged with 27,000 OCLC records for a total data base of 205,000 unique titles. An additional 20,000 OCLC records not on the archive tapes have also been converted via the OCR method and merged with the data base.

The third group of records, those requiring bibliographic changes, and the vendor nonhits were processed through OCLC during the project. While the records requiring bibliographic changes might have been updated via the OCR method, it was felt that the advantage of on-line edit outweighed the speed of the vendor's method. Additionally the exact hit rate for this particular group of records was not known. During the final phase of the project, 10,000 of these records will be converted via OCR purely for experimental purposes. The results should be available by September 1979.

Vendor nonhits and OCLC nonhits are being relegated to a DODO file (a common name applied to a large, flightless bird, *Raphus cucullatus*, belonging to the order Columbiformes and now extinct). Collection development people are evaluating each of the nonhits for original cataloging. Extrapolating from the percentage of nonhits to date, there will be approximately 8,000 titles in the DODO file, or 3 percent of the total collection. Evaluations thus far indicate that more than one-third of the DODO titles will be withdrawn.

ODU's COM vendor is also its major acquisitions jobber, and it is possible to input MARC cataloging for the majority of current acquisitions directly into the COM data base. The library closed its card catalogs on May 1, 1978, and produced its first COM catalog consisting of 67,000 titles on July 14, 1978. It is now into its second master fiche edition with cumulative monthly supplements. With the April 1979 supplement, the catalog will contain some 235,000 unique records in author-title-subject-classified arrangement, with full subject authority control (including *see* and *see also* references).

At the present pace, with no additional cataloging staff, ODU expects to complete the conversion project by Spring 1980. SOLINET has indicated that it will load the vendor tapes and will be prepared to create both institutional and consortium files.

The Tidewater Consortium (Old Dominion, William and Mary, Eastern Virginia Medical School, and eleven other colleges in addition to the public libraries of Norfolk, Virginia Beach, Portsmouth, and Chesapeake) are involved in a union catalog project, presently limited to current acquisitions (1978–). The Union COMCAT, a spin-off from the ODU data base, is partially funded by a Virginia State Council of Higher Education. It is rather unique in that it represents a meshing of effort by two commercial vendors (Blackwell North America and Brodart), SOLINET/OCLC, and a rather disparate group of libraries (the oldest academic dating to 1693 and the newest public to 1978).

Methods of input include OCLC archive tapes, vendor tapes, and OCR. Duplicate records are collapsed, with local call numbers, holdings, and locations shown for a single record. The Consortium COMCAT will be expanded in 1980 to include union serials records in full MARC format.

On-Line Interactive Serials Management at Marathon Oil Company

Tom W. HARRISON and A. Patricia MILLER: Marathon Oil Company, Littleton, Colorado.

INTRODUCTION

The Research Center Library of Marathon Oil Company is an integral component of the Technical Information Section serving the scientific and technical staff of the company throughout the world from its location in Littleton, Colorado. Many in-house computer-based systems have been developed over the past ten years to enable a relatively small library staff (two professional, two assistants) to provide the best possible information services. One such system was developed for on-line, interactive serials control.

BACKGROUND

The Research Center Library serials collection currently consists of more than 1,100 scientific and technical periodical titles covering the disciplines of petroleum engineering, geology, geophysics, paleontology, mathematics, chemistry, physics, computer science, and engineering. Since the information contained in these periodical publications is very important for the continued progress of the technological effort of the company, the need for an accurate, reliable method to manage serials effectively was recognized as the first priority in automation. Thus, in 1972, a serials automation project was initiated.

At the outset, the goals of the project were modest. A modular approach was used, with the first objective being the conversion of serial records into machine-readable format to enable listings to be generated. These efforts led to a batch check-in system that used expectancy data on cards and printed routing labels, as did PEARL, a system developed by the Rand Corporation Library.[1] This system was very cumbersome and quickly evolved into the present on-line system that has been operated on the center's succession of Burroughs equipment (presently a Burroughs B-6800) since 1975.

The current serials management system consists of modular ALGOL programs involving the following component operations:

1. Daily on-line check-in, including missing issues and lapsed-service control, routing label generation, copyright alert and limited on-line record correction.
2. Monthly listings generation including master list, user list, claims alerting, routing control and subscriptions control, on-demand listings for vendors, Dewey Decimal classification and renewals update.
3. Yearly renewals subsystem including correspondence and check request generation.

DATA FORMAT AND INPUT

As a guide to the data elements that would be necessary or important to the serials system, "MASS- (Marc-Based Automated Serials System)," developed for the Birmingham Libraries Co-operative Mechanisation Project at the Loughborough University of Technology Library in England, was used.[2] Card data were keypunched from specially designed cataloging forms and compiled to tape. Data included in a complete serials record are outlined in table 1.

ON-LINE CHECK-IN

Daily Check-in Procedure

Any periodical with some aspect of relative consistency in its publication schedule will fit into the on-line check-in system. Thus, it is not necessary that there be regular volume or issue numbering, as long as the publication schedule is within reasonable bounds of some specified periodicity. Only three primary periodical publications are handled outside the on-line system due to extremely erratic publication schedules. Other material not included in the on-line check-in system are highly ephemeral newsletter publications.

The records in the indexed sequential on-line master data file consist of a subset of the total data elements for a serial entry (see table 1). Other on-line files include a directory file of CODEN, ISSN and sort

Table 1. Data Elements

*Sort Number
*ISSN
*CODEN
Publication Status
First Year of Publication
End Year of Publication
Country of Publication
Type of Publication
Language of Publication
*Frequency Code
Regularity Code
*Expectancy Code
*Issues per Volume
*Issues per Year
*Number per Issue
*Number of Copies
Receipt Status
Method of Procurement
Retention Code
Holdings Code
Period of Retention
Circulation Code
Library Code
Dewey Classification
*Corporate Bibl. Information
*Title Information
*Subtitle
*Section Designation
Place of Publication
Publisher
*Holdings Data
*Location Data
*Issues Rec'd in Volume
*Issues Rec'd in Year
*Arrival Data
*General Notes
Multiple Language Codes
Cross-References (See)
Cross-References (See Also)
Original Title (Transl.)
Permanent Missing Issues
*Routing Information
*Date Rec'd Last Item
*Date of Item
*Copy Number Rec'd
†Vendor Number
†Vendor Name & Address
†Subscription Codes
†Mailing Addresses
†Subscription Period
†Subscription Cost
†Purchase Order No.
†Previous Subscr. Data
†Future Subscr. Data

*Data elements included in the on-line master data file.
†Data elements used in the renewal module.

number keys for each serial, and monthly sequential missing issues and missing copies files.

The on-line record of a periodical issue to be checked in is accessed either by entering CODEN, ISSN, or sort number. An alphabetical title listing with cross-references provides the sort number if no CODEN or ISSN is readable from the issue to be checked in. After the access number is entered, the program performs a simple binary search of the directory file to find the address of the data record. The program then displays the entry on a Beehive Superbee 2 CRT screen with the following information regarding the expected issue: title, volume and/or issue number, year, date (if checked in by date), brief notes, copy number, sort number, ISSN, CODEN, frequency code, claims information (if any), copyright royalty code and locations. Once the issue in hand has been compared to the information displayed on the CRT, one of the eight numeric keys is depressed to initiate the following actions:

NUMERIC KEY 1: Checks the issue in, i.e., updates expectancy information, and queues routing labels.

NUMERIC KEY 2: Brings additional information about the periodical to the screen, including last issue received, date last issue received, issues received in volume to date, issues received in year to date, issues per volume, issues per year, number per issue and routing list(s).

NUMERIC KEY 3: Places expected issue on the screen into the missing issues file.

NUMERIC KEY 4: Brings to the screen a list of previously recorded missing issues for the title to be checked in and allows selective removal of an entry from the missing issues file.

NUMERIC KEY 5: Allows any information pertinent to check-in functions to be corrected on-line.

NUMERIC KEY 6: Prints a copy of the record appearing on the screen.

NUMERIC KEY 7: Allows the bypassing of any entry on screen without any update action.

NUMERIC KEY 8: Brings to the screen a date entry configuration for check-in by date, which allows the date of publication of the issue to be used for check-in.

If the issue in hand matches the information on the screen, numeric key 1 is depressed. The volume and issue date for the entry is then updated automatically by the program. As issues are being checked in, routing labels are queued and printed three at a time on three-up crack-and-peel labels on an adjacent Teletype Model 40 printer controlled by the program. Missing issues are placed in a file for temporary storage until recalled or purged onto a monthly claims listing. If an issue placed in the missing issues file arrives later, it is removed from the file through numeric key 4. If a claim-for-service alert appears on the screen as an issue is being checked in, a note is attached to the issue instructing that the claims correspondence be purged from the claims file, and the claims alert is removed through the correct mode, numeric key 5. When an issue to be checked in appears on the screen with a copyright notice alert code, the issue is tagged with a gummed label indicating that copyright royalties may be payable to the Copyright Clearance Center when photocopies are made.

At the end of a check-in session, which averages fifteen to twenty minutes, journals are shelved or routed after the printed routing labels are attached. Any problems such as duplicate issues or other discrepancies are investigated.

System Changes and Corrections

Function key 5 allows entry into the correction mode in which certain modifications to a record may be made on-line. On-line corrections and changes are presently possible for routing information, volume number, issue number, year of publication, issues received in volume, issues received in year, issues per volume, issues per year, number per issue, locations, copy numbers, date of issue, and date received. All other system changes, i.e., addition of new entries, deletions, and other data modifications are punched onto cards to serve as input to a batch program that modifies the master serials tape during the monthly update. Plans for the near future are to have all corrections and changes to records accomplished in an on-line, real-time mode.

LIST GENERATION

A monthly update procedure corrects the elements of the master tape with the updated disk file information and the card data changes to create a new master tape. The tape is loaded to pack, creating new on-line master and directory files. Specific purpose lists are then generated from this tape.

Master List and User's List

The master periodicals list is a record of the bibliographical and other data elements of each serial title arranged alphabetically, with cross-references and explanatory notes. The master list serves as the staff's guide to the periodical collection and as a convenient place to record changes, deletions, or corrections to periodical entries for the next month's update. A reformatted subset of the master list data in hardcopy or COM fiche versions serves as the library user's guide to the titles in the collection. These are placed throughout the library and are distributed to other Marathon offices.

Missing Issues Control

Each entry of the missing issues file is printed on a label at the end of the month. Although it would be relatively easy to generate claims letters automatically, it is preferable to first review each claim as to its validity and worth. Some issues will not be claimed at all; others may be recognized from past experience to arrive out of sequence and will not be claimed immediately. An average of five to ten of a possible fifteen to twenty missing issues are claimed each month. The claims labels and letters are filed to await arrival of the issues claimed. If a missing issue request is not filled in spite of repeated claims, or if notification is received that the issue is no longer available, the missing issue is placed as a permanent note

into the system to appear on the master and user listings for reference.

Subscription Service Interruptions

Another claims function monitored by the system is the service interruption. Associated with each periodical title in the system is a frequency code, a time interval figure based on the periodicity of publication. When the assigned interval for a title has elapsed without receipt of an expected issue, the title is printed on an "overdue" listing during the monthly update. This listing includes pertinent data about the last issue received in relation to what should have been received by a particular date. The listing of overdue titles is then investigated and claims for service are made where necessary. An alert code for this type of claim is entered into the on-line file and removed only after a succeeding issue has been received.

Routing lists

Approximately 20 percent of the journal titles are routed within the research center. Single or multiple routing lists can be deleted from or added to in the on-line correction mode. Two routing control lists are sorted by journal title and routee respectively.

Other Lists

Other listings produced include a Dewey Decimal classification arrangement of the journal titles and a master card listing sorted by record number. The master card listing is essential for keeping track of cross-references and other bibliographic elements that are not displayed in the on-line data base.

RENEWALS CONTROL

Annual subscription renewals of periodicals, excluding those which are free, on standing order, and received through membership or by contract agreement are handled in a series of batch processing runs in the fall of each year. To keep track of those few subscriptions that are not renewed on a calendar-year basis, a list of titles up for renewal during the next ninety-day interval is produced during the monthly update.

Data elements used in the renewals module are so marked in table 1. Subscriptions information is monitored through a renewals master list which is printed on demand. New subscription information and corrections are input during the monthly update.

Computer-generated inquiry letters are sent to publishers preceeding the renewals run to verify subscription prices for each title. Titles are renewed for multiple-year subscription periods whenever possible and practical. Check requests are generated for all titles up for renewal, including foreign currency subscriptions, and are sent to the accounting office for issuance of checks. Upon receipt of the checks, renewal letters are generated, and, concurrently, renewals information is automatically updated on the master tape. The letters along with the subscription checks are mailed to the publishers.

Another product of the subscriptions renewal module is a vendor listing with those titles purchased from each vendor subarranged alphabetically under each vendor name and address. The computer-generated letters can be modified for notification to publishers of special information such as a zip code change, or, to make publisher policy inquiries.

CONCLUSION

The serials management system has functioned well and fulfilled its purposes. Through systems and equipment changes its intended functions have been expanded and improved. File design and manipulation is not bound to any commercial data base management or inquiry system.[3] The monthly system maintenance procedure can be completed without interruption of the daily on-line check-in procedure. Single-key manipulation saves time over more complicated on-line automated batch or manual systems.[4] The greatest advantage is not the time saved, but the absolute control afforded to the management of routine problems encountered in handling a large number of serial issues on a daily basis.

ACKNOWLEDGMENT

The authors wish to acknowledge the con-

tributions of Betty J. Fujikawa, a former Technical Information Section employee, who was responsible for the developmental programming of the serials management system.

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Development of a Title Searching Capability at the Defense Documentation Center

Carlynn J. THOMPSON: The Defense Documentation Center, Alexandria, Virginia.

INTRODUCTION

The Defense Documentation Center (DDC) is the Defense Department's clearinghouse for information in research and development. Defense and associated contractor researchers are required to deposit classified and unclassified information into various data banks provided by DDC for subsequent withdrawal by eligible users. Research and development (R&D) activities within the United States government and its associated contractors are eligible to access most of the information from the DDC data banks.

There are actually four computerized data banks in DDC, of which three are oriented to information about current or planned R&D programs. This paper is mainly concerned with the Technical Report Data Base, which consists of bibliographic citations to a formally documented collection of completed research reports.[1]

BACKGROUND

DDC has not attempted to provide online access to its data bases via title. Nevertheless, it has been recognized by DDC that title searching would have many beneficial effects within DDC as well as in our user community. It has been our experience for technical reports that one of the most common cataloging elements is the title, and experience by other libraries has indicated that staff could locate entries in files more readily by title than by author and title.[2] It was within this framework that a project to develop title searching within DDC was conducted.

KEY CONSTRUCTION

Other experiments in title searching conducted at the Ohio College Library Center [3,4] led us to believe that a title search key would be applicable to our system. DDC's technical report collection contains close to a million documents. The size of the collection made the uniqueness of the search keys imperative. To test the feasibility of the search key a computer program was written to create search keys from unclassified titles. For each title, a key was extracted consisting of the first character of the first word, the first four characters of the second word, the first three characters of the third word, the first two characters of the fourth and fifth words, providing a 1,4,3,2,2 key. If there were fewer than five words or a given word was too short, the key was asterisk-filled. Only alphabetic and numeric characters were used in key derivation and all special characters were treated as a blank space. Unlike other systems a stop word list was not employed to eliminate insignificant words. It was felt the simpler the key construction, the easier it would be for our user population. For example, the title "Technology and Armament, Number 12" would yield the key "TAND*ARMNU12."

WHY 1,4,3,2,2?

Because DDC is dealing with a very large data base and specificity is a primary objective, it was felt that a title search key

longer than the six-character key as used by Long and Kilgour[5] was necessary. Preliminary testing with an eight-character key (1,3,2,1,1) worked fairly well. Further tests showed that a twelve-character key supplied greater specificity, which would be more efficient for the DDC system. No effort has been made to optimize the key beyond this for this test.

UNIQUENESS TESTS

For a complete "high-statistics" sample, 251,939 titles were used, representing all technical reports entered into the DDC system between 1970 and mid-1978. A total of 190,032 distinct keys were created from the test sample, of which 165,758, or about 65 percent, were unique to a single title. The keys were sorted and duplicate keys were counted. A frequency distribution of keys appears in figure 1. It is clear from the figure that the title key is useful in distinguishing documents from one another in the vast majority of cases. The reason for the 8.2 percent of the titles that have ten or more duplicate keys is the existence of a number of massive series

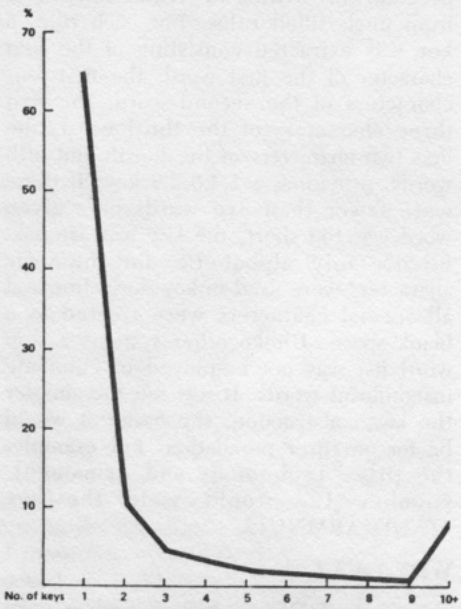

Fig. 1. Title Key Occurrence (Eight-Year Sample).

with essentially identical titles. Therefore, no system can be expected to obtain unique retrieval by title alone. As an example, consider the phrase "Flight Test and Evaluation of the . . . ." These six words have the same title key as dozens of documents in this group of test and evaluation reports and would pull dozens of documents when entered into the system. Other common title phrases are: Final Report for the . . . ; Quarterly Report of the . . . ; Summary of the . . . .

APPLICATION TO RETRIEVAL

At this point the most important question is, Will the title key work in retrieval? To test the retrieval ability of the search keys, sixty-three documents were matched against the test sample, with strict adherence to the title key construction rules. It is important to note that this particular group of documents was not a representative sample of the DDC collection because it contained a very high ratio of German documents. This unusual sample made it possible to locate key failures more quickly than would a random sample. Within this group of documents there were fifteen identification failures, eleven of which were German titles.

The identification failures fell into two categories. The first was a programming problem. There was a sixty-character limitation on the title field, assuming that the first five words of the title could be seen within this limitation. There were four cases in the sample for which this was not true. The solution to this problem is straightforward: increase the character limitation. The second failure concerned cataloging alterations of the title. The DDC catalogers follow the *Guidelines for Descriptive Cataloging of Reports*.[6] These guidelines require alteration of the title in very specific instances. In most cases, the alterations are fairly obvious. For example, in "Technology and Armament, No. 12, 1976," the abbreviation "No." will be spelled out "Number." In these instances, a searcher can probably recognize the alternate possibility and adjust the title search key. The *Guidelines for Descriptive Cataloging of Reports*, however, is a seventy-two-page document, and some of

the rules are complex. For example, a title containing a descriptive note will be altered to remove it. In such cases, the searcher is not assured of recognizing that the failure of the title search key is the result of cataloging rules. There is no clear solution to this problem. Efforts should be made to encourage the already high consistency of the catalogers and to make searchers aware of possible variations in a title.

With these problems in mind, a second test, involving a random sample of 200 documents, was conducted. The title key was constructed and matched against the test sample. If no match was found, a second try was made on those documents where alterations in the cataloging might be expected. There were no failures. These retrieval tests indicate that the title search key is a satisfactory way to search titles in the DDC system.

FUTURE DEVELOPMENTS

The success of these tests indicates that DDC can proceed to implement title searching on-line. Short-range goals are: (1) implement on-line title searching in the Technical Report data base with the searcher manually constructing the search key and (2) expand title searching capability to the other DDC data bases. Long-range goals are: (1) allow the searcher to enter a full title with the computer system constructing the search key and (2) at the same time incorporate a stop word list to improve specificity.

CONCLUSION

This study has shown the feasibility of using title keys for searches of a large technical report data base. The results indicate that the title keys are efficient in locating specific titles. This method of title searching should be a valuable addition to the DDC on-line system and may have applicability to similar systems. However, no data have been set for implementation within DDC.

ACKNOWLEDGMENTS

The author is grateful to Charles D. Edmondson for programming support and to the Selection and Preliminary Cataloging Section in DDC.

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News and Announcements

PUBLICATIONS

New Indexes to *Cataloging Service Bulletin*

The Index to the Library of Congress Cataloging Service Bulletin is now available in a final edition indexing bulletins 1–125, June 1945–Spring 1978. This ninety-page index, with 2,300 entries, includes a new section: an extensive table of contents for each bulletin. The index provides access to all changes to, and interpretations of, the *Anglo-American Cataloging Rules* as announced in *Cataloging Service*. This index is available for $7.50, postpaid.

Standing orders may also be placed for an annual cummulative index to the *LC Cataloging Service Bulletin*, which began with no.1, Summer 1978. The index will be the same size as *Cataloging Service Bulletin*, three-hole punched, and printed on yellow paper, at $5, postpaid. Both items may be ordered from Nancy B. Olson, Box 863, Lake Crystal, MN 56055.

Library Computer Equipment Review

The increasing development and use of on-line bibliographic searching, machine-readable catalogs, and computerized circulation systems have led to a correspondingly growing need for advice in the selection of computer-related equipment for library applications. At the present time, no equipment selection aids are addressing the special requirements of libraries; yet the purchase of automated equipment represents a significant capital expense that is now being undertaken by libraries of all sizes, both large and small. *Library Computer Equipment Review* will fill this void.

Library Computer Equipment Review is published in a loose-leaf format with a volume-year binder. The Review evaluates computer equipment for library applications, emphasizing peripheral equipment for such applications. Each issue has a unifying theme and begins with a state-of-the-art report designed to analyze and explain the history, purpose, and distinguishing characteristics of the products reviewed in that issue. Technical evaluation features will be clearly explained in non-technical terms. The state-of-the-art report will be followed by six to eight reviews of devices pertaining to the theme of the issue. Devices selected for review will be chosen for their significance and timeliness for library applications. Reviews will be thoroughly illustrated. Themes for the first several issues are: printing terminals; display terminals; intelligent terminals; and data entry equipment. As appropriate, each issue will also contain news items and product announcements.

Library Computer Equipment Review will be published twice yearly. The subscription price varies according to a library's combined book and periodical budget. For additional information contact: Alan M. Meckler, Microform Review, 520 Riverside Ave., Westport, CT 06880. (203) 226-6967.

Private Line Rate Comparison Directory

A rate digest designed to make it easy for telecommunication network planners to look up and compare rates for the interstate private line services of the major common carriers, the specialized common carriers, and the value-added network carriers, has been introduced by the Center for Communications Management, Inc. This new rate guide, *Interstate Services Rate Digest*, has separate sections for each major common carrier and specialized common carrier, presenting all the rate information for each carrier's "full period" and "measured use" interstate services complete with quick-rate tables and charts.

The Rate Tables allow immediate look up of the end-to-end interstate private line

rates for each specialized common carrier's network city pairs (including precalculated mileage between city pairs). The Quick Rate Charts provide easy pricing of all the interstate private line rates for AT&T and Western Union.

A one-year subscription is available for $180 from CCMI, P.O. Box 324, Ramsey, NJ 07446, and includes the 120-plus page digest, a loose-leaf binder, the Sharp electronic calculator and monthly updates.

For additional information contact: Minor S. Huffman, Jr., Editor, (201) 825-3311.

Card Catalog of the New York Public Library to be Published

A massive publishing program that will photographically reproduce the New York Public Library's nine-million-card public catalog is being undertaken by the New York Public Library and G. K. Hall & Co., the Boston publisher of library reference works. In book form the printed catalog will consist of some 800 ten-by-fourteen-inch volumes. A microfilm edition is also planned.

The publication is entitled *Dictionary Catalog of the Research Libraries of the New York Public Library, 1911–1971.* In 1971 the catalog was "frozen," and all books added to the library since that time have been listed in a computer-produced catalog that is continuously updated.

The catalog, regarded by many scholars as one of the most important bibliographic resources in the Western Hemisphere, is being prepared for publication to ensure preservation of the library's deteriorating card catalog, as well as to make the library's vast holdings more widely available.

A special team has been at work on the project since 1977 in a corner of the main reading room, under the direction of James W. Henderson, former Andrew W. Mellon director of the Research Libraries. The team examined each card, supplied missing data, and prepared cards for filming.

The published catalog will differ from the catalogs of the British Library, the Bibliotheque Nationale, and the *National Union Catalog* in that it is in dictionary catalog format, making access possible by subject as well as by author and title. There are also thousands of analytical entries for periodical articles and parts of books.

With publication of this catalog, holdings of the library's three largest divisions will appear in printed book catalog form for the first time. These are General Research and Humanities, Economics and Public Affairs, and Science and Technology. Among the other collections also represented are: American History, Local History and Genealogy, Art and Architecture, Rare Book Collection, Spencer Collection of Illustrated Books, and book material for Music, Theatre, and Dance. The total number of volumes represented in the printed book catalog is approximately 5 million.

Publication will begin in mid-1979 and continue for four to five years. Since preparation costs are being funded largely by government and foundation grants, the library will receive no royalty on copies sold, and G. K. Hall & Co. will produce the catalog on a service basis. Orders for the retrospective *Dictionary Catalog of the Research Libraries of the New York Public Library, 1911–1971* should be sent directly to G. K. Hall & Co., 70 Lincoln St., Boston, MA 02111. The 800-volume set is available to U.S. libraries for $24,000; inquiries regarding installment payments, international prices, and microfilm prices should be directed to G. K. Hall & Co. Subscriptions to the current computer-produced catalog are available from the New York Public Library.

NMA Releases New Edition of *Guide to Micrographic Equipment*

The seventh edition of the *Guide to Micrographic Equipment* is now available from the National Micrographics Assn. (NMA).

Edited by Daniel M. Costigan, Bell Telephone Laboratories, and chair of NMA's Publications Committee, the new *Guide*, a listing of micrographic equipment and products providing product names, specifications, and prices, features several changes.

First, the *Guide* has been reduced to

two volumes—volume 1, Production Equipment, and volume 2, User Equipment—incorporating the traditional third volume, COM Recorders, into volume 1.

Volume 1 now lists equipment in the following categories: cameras and camera processors, computer output microfilmers, film processors, duplicators, enlarger-printers, special equipment and accessories, and miscellaneous equipment.

Volume 2, User Equipment, includes readers, reader-printers, hand viewers, automatic retrieval systems, special equipment, accessories and miscellaneous equipment and storage equipment.

In each section, equipment is listed alphabetically by manufacturer or distributor and then alphabetically by product name.

The complete *Guide* has been redesigned into a more modern and easy-to-use format, retaining, however, the handy thumb index to each section. At the beginning of each equipment category is a section contents page listing manufacturers/distributors by name and page number and products by name and page number.

Both volumes include an index to manufacturers and distributors listed in the entire *Guide*, with their addresses, telephone numbers, and the volume and page numbers on which their products appear; an index to produce names, listing the volume and page numbers; and, in volume 1, an index to production equipment and, in volume 2, an index to user equipment.

The cost of the complete *Guide to Micrographic Equipment* is $30 for members and $40 for nonmembers. (The *Guide* is only sold as a set; neither volume will be sold separately.) It is packaged in a convenient storage box that holds both volumes.

To order, send a check, money order, or purchase order to NMA Publications Sales, 8719 Colesville Rd., Silver Spring, MD 20910 (301) 587-8202.

Iowa State University Library's 1979 *Serials Catalog*

The 1979 edition of the Iowa State University Library's computer-produced *Serials Catalog* is now available. The two-volume catalog contains the bibliographic information, location, and holdings for each serial title owned by the ISU Library.

The catalog consists of two bound volumes. Volume 1 lists the 33,000 serials held at ISU by title and provides bibliographic information, call number, locations, and holdings. Volume 2 contains two automatically generated indexes. The Corporate Body Index lists all titles and call numbers under their corporate body main and added entries. The Subject Heading Index lists all titles and call numbers under the appropriate LC subject headings.

The new 1979 *Serials Catalog* set of two bound volumes costs $75, including postage and handling. Used copies of the 1978 edition accompanied by paperback supplements bringing them current with the 1979 catalog are available for $25, including postage and handling. The 1979 supplement alone is available for $15, including postage and handling. The 1979 supplement contains any new or changed cataloging between the 1978 and 1979 editions.

Contact Helen H. Spaulding, Head, Serials Cataloging, University Library, Iowa State University, Ames, IA 50011 to purchase a copy or place a standing order for future editions.

NEW SYSTEMS AND SERVICES

On-Line Interface Between OCLC Terminals and CLSI Circulation System Developed

Innovative Interfaces, Inc., has developed INTERFACE 200 that directly connects OCLC model 100 terminals with the CLSI LIBS 100 circulation system. INTERFACE 200 allows an operator at the OCLC terminal to transfer at high speed all the data on the screen of the OCLC terminal directly and instantaneously into the LIBS 100 by pressing one button on the OCLC terminal.

INTERFACE 200 automatically extracts from the OCLC record all data needed by the LIBS 100 circulation system—including the zebra number (if entered in the 049 field)—and reformats it according to the requirements of the LIBS 100.

With INTERFACE 200 books may be circulated via the LIBS 100 circulation system within seconds after they are cataloged on the OCLC terminal. That is, INTERFACE 200 allows the library to combine the cataloging and circulation file-building operations into one straightforward task accomplished at the same time at the OCLC terminal. This simple one-step operation completely eliminates the separate and time-consuming process of keying information about newly cataloged items into the LIBS 100 circulation system.

More information about the INTERFACE 200 may be obtained from Stephen Silberstein at Innovative Interfaces Inc., 2827 Palm Court, Berkeley, CA 94705, telephone: (415) 848-2347.

Telenet to Introduce Off-Peak Rates

Telenet Communications Corporation plans to offer an off-peak rate for high-volume nighttime and weekend use of its nationwide data communications network. A tariff for the new service, called Nightline, was filed with the Federal Communications Commission on April 3.

Nightline is expected to stimulate the growth of new, low-cost computer services aimed at the home and student market. Potential users include college and university computing centers and computer service bureaus whose off-peak use exceeds several thousand hours a month.

By subscribing to Nightline, organizations will be able to provide communications access to their computer centers from 180 cities in the United States for 75 cents an hour. This charge includes network connection time plus up to two kilopackets of traffic per hour. There is a minimum charge of $7,500 per month for each subscriber organization.

The off-peak rate applies between 6 p.m. and 7 a.m. local time on weekdays, all day Saturday and Sunday, and on the following holidays: New Year's Day, July 4, Labor Day, Thanksgiving, and Christmas.

CLSI Terminals Gain Access to Dialog

CLSI's 280 customers now can use their CLSI terminals to access Dialog, Lockheed's on-line information service that permits interactive searching of more than seventy-five data bases. Dialog offers a comprehensive collection of on-line data bases for searching using subject identifiers or key words from files and abstracts. CLSI customers who wish to use their CLSI terminals for Dialog searching do not have to invest additional funds in computer equipment to offer Dialog services to their users.

New Data Management System from Warner-Eddison

INMAGIC™ is a data management system developed for and used by Warner-Eddison Associated, Inc. (WEA), information management and library development firm of Cambridge, Massachusetts. The INMAGIC™ system is now available for in-house use by Warner-Eddison customers and clients.

INMAGIC™ has several library specific applications. INMAGIC™ captures library-related bibliographic records, such as those commonly used to describe a book, a report, or other document: author(s), title, publisher, data, classification and location numbers, subject descriptors, tracings, ordering information, etc. An in-house data base can be created and library holdings can be searched on-line, by author, title, subject, etc. Searches can be carried out on multiple criteria, using "and," "not," and "or." Library cards and book catalogs can be printed and tapes for conversion to COM can be prepared. (Book and COM catalogs require a small amount of additional programming to accommodate cross-references.) Ancillary print products can include: labels for book spines, cards and pockets; accession lists; subject bibliographies; and ordering information printouts for billing purposes.

The system offers many user defined fields. There is no limit to field length. For instance, in the Warner-Eddison library records programs, Field 01 has been defined for use for a book's classification/location number/code; Field 03 is for the author's name; Field 05 is for the title. Each field has an unlimited number of subfields. WEA's programs have designeated Field 20 for subject descriptors; as

many subject headings/descriptors as desired may be assigned to a document being cataloged. INMAGIC™ users have available a variety of sort mechanisms. Within fields, information can be sorted in numerical order, in alphabetical order, and in an alphabetic order that removes leading articles (such as "a" and "the").

Purchasers of the system will receive INMAGIC™ on master disks, in object code. While considering purchase of INMAGIC™, potential customers may wish to buy the User's Manual, documentation detailing design and use of the system. INMAGIC™ can be used with any of the Digital Equipment Corporation's PDP-11 family of computers (such as the PDP-11/34) under the RT-11 operating system. A list of hardware and operating system appropriate for INMAGIC™ without adaption or conversion will be available. INMAGIC™ has been written in FORTAN IV.

Warner-Eddison is offering to license use of INMAGIC™ for a one-time payment of $5,500. There will be a one-year warranty. Inquiries are welcome. Warner-Eddison computer staff may be made available for consultation. Write to Alice Sizer Warner, Warner-Eddison Associates, Inc., 186 Alewife Brook Parkway, Cambridge, MA 02138 or call (617) 661-8124.

MEETINGS AND CONFERENCES

LITA Institutes to Come . . .

Automated Acquisitions Systems

On May 19–20, 1980, in Vancouver, B.C., LITA will sponsor "Automated Acquisitions System—Or Does Your Library Acquire Materials Bit by Bit?"—the second institute on this topic. It will be held at the Hotel Vancouver. During the two-day program attention will be focused on the various options available for automation of the acquisition function with presentations on local systems, the vendor offerings, the network's role, on-line ordering, interrelations of library processes, financial control, and vendor performance.

One of the highlights of the institute will be the exhibits and demonstrations of commercial systems now available on the market. Those systems will include the on-line book jobber systems now operational.

Registration fees are $75 for LITA personal members, $90 for ALA (but non–LITA) personal members, and $100 for non–ALA members.

For a copy of the registration brochure, contact the LITA Headquarters Office, 50 E. Huron St., Chicago, IL 60611; telephone: (312) 944-6780 ext. 302.

Technology and the Media Librarian

Don't forget the LITA/AVS preconference planned for June 26–28, 1980, in New York—"Changing Technology and the Media Librarian of the 80's," Registration will begin at 6 p.m. on Thursday, June 26 (the hotel has not yet been determined). The advance registration brochure will be available on April 1 and will be distributed to all LITA members. The program will include papers on A-V and video as a medium of expression and message transmission, state of the art of video technology, videocassette, and videodisc, computer applications for film and video, film booking systems, and other sessions on the changing technology of A-V and video. For more information contact LITA at the above address.

Automated Serials System

Advanced information has it that LITA will sponsor an institute in Milwaukee on September 4 and 5, 1980 (Pfister Hotel) on the subject of automated serials systems. State of the art will be a BIG topic, but also check-in and its unending problems, CONSER, network aspects, and certainly NPC and other cooperative ventures. More information will be available in April or May. Hold the dates for a BIG ONE!!

Report on ASIS Annual Meeting (October 14–18, 1979)

The governance of bibliographic networks was a main topic at the forty-second annual ASIS meeting held in Minneapolis. Those presenting papers generally agreed that formal governance was necessary but disagreed on the agency, method, and cost of

obtaining control. If the federal government assumes control, NCLIS may be the logical agency because it presently has no vested interest. Among the many problems and issues raised were the need for standards; the recognition that the imposition of standards may be too expensive for the smaller libraries; the structure of the operational network; the choices available to any individual library; and funding. Regarding the latter, there was consensus that federal and foundation money would be required for an extended period during development. Presenters also agreed that the technology was already available to provide nationwide networking service.

Another topic of discussion centered on problems with transborder data flow, particularly the economics and impact of Euronet. The high tariffs imposed by that agency were seen as blocks to the flow of information. Delegates expressed concern that similar developments could occur in the United States unless a national policy is forthcoming. Economic and political problems must be resolved.

Several sessions focused on new technology. Highlights included the following:

- Demonstration of the Magnavox Videodisc system that uses a low intensity laser beam to read encoded data (see feature article elsewhere in this newsletter).
- Interactive cable TV systems such as Qube in Columbus, Ohio, Viewdata in England, and Vidon and Telidon in Canada were discussed. Thus far Telidon appears to offer higher quality graphics and greater flexibility in the method of transmission than the others.
- Murray Turoff of the New Jersey Institute of Technology conducted a session on computer conferencing. The project, which is funded primarily through an NSF grant, is gradually attracting corporate customers who pay for the service. He expects it eventually to become self-supporting. Turoff noted that users can add reactions and critical commentary to documents that then become part of the data base. The service is being heavily used by planners of the White House Conference on Library and Information Services who are geographically scattered.
- John Myrna of Scientific Time Sharing Corporation described problems with software development. He pointed out that costs are nearly always underestimated, that one-half to two-thirds of development costs occur *after* implementation. He stressed that packages should be evaluated on the ease with which they can be customized and the level of integration into existing operations.

Another major area of concentration focused on human engineering in systems design. Presenters stressed the need to improve terminal design and screen formats to assist in their use by nontechnical people. Ken Knowlton, Bell Labs at Murray Hill, demonstrated a push-button terminal that projects the character set on the keyboard via a mirror. Different character sets are projected to correlate with language differences. The device is currently being tested by a group of Bell telephone operators. Other sessions stressed the need to install training manuals and processing aids within the system, accessible on-line. Also, interfaces must be developed to link systems together in a manner that is transparent to users.—*Nolan Pope, University of Florida, Gainsville.*

Book Reviews

User Requirements for an Automated Library Circulation System by A. J. Rosser. Perth: Library, WAIT, 1978.

This report is an example of making the best use of what is available—a situation sadly familiar to many consultants (the writer included) called in after the constraints are set and the equipment is bought. In this case, the Western Australian Institute of Technology had not only bought a DEC 10, but had also decided to adopt the ALS (Automated Library Systems) circulation system. ALS was developed in England and has had some acceptance there and also at least in Canada and Australia. It is based on the principle of passing books across a reading station using magnetic strips rather than the bar code labels of most other systems—"bar codes are *supermarket* systems," said one ALS-using librarian to the present reviewer in tones of enormous contempt. Both the DEC 10 and ALS are powerful systems in their own worlds; WAIT wanted to know how best to use the two for its own circulation system. Within these constraints the consultant could do little but describe what a library circulation system does and needs in the way of records. Many such user requirements analyses have been written, somewhat incestuously, but few have been published. This is a fairly good, if typical example, and may accelerate the process of that kind of incest in the future; it may even improve the content and style of the progeny. But we really do know about circulation systems by now; when shall we see the first reasonably designed and proved serials control system?

David Batty
University of Maryland
College Park

BOOKS RECEIVED

The Encyclopaedia of Educational Media Communications and Technology, edited by Derick Unwin and Ray McAleese. Westport, Conn.: Greenwood Pr., 1979. 800p. $59.95. LC: 78-26988. ISBN: 0-313-20921-9.

Library Statistics of Colleges and Universities, 1976 Institutional Data, by Richard M. Beazley. Washington, D.C.: National Center for Education Statistics, 1979. 183p.

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