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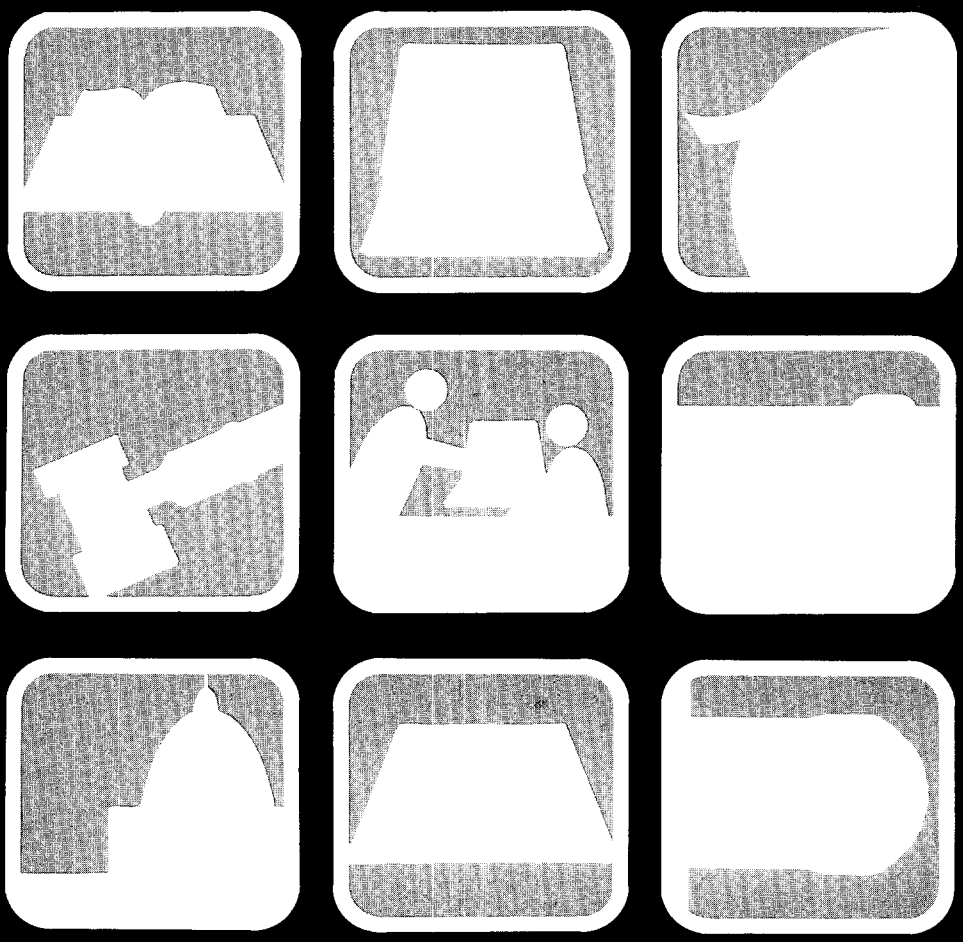

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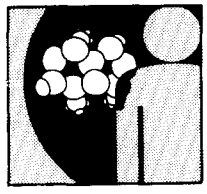

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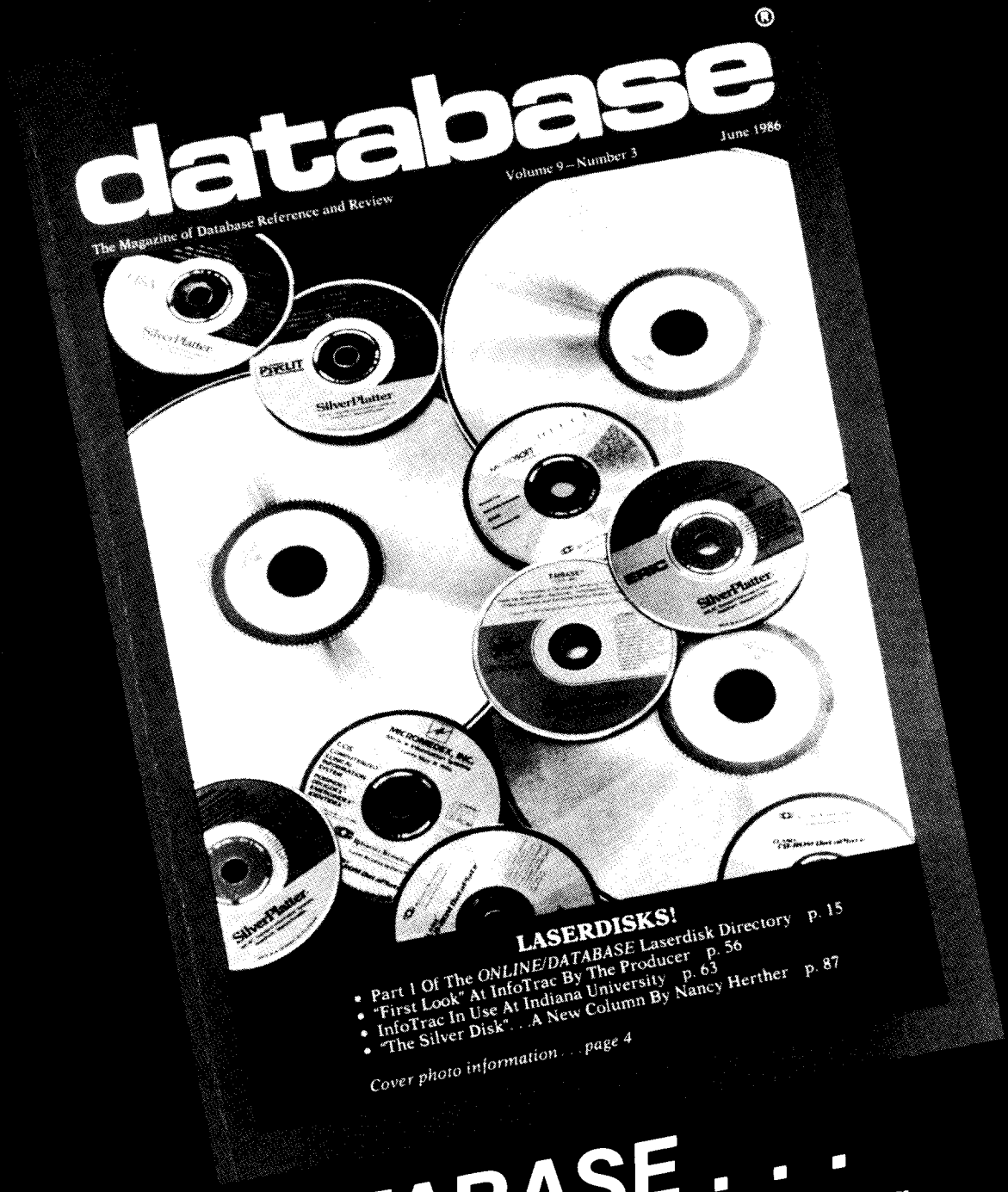

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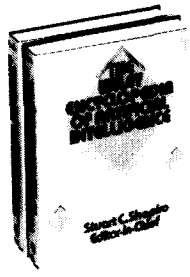

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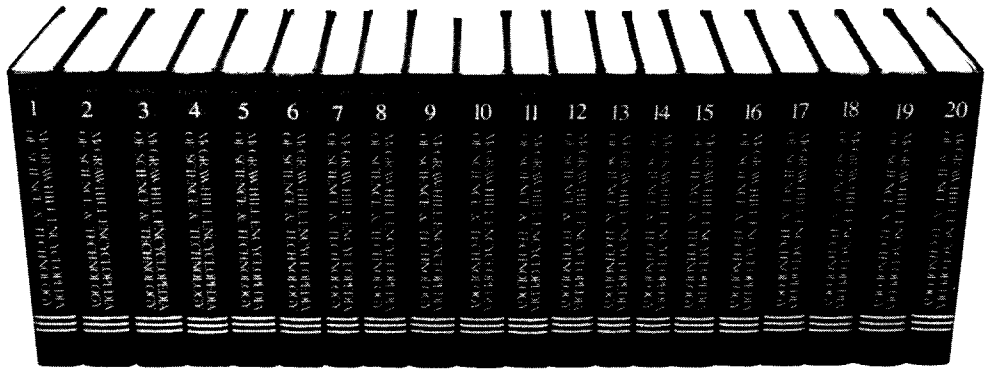

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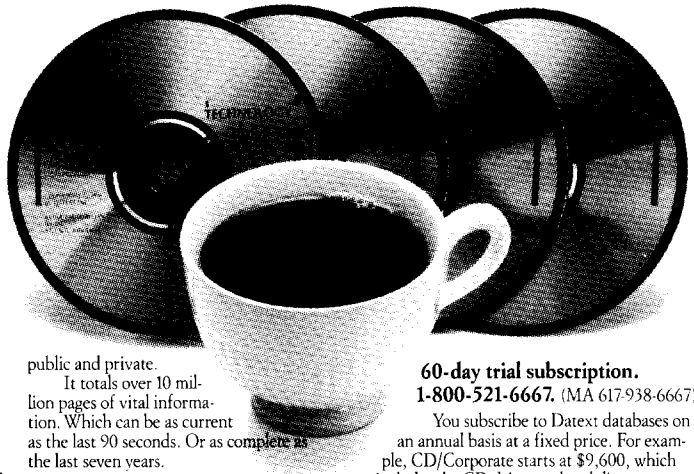

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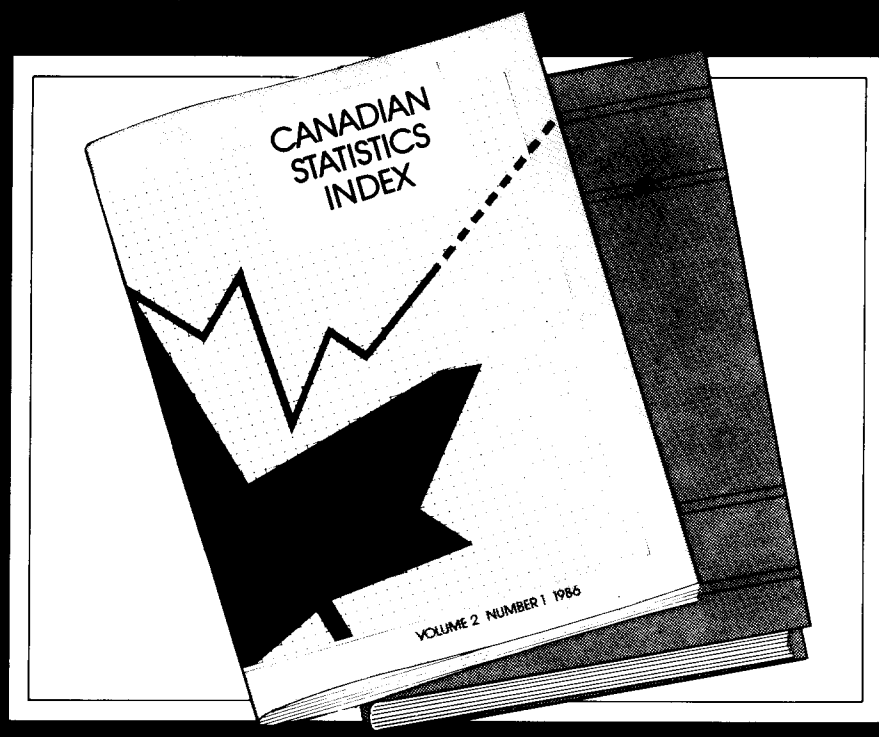

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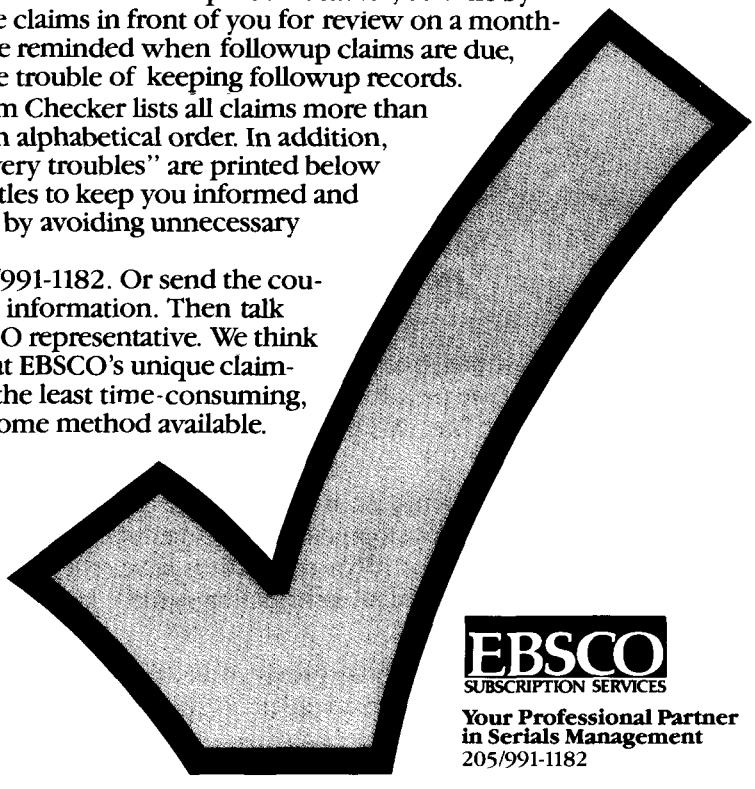

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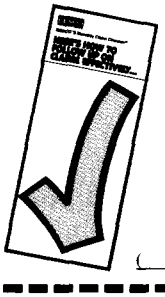

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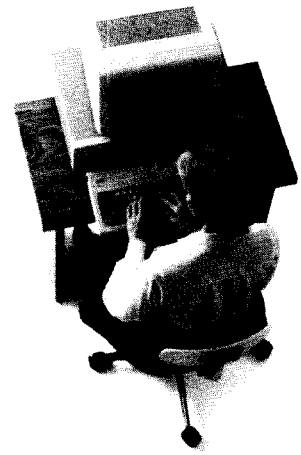

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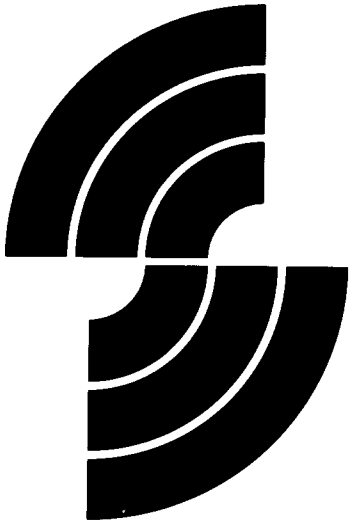

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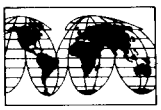

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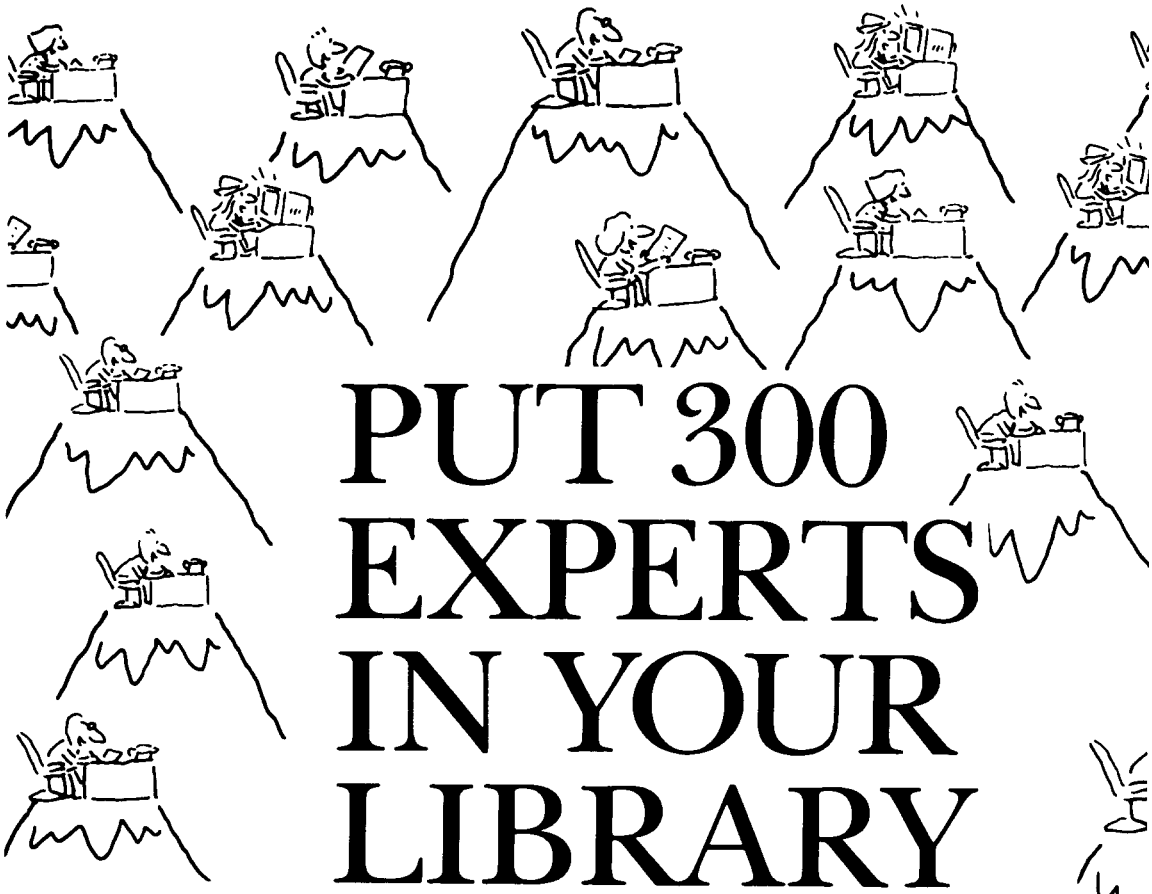

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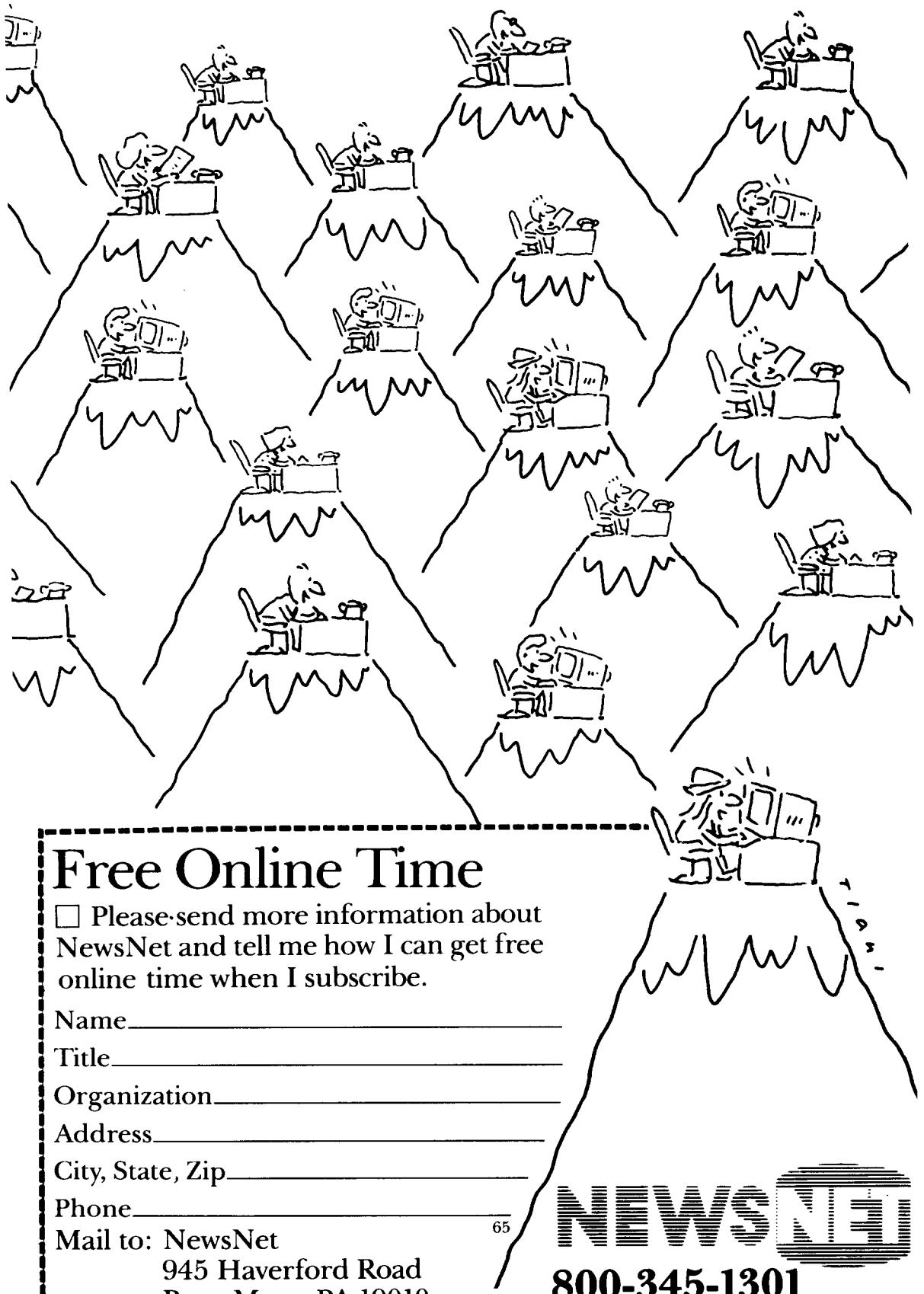

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Technology to Provide Excellence in Information Services

Hilary D. Burton

■ **Computer technology has tremendous potential to increase the quality and usefulness of information services. However, although tremendous progress has been made in the development and use of online retrieval services, integrated online library support software, and communication/networking standards, substantial improvements are necessary to reap their full potential. Progress in these and other areas will enable both the information specialist and novice end-user to utilize a wealth of resources unavailable in a noncomputer-based environment. New systems incorporating such resources will produce an information environment that is dynamic and open-ended. This paper reviews the progress, to date, in technology to create and support such an environment, and describes an optimized system of information services.**

COMPUTER TECHNOLOGY is not yet applied sufficiently nor has it developed fully enough to provide the excellence in information services for which it has potential. However, its potential is demonstrated by the fact that in less than three decades, we have seen online retrieval services develop from novel demonstration subjects to commonplace reference aids. We have witnessed the transformation of one of the earliest information utilities from the Ohio College Library Center to the On Line Computer Library Center (OCLC), used by more than 5,000 U.S. libraries and information centers and more than 50 international users. We have watched as library support software has evolved from single function applications to true integrated online library systems capable of supporting the full range of in-house management needs.

As Richard De Gennaro said in 1981, "We are no longer merely automating our traditional library operations: we are multiplying our capabilities and raising the level of expectations of library staff and users alike." (*1*) However, just as those expectations begin to rise, they meet reality. And this reality is not only generated by technology in many cases; it is also constrained by technology. For example, we find more than 2600 online databases, yet no common policy or standards on coverage or format. There are hundreds of retrieval languages, each with its own strengths and particular band of champions. We have dozens of

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front-end packages and interface systems—each promising better access to the right set of databases. We hear claims for integrated online library systems, which turn out to be only discrete functions casually linked together, requiring substantial ingenuity and tolerance on the part of the would-be librarian user. We have created immense centralized computer-based holdings files with little or no quality control in actual practice. And, finally, we are frustrated by differing hardware requirements to access and use each of these systems or services.

These factors have forced the economic issues of information service to a much more visible position than existed heretofore. "Information is becoming an increasingly valuable and expensive resource. Our society will have to get accustomed to paying much higher prices for it in the future, as it has with energy in the last decade. Cheap information and cheap research libraries are going the way of cheap energy." (*2*) However, as we have learned to be wiser and more efficient in our energy use and production, which has resulted in a slowing down and sometimes an actual decrease in energy costs, so we can exercise wiser use of technology to be more efficient in our information management and consumption and effect lower costs.

Since computer technology is not utilized by the library community in any even or distributed pattern, it is impossible to discuss technology as though we had a comprehensive network. Compounding this unevenness of technological application is the unfulfilled potential of the field. We've barely scratched the surface of what can be done, and what we are doing can likely be done much more effectively and efficiently. This is partially due to the fact that computer-based information technology is a young field—less than 30 years old. But it is also due to the fact that the information field is strongly heterogeneous. There are few standard groups or coordinating bodies; the participants come from all sectors: industry, academe, government, and "other." Consensus develops slowly, for the most part. Madeline Henderson's remark in 1966 in *Cooperation, Convertibility, and Compatibility* (*3*) are as true today as they were then. There is a lot of discussion of the need for cooperation and resource sharing, but there are few substantive accomplishments.

However, the economic pressures for resource sharing have been very real—hence the growth of the information utilities. The need to interface physically different hardware has brought impressive cooperation in activities, such as the Linked Systems Project, which attempts to link previously incompatible hardware and software systems. We do not exist in an environment where a given body can impose standards by proclamation, but we do see movement towards cooperation, convertibility, and compatibility on a voluntary basis.

In a 1983 *Library Journal* feature, De Gennaro commented on the trends technology has taken:

> The 1970's concept of a centralized national library network consisting of OCLC and a few other major utilities is gone. The 1980's concept will be a more decentralized and pluralistic network consisting of the computer systems of some key libraries and a variety of local, regional, national, and special-purpose networks loosely linked and coordinated in a variety of ways. (*4*)
>
> We are well into our third decade of library automation. The first decade, the 1960's, was dominated by primitive local systems. The second decade, the 1970's, was dominated by large multi-type and multipurpose library networks. The current and third decade, the 1980's will be dominated by a return to local systems. But this time they will be sophisticated multifunctional turnkey systems on mini- and micro-computers; and they will have lines to a variety of library and commercial networks on large mainframes. (*5*)

What we are seeing is the management of technology as the users develop a more realistic view of the information resource environment. We are developing applications that capitalize on available hardware and reflect the economic changes in this area, changes such as the tremendous

decrease in price and increase in capability of the new minicomputers. We are trying to network existing computerized resources, such as the sophisticated packet radio-based network under development between the University of California and six public libraries, (*6*) or the extension of the Linked Systems Project to include several turnkey system vendors (*7*) in their effort to develop communications capability among unlike software and hardware. Thus, in spite of the many shortcomings which exist, we are making substantial progress in creating a resource environment unattainable without the computer. We are also learning how to use the computer to regularize just those incompatibilities that the computer first brought to our attention. Incompatible cataloging formats, duplicate coverage, and poor quality control are areas where sophisticated computer programs can help resolve those problems which they first identified for us.

Products, such as Scimate (*8*) or the Personal Bibliographic System, (*9*) include as a part of their capability the software to convert and standardize information obtained from varying sources. Goldstein, (*10*) at the National Library of Medicine, and Breazeal, (*11*) at Lawrence Livermore National Laboratory, have made substantial progress in developing sophisticated parsers to regularize widely varying bibliographic formats. Artificial intelligence is being studied at MIT, Stanford, and elsewhere, not only as an aid both to locating and searching relevant files, but also as a means to guide the user in effective processing of them in post-retrieval activity.

Perhaps, one of the most profound effects the computer has had on our field is that it provides a delineation of activities that were previously performed unobtrusively, unquantified and often unevaluated. User studies, previously composed of information that was so general it was difficult to use effectively, can now be augmented by specific, hard data. These databases were searched with an average retrieval set of x citations, and hard copy was obtained for x percentage. Time spent in activities is quantified and available for that portion carried out at a terminal logged on to a system. This change in how we view our work is not always positive, however. Budget policy and procedure with prominent and explicit computer-related charges are still evolving, and there are major philosophical differences in areas such as user fees.

However, one area where there is nearly unanimous positive feedback is in the area of broadening information access—the most incredibly powerful capability available to information specialists. In 1981, De Gennaro made the following comment, "Libraries cannot take full advantage of automation while a substantial portion of their records are on cards in traditional catalogs." (*12*) True, libraries are not yet taking full advantage of automation—that has been pointed out earlier. Yet, the incredible breadth of access we now have to resources other than those in-house is making a tremendous difference. Through one means or another, librarians traditionally could maximize the return they got from their in-house collections, whether automated or not. But now, within two minutes, one can be logged on to an inexpensive machine, which can access materials exceeding the combined resources of the Library of Congress and any 10 major research collections in the U.S. Of course, access is only half of the problem. But again, technology, which made the problem apparent early in the game, is now assisting us in dealing with the problem. To notify a user of relevant items without giving a channel by which to obtain them creates frustration. Hence, the development of the document delivery services. The Dialorder service at DIALOG, ORBDOC, and SDC and the University Microfilm agreement at BRS are services instituted to handle comprehensive document delivery needs.

One impediment to unlimited access is the hardware requirements of each system. Only a short time ago, a user would require an OCLC terminal, a LEXIS terminal, and some other type of general purpose terminal to search each specific service. Furthermore, each system had its

own unique access protocols and command language. Adding further complexity was the need to analyze and repackage the information collected from various sources. For the average user, there was no end to the diversity with which one had to contend. Users, however, can master only a finite number of search systems. In many cases, boundaries were imposed by limited financial and intellectual resources.

Yet, once again, although technology created, or at least contributed to the problem, technology is also providing a solution. At Lawrence Livermore National Laboratory (LLNL), (*13*) at GTE, (*14*) in the iNet program (*15*) in Canada, and elsewhere, research is proceeding on intelligent gateways. These gateways represent a combination of hardware and software designed to broaden and facilitate access and to provide reprocessing capability for the wealth of existing heterogeneous information resources. In its most comprehensive definition, a gateway does far more than simplify and speedup access to distributed host resources. It provides a guidance and directory function, automated access and accounting functions with optimized telecommunications, a dissemination mechanism, a reprocessing and analysis capability for the information extracted from the target resources, and a generally stable and secure environment in which to carry out all of the aforementioned. In computer science technology, the gateway can be said to create a *virtual* information system, one which can be tailored to each user's needs.

The concept of *virtual resources,* which underlies the Intelligent Gateway, is originally found in computer science, e.g., virtual memories, virtual storage, virtual relations in database management systems, etc. It is a particularly useful concept for information science. "The word virtual referring to computer facilities or to data indicates that the item in question appears to exist . . . when in fact it does not exist in that form." (*16*) "An extension of this concept leads to the complete virtual system wherein a . . . programmer . . . may see or visualize whatever system he wants." (*17*) In fact, the Intelligent Gateway can provide a series of virtual systems, each capable of supporting the information requirements of a given user community. As new resources are developed, they can be added to the Gateway's repertoire. As users' needs change, the inventory of resources can be shifted accordingly. As new tools become available, they can be integrated. For example, the role of personal computers and intelligent workstations is currently being investigated.

The LLNL Intelligent Gateway allows a user to access geographically and programmatically diverse computer-based resources. These may encompass datafiles, models, application programs, and communication packages. Resources can exist on the Gateway computer or they can be externally located, such as a computer modeling system at Massachusetts Institute of Technology (MIT), or a bibliographic utility at the Online Computer Library Center (OCLC) in Ohio. To the user, physical location of the resource is irrelevant; the Gateway software automatically handles all navigation and access procedures.

The table-driven nature of the LLNL software results in an open-ended, dynamic capability through which the Intelligent Gateway can support use of a virtually unlimited set of resources. Also, as target resources change their protocols or operating systems, only the portions specific to the changes need to be modified for all authorized users of the IGP. This gives the Gateway considerable flexibility and allows changes to be incorporated into the operating environment without system downtime or reprogramming effort.

Ease of access is a major characteristic of the Gateway. At the most basic level, a Gateway user may access any dial-up information system using the *dial* command and the telephone number of the host target computer. Alternatively, a user can issue a *connect tymnet* or telenet with the appropriate logon procedure. At a more sophisticated level, the LLNL Gateway's Network Access Machine (NAM) software can be set to include a complete transcript of the necessary access protocol, including alternative paths

(tymnet, telenet, direct dial number, etc.), logon, password, and other specialized information a user may wish to have included. This may include the automatic selection of a database for searching or bypass of system messages. Security and accounting information are also managed through this module, which frees the user from having to deal with these details. Using this access approach, an authorized user simply enters *connect Lockheed* or *connect CAS/Online* and the Gateway does the rest.

Such lack of constraints, either implicit or real, means that the Gateway can provide access to diverse resources—be they programmatically diverse or geographically distributed. Just as Lockheed DIALOG now offers a wider scope of databases in addition to the bibliographic files, the Intelligent Gateway can access a broad range of computer-based resources as necessary to meet a user's particular needs. Major functions that are currently supported include electronic mail, word processing, bibliographic retrieval and post-processing, statistical analysis and modeling, and many more.

The flexibility of the Gateway design allows a single system to support the full range of idiosyncratic needs that arise within even a limited user group. But the user need not be overwhelmed by the complexity of resources that are available. Instead one sees a view which is tailored to one's particular environment. A log-on to the Gateway results in a direct display of a menu listing the relevant resource options, using the vocabulary meaningful to one's particular user community.

Another Laboratory project involves the integration of the Gateway software with a commercial library support package. (*18*) This system will include specialized translators to enable uploading and downloading with automatic format conversion between local and external databases. The combination of the Gateway capability with a local management facility should result in a system which can meet the total needs of a contemporary library or information center: automation of the traditional activities—cataloging, acquisitions, circulation, etc.; access to external information resources—OCLC, SDC, DIALOG, etc; translation of local cataloging formats to external requirements and translation of external formats to internal specifications; and provision of analysis and processing software for creating information products tailored to the user community's specialized needs.

Currently, this prototype system is operational and is undergoing evaluation in a DOD library in the Washington, D.C., area. Upon completion of the evaluation period, comprehensive system specifications will be developed for an issuance of a DOD-wide RFP. This specification, which represents a considerable investment in time and funding, will be a significant attempt to match state-of-the-art technology with rigorously evaluated information needs.

As existing tools are modified and extended, and new tools are developed, we move closer to achieving that excellence which technology has suggested since its earliest application. The creation of virtual resources tailored to each user's needs is a major step in this direction. Without the tremendous progress in computer technology, such progress would not have taken place. In 1963, Douglas Engelbart, then at Stanford Research Institute, discussed augmenting the intellect as "increasing the capability of a man to approach a complex problem situation, gain comprehension to suit his particular needs, and to derive solutions to problems." (*19*) Computer technology applied to information systems is the means to accomplish this augmentation. As librarians and information specialists, we assist in the augmentation process. As we move closer to excellence in information services, we increase our contribution.

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Reducing the Federal Deficit: The Impact on Libraries

Susan Randolph

■ **The federal deficit almost tripled during the period October 1981 through September 1985. Consequently, deficit reduction is a major objective of the Congress and President Reagan. This article reviews recent efforts to reduce the federal deficit, from the Omnibus Budget Reconciliation Act of 1981 to the Gramm-Rudman-Hollings Act. It describes the effect of deficit reduction efforts on libraries and library users and on the availability and quality of federal government information.**

FOR several weeks in March 1986, the usually tranquil Main Reading Room of the Library of Congress (LC) echoed with the cries of "books not bombs." Under the Main Reading Room's magnificent dome, a group of library users, known as the "Books Not Bombs Campaign to Save the Library of Congress," was demonstrating against a reduction in reading room hours that closed the LC on Sunday, holidays, and most evenings for the first time since 1898. In the end, 18 demonstrators were arrested. Ten were tried on charges of unlawful entry.

These events were caused by the LC's efforts to adjust to Gramm-Rudman-Hollings Act reductions in its budget and dramatized the growing impact on libraries and library users of recent measures to reduce the federal deficit. Federal funds for the LC and other national libraries have been reduced, as have, in some instances, state and local government funds for libraries across the country. Deficit reduction efforts are threatening postal subsidies and federal support for libraries in the form of LSCA and HEA II grants. Deficit reduction measures are also affecting the availability and quality of federal government information and threaten to reduce federal support for academic research. Motivated in part by concern over the impact of deficit reduction measures on libraries, Rep. William Ford (D-Mich.), chairman of the House Subcommittee on Postsecondary Education, warned his congressional colleagues that "library service, as we have come to know it in America, is gravely endangered." He entitled his remarks before Congress on June 19, 1985, "America's Libraries in Crisis." (*1*)

Recent Deficit Reduction Initiatives

The current administration's efforts to reduce the deficit began within a month after the 1981 inauguration, when President Reagan announced his Program for Economic Recovery, which was designed to "put the Nation on a fundamentally different course." (*2*) The Program for Economic Recovery requires "sharply

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constrained overall spending levels," in part to accomplish "a steady reduction in the Federal deficit, resulting in a balanced budget in 1984 and modest surpluses thereafter." The program also requires "cutbacks in lower priority Federal activities" and "dramatic shifts in internal budget priorities." The program classifies a significant number of federal programs, including library programs, as lower priority. The only programs exempted from "thorough scrutiny and widespread reduction" are "the Social Safety Net of income security measures erected in the 1930s to protect the elderly . . . unemployed, and poor, as well as veterans . . .," and the program "to rebuild the Nation's defense capacities." (*3*)

The administration implemented many of the features of the Program for Economic Recovery in landmark legislation called the Omnibus Budget Reconciliation Act of 1981. This act provided for substantial increases in defense spending and substantial cuts in funding for library and other domestic programs. At the same time, the administration implemented its plan for a major reduction in individual and business taxes in the Economic Recovery Tax Act of 1981. This act also had significant implications for library programs, as explained by Lester M. Salamon and Michael S Lund: "By reducing government revenue and clamping down on its future growth, the tax act . . . virtually guaranteed that new program initiatives would face extremely unfavorable odds and that key constituencies would have to battle mightily just to maintain existing benefits in the face of growing federal deficits."(*4*)

Although successful in putting "the Nation on a fundamentally different course" through enactment of the Economic Recovery Tax Act and the Omnibus Budget Reconciliation Act of 1981, the administration was unsuccessful in eliminating the deficit by 1984. Unfavorable economic conditions, the reduction in revenues brought about by the Economic Recovery Tax Act, and the increase in defense spending initiated by the Omnibus Budget Reconciliation Act of 1981 contributed to this failure. (*5*)

Another factor contributing to the administration's lack of success in reducing the deficit was the loss of President Reagan's "working majority" in Congress in the 1982 congressional elections. Since those elections, Congress and President Reagan have been unable to agree on how to reduce the deficit. While Congress has advocated less defense spending, smaller cuts in other domestic programs, and tax increases to raise revenue, the administration has supported increased defense spending, deeper cuts in other domestic programs, and no tax increases. Despite passage of additional legislation designed to reduce the deficit, including the Omnibus Budget Reconciliation Act of 1982, the Tax Equity and Fiscal Responsibility Act of 1982, the Omnibus Budget Reconciliation Act of 1983, and the Deficit Reduction Act of 1984, the deficit increased from approximately $79 billion in fiscal year 1981, when President Reagan assumed office, to approximately $212 billion in fiscal year 1985. (*6*)

Gramm-Rudman-Hollings Act

Faced with a growing deficit and stalemate over the budget, a frustrated Congress enacted in December 1985, with the reluctant support of the administration, the controversial Balanced Budget and Emergency Deficit Control Act of 1985, better known as the Gramm-Rudman-Hollings Act for its principal sponsors in Congress. The feature that most distinguishes the Gramm-Rudman-Hollings Act from earlier deficit reduction legislation is its provision for automatic cuts if the administration and congress cannot agree on spending levels that remain within predetermined deficit targets leading to elimination of the deficit in fiscal year 1991. The act requires that these cuts be made uniformly at a predetermined percentage in all programs not specifically exempted by the act. In March 1986, automatic cuts were made

at 4.3 percent. If President Reagan and Congress are unable to agree on spending levels for fiscal year 1987 that do not exceed the deficit target, a second round of automatic cuts at 7.6 percent might be required in October 1986.

Many observers are concerned about the impact of the Gramm-Rudman-Hollings Act on nondefense programs, in part because the Gramm-Rudman-Hollings Act exempts from its provisions large categories of nondefense spending, such as Social Security benefits and assistance to low-income persons. As a result, a substantially reduced pool of nondefense spending—a pool that includes spending on library programs—must bear the full burden of the reductions mandated for nondefense spending. Furthermore, these observers believe that previous deficit reduction measures have reduced many nondefense programs to such an extent that the further spending reductions required by the Gramm-Rudman-Hollings Act threaten to cripple the programs. Finally, many observers object to the fact that the automatic enforcement provision of the act absolves Congress of the responsibility for setting priorities and deprives federal managers of the discretion to make spending reductions where least painful. One commentator observed that this provision "takes away the decision and just turns on the machine." (*7*)

The Gramm-Rudman-Hollings Act legislates a role for the comptroller general of the U.S. General Accounting Office in the process which results in automatic spending cuts. On July 7, 1986, the Supreme Court held that participation of the comptroller general in this process violates the Constitution's separation-of-powers doctrine because the Gramm-Rudman-Hollings Act assigns executive branch powers to the comptroller general, a legislative branch officer. The Supreme Court holding, however, did not affect the act's annual deficit reduction targets. Although the automatic enforcement provision is unconstitutional, Congress and the administration remain legally bound to eliminate the deficit through the regular legislative process by FY 1991, according to the schedule stipulated by the Gramm-Rudman-Hollings Act.

Impact on National Libraries

The impact of deficit reduction measures on libraries and their users is perhaps most dramatically illustrated by the recent experience of the LC. In November 1985, before enactment of the Gramm-Rudman-Hollings Act, the LC received, through the normal appropriations process, $8.4 million less for fiscal year 1986 (October 1, 1985, through September 30, 1986) than it had in the previous fiscal year. This reduction of 3.5 percent meant a cut in the LC's budget base, according to Glen Zimmerman, LC's associate librarian for management. (*8*) When the LC's budget was cut by an additional 4.3 percent, as mandated by the Gramm-Rudman-Hollings Act, the LC faced a fiscal emergency.

As a result of the November 1985 reduction of 3.5 percent and the March 1986 Gramm-Rudman-Hollings reduction of 4.3 percent, the LC's budget for fiscal year 1986 was $18.3 million less than that of the previous fiscal year. *Science* magazine observed that the combined reductions brought the LC's overall budget in 1986 to about the same level as in 1983, although the number of individuals using the LC had grown by 800,000. (*9*) Librarian of Congress Daniel Boorstin testified before the House Subcommittee on Legislative Appropriations on February 20, 1986, that the cuts were "vast and unprecedented" and that "the situation of your, of our Library is serious, it is even dangerous, and could become tragic for our nation, the Congress, and the whole world of learning." (*10*)

In early 1986, in order to adjust to the double assault on its fiscal year 1986 appropriation, the LC reduced its hours of service by one-third. For the first time since 1898, the library was closed on Sunday, holidays, and most evenings. The

library cut its preservation budget by 16.4 percent, and reduced spending on books and nonbook materials by 13.3 percent. It reduced its staff of 5200 by 300, and estimated that delays in cataloging caused by the appropriation reduction would result in a backlog of 25,000 books. The budgets for the Congressional Research Service, the National Library Service for the Blind and Physically Handicapped, and for automation of LC services were each reduced by more than $1 million. (*11*)

Representatives of the LC's user community described the impact of these cuts on libraries and library users across the country at a hearing held on May 7, 1986, before the Joint Committee on the Library of the U.S. Congress. The American Library Association's President, Beverly Lynch, reminded Committee members of the importance of the National Library Service for the Blind and Physically Handicapped (NLS) by noting that a user of NLS services through the Kansas State Library called a suicide hotline in 1985 when she thought her access to recorded library materials was threatened. (*12*) Ms. Lynch deplored the reduction in the LC's preservation budget "at a time when, nationally, about one-fourth to one-half of all paper in existing book collections is in such poor condition that further use by circulation or photocopying may result in loss of text." (*13*)

Shirley Echelman, executive director of the Association of Research Libraries, testified regarding the hardship imposed on other libraries and the users of those libraries by reductions in the LC cataloging program. Ms. Echelman reported that "the University of California at Los Angeles has estimated that their cataloging cost will increase by nearly $300,000 in the coming year as a result of the cuts at the Library of Congress. This increase will have to be made up from the acquisitions budget and may mean that as many as 6,000 fewer new titles will be added to the UCLA collections for study and research." (*14*) She noted further that the cataloging costs of the Center for Research Libraries, a non-profit consortium of 150 research libraries located throughout the country, would increase by about 50 percent, or $100,000 per year, if it could not obtain LC cataloging records. (*15*) Ms. Echelman also testified regarding the importance of full funding for the LC acquisition program, by reporting that "the Center for Research Libraries, in Chicago, has calculated that to initiate their own acquisition program to substitute for the South Asian research materials which they have in the past acquired from the Library of Congress, their costs would increase from $500 to $156,000 per year for acquisition alone. . . ." (*16*)

Frederic Alan Maxwell, an independent researcher and executive director of the Books Not Bombs Campaign to Save the Library of Congress, testified to the importance of liberal access to the LC's collections on weekends and evenings. He noted that Albert Einstein, who was employed full time in the Swiss Patent Office, developed his general and special theories of relativity while studying at the library at night. (*17*) Mr. Maxwell quoted former presidential candidate Eugene McCarthy's observation on the LC's reduction in hours: "The present schedule of reduced hours means the United States has fallen behind the Russians, our principal political rivals, and behind the Japanese, our principal economic challengers, in the number of hours their national libraries are open." (*18*)

In part because of the concern expressed by users, the LC received on July 2, 1986, some budget relief through an appropriations amendment sponsored by Senators Robert C. Byrd (D–W.Va.), Mark Hatfield (R-Ore.), and Alfonse D'Amato (R-N.Y.). The LC was able to resume some, but not all, of its book purchasing and cataloging activities and to restore evening and Sunday hours, at least through September 30, 1986. Some of the supplemental funding received by the library, however, was offset by the legal expenses the library incurred as a result of the Books Not Bombs protest in March 1986. (*19*)

Although the fiscal position of the LC was especially precarious because of the

double assault on its budget, other national libraries have also suffered under the 4.3 percent Gramm-Rudman-Hollings cuts made in March 1986. Funding for the National Library of Medicine (NLM) was increased only 1.9 percent above its fiscal year 1985 level. Funding for the Medical Library Assistance Act was reduced to 4.3 percent below its fiscal year 1985 level, and for the National Agricultural Library (NAL) to 5.9 percent below its fiscal year 1985 level. (*20*)

The budget cut at NAL required a reduction in staff that affected indexing and collection development. NAL also reduced its budgets for books and for catalog support contracts. NLM found it necessary to implement reductions in acquisitions, indexing, and cataloging, and to reduce the scope of its recently established preservation program. (*21*) On April 8, 1986, Susan Martin, director of libraries at the Johns Hopkins University, testified regarding the impact of these reductions before the House Subcommittee on Postsecondary Education: "The Library of Congress, the National Library of Medicine, and the National Agricultural Library each have national roles that form critical elements of a nation-wide network of all kinds of libraries that work collectively to meet the informational and research needs of students, faculty, independent researchers, business and industrial leaders, policy makers, and the general public. The budget cuts for these three federal libraries for fiscal year 1986 will be evident in library services across the country for many years to come. . . ."(*22*)

Impact on Federal Grants and Subsidies

The administration's effort to eliminate federal support for categorical library programs administered by the Department of Education under the Library Services and Construction Act (LSCA) and the Higher Education Act Title II (HEA II) also has significance for libraries throughout the country. Federal funding of these programs supports public library services and construction, interlibrary cooperation, library service to Indian tribes, library literacy programs, development and sharing of college and research library resources, and library training and research. LSCA funds have made possible in the state of Michigan, for example, the purchase of microcomputers for libraries, special delivery programs for library users who are geographically isolated, acquisition of materials for children with reading difficulties, much of Michigan's library service for the blind and physically handicapped, and a state-wide, high-speed document delivery service. (*23*) HEA II funds have supported, for example, the microfilming of a World War II collection of maps, pamphlets, and other materials; the preservation of the Margaret Bourke-White photo collection; the cataloging of the Soviet Nationalities Collection; and the preservation of a vast collection of 18th and 19th century books and pamphlets. HEA II funds have also enabled library schools to actively recruit minority students. (*24*)

Chester R. Finn, the Department of Education's assistant secretary for educational research and improvement, has described these programs as "desirable but dispensable." (*25*) For the past five years, the administration has proposed eliminating LSCA and HEA II grant programs by omitting a request for funds for the programs in its budget submission to Congress. The treatment of perhaps no other library program more clearly exemplifies President Reagan's plan for "cutbacks in lower priority Federal activities," as outlined in his Program for Economic Recovery. Perhaps no other library program more clearly reflects the continuing disagreement between the president and Congress over priorities in the effort to reduce the deficit; Congress has consistently appropriated funds for LSCA and HEA II in spite of the administration's failure to request funds.

In its effort to reduce the deficit, the administration has also sought to eliminate postal subsidies, referred to as

"postal revenue forgone." The subsidies replace the revenue lost by the U.S. Postal Service through provision of free postage for the blind and physically handicapped, and reduced postage for local newspapers, charitable and nonprofit groups, and libraries, schools, and colleges. The fourth-class book and library "preferred rate" supports interlibrary loan, film circuits, book acquisition, and library books-by-mail services for the homebound and for library users in rural or isolated locations. If Congress approves the president's most recent proposal to eliminate postal subsidies, mail formerly postage free for the blind and physically handicapped will be charged the full postal rate as of October 1, 1986, and the cost to mail a two-pound library rate book package will increase 29 percent, to 94 cents. (*26*)

As of August 1986, the preferred rate had already increased three times since January 1986, resulting in a 35 percent increase over December 1985 rates for a two-pound library rate book package. (*27*) The second increase was due to the 4.3 percent cut mandated by the Gramm-Rudman-Hollings Act and a presidential veto of adequate appropriations for postal subsidies. In hearings he called in part to consider the impact on libraries of postal rate increases, Rep. William Ford (D-Mich.) observed that "It is a truism that every extra dollar libraries must spend on postage is a dollar less for purchase of library resources and provision of services." (*28*)

In another attack on the deficit, the administration plans to reduce federal payments for the overhead cost of conducting research performed under federal grants and contracts at the nation's universities. This effort will have an impact on libraries, because the cost of maintaining academic libraries is included in the calculation of overhead costs. The Office of Management and Budget is responsible for this revision in the rules that govern federal reimbursement of educational institutions for overhead costs. It announced the revision of its Circular A-21: "Cost Principles for Educational Institutions" on February 12, 1986. (*29*) The change could reduce payments to educational institutions by over $200 million in fiscal year 1987. (*30*)

The administration has also proposed termination of the 14-year-old general revenue sharing program at the end of fiscal year 1986. Under this program, 39,000 local communities receive federal funds to use as they see fit. (*31*) The administration's proposal is generally supported in Congress, although Sen. John Heinz (R-Pa.) remarked that repeal of revenue sharing amounted to "deficit shifting" from Washington to local governments. (*32*)

In Pennsylvania, for example, the general revenue sharing program contributes 14 percent of the local funds for public libraries; (*33*) West Virginia relies on the program for 22 percent of the local funds for public libraries; (*34*) and 31.9 percent of the library budgets of Alabama counties are dependent on general revenue sharing funds. (*35*) Many municipalities use general revenue sharing funds to finance police and fire protection, and can be expected to cut other local services—including library services—to compensate for the loss of general revenue sharing funds.

Impact on Government Information

Deficit reduction efforts have had an impact on the quality of federal government information. In a March 1986 study prepared for the Joint Economic Committee of the U.S. Congress, Courtenay Slater, president of CEC Associates and former chief economist of the Department of Commerce, reported the following:

> For most of the agencies that are major producers of economic statistics, fiscal year 1987 budgets as recommended by the Administration would be below 1980 levels after adjustment for inflation. . . . In some of the intervening years, such as 1982, budgets were even tighter than the one proposed for 1987. Some data series have been abolished because of tight budgets. (*36*)

Katherine K. Wallman, executive director of the Council of Professional Associations on Federal Statistics, observed the following:

> Tight funding levels for statistical programs in recent years have required agencies to alter the scope of ongoing activities by collecting information less frequently; reducing sample sizes, the content, and/or the geographic coverage of particular surveys; extending the time between data collection and publication; and eliminating or reducing the frequency, scope, and distribution of publications and other products. Moreover, the statistical agencies have found it increasingly difficult to introduce methodological and technological changes needed to keep ongoing programs current, to perform the research necessary to improve the nation's statistical sources, and to attract and retain high caliber staff. (*37*)

Deficit reduction efforts have also resulted in a decrease in the quantity of federal government information and an increase in the difficulty and cost of using and obtaining this information. One of President Reagan's first initiatives after his inauguration in 1981 was to place a moratorium on the production of government publications, in an effort to eliminate what the administration viewed as "wasteful spending on government periodicals, pamphlets, and audiovisual products." (*38*) As a result of this initiative, the administration had eliminated over 3000 federal government publications by January 1984. (*39*) Congress reinforced the administration's effort by requiring, in an amendment to the Deficit Reduction Act of 1984, that federal agencies reduce spending on publishing, printing, reproduction, and audiovisual activities by $250 million in fiscal year 1985.

Anticipating a further decrease in government publications as federal agencies coped with budget cuts, Congress appropriated almost $3 million less for the U.S. Government Printing Office (GPO) in fiscal year 1986 than in fiscal year 1985. The subsequent 4.3 percent Gramm-Rudman-Hollings budget cut brought GPO's fiscal year 1986 funding to 14 percent below its fiscal year 1985 level. (*40*) GPO has coped with these cuts in its budget in part by reducing its printing and binding costs through conversion from paper to microfiche of over 1000 titles that it distributes to federal depository libraries. (*41*) This conversion will increase the costs of many depository libraries, which will in the future be required to purchase paper copies of publications formerly received in paper without charge.

In response to budget reductions, many federal agencies have begun to charge for publications that were formerly free, and to increase the cost of other publications, a trend that will increase the demands on library budgets. The American Library Association's Washington office has chronicled this trend in a publication entitled *Less Access to Less Information By and About the U.S. Government.* It reported, for example, that in March 1982 the Agriculture Department's Economic Research Service began to sell publications it had formerly distributed free of charge. It also reported an increase from $75 to $300 for a subscription to the *Federal Register,* and an increase from $75 to $208 for a subscription to the *Congressional Record.* (*42*)

Congress also has developed a more restrictive publications distribution policy as a result of deficit reduction efforts. In March 1986, the Joint Committee on Printing (JCP) announced that because of the 4.3 percent Gramm-Rudman-Hollings cut in the congressional printing and binding budget, the public would be required to purchase congressional documents that were formerly available free from the House and Senate Document Rooms. In response to protest that the JCP's action would curb access to government information, the JCP amended the policy to make it less restrictive. As of June 2, 1986, members of the public may obtain one free copy of congressional bills and reports, although additional copies must be purchased at two to three cents per page. Congressional committee prints and hearing records are still free, although the number of copies that are printed for free distribution has been reduced by more than half. In announcing the new policy, Sen. Charles

McC. Mathias, Jr. (R-Md.), chairman of the JCP, expressed regret that reductions mandated by the Gramm-Rudman-Hollings Act in the fiscal year 1986 budget made it necessary to charge for publications at all. (*43*)

The Future

The future is unclear for the most recent deficit reduction effort, initiated by the Gramm-Rudman-Hollings Act. Supporters of the act are seeking to salvage the automatic enforcement provision by transferring to the Office of Management and Budget the responsibilities originally assigned by the act to the comptroller general. The Gramm-Rudman-Hollings Act itself provides a substitute for the process involving the comptroller general: automatic cuts can be triggered by a joint resolution of Congress signed by the president. There is some question, however, whether Gramm-Rudman-Hollings supporters will be successful in rehabilitating the automatic enforcement provision, and if not, whether Congress, in an election year, will be able to pass the joint resolution necessary to trigger cuts. With or without Gramm-Rudman-Hollings, however, Congress and the administration will almost certainly continue to impose cuts in federal government spending in an attempt to reduce the deficit. There is also no question that earlier efforts to reduce the deficit, from the Omnibus Budget Reconciliation Act of 1981 to the first round of automatic cuts made in March 1986 under the Gramm-Rudman-Hollings Act, have had a significant impact on library programs and library users.

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The views expressed in this article are those of the author and not necessarily those of the Bureau of Economic Analysis or the Department of Commerce.

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Doing More with Less

Linda M. Wagenveld

■ **Firms expecting to successfully compete in the 80s and 90s and on into the 21st century will need to be proficient at both keeping the organization lean and dealing efficiently and effectively with rapid change and vast quantities of information. In short, all parts of an organization, including the corporate library, will have to accomplish more with existing or even tightened resources. This paper describes five strategies to meet this need: automation, reorganization, using temporarily available employees, using in-house services, and managing by participation.**

HERMAN MILLER, INC., is a systems furniture company located in Zeeland, Michigan, about 25 miles southwest of Grand Rapids. Founded in 1905 as the Michigan Star Furniture Company, it moved from being a manufacturer of Sears Roebuck dressers to being a leader in the development and introduction of innovative design in the living, working, and healing environments. We currently enjoy annual sales in excess of $500 million and are located all over the world.

Being an employee in a company like Herman Miller is a great privilege but also a heavy responsibility. Our reputation and public image as a firm devoted to excellence presents a formidable standard. Our design solutions—authored by such well known designers as Charles Eames, George Nelson, Bill Stumpf, and others—are in the permanent collections of such prestigious institutions as the Museum of Modern Art, the Metropolitan Museum of Art in New York, and the Smithsonian Institution. We are recognized as one of the best employers in the United States, and our employees are expected to do everything possible to meet high standards in design, marketing, communication, and management.

At the same time, Herman Miller, like so many other growing companies, has to recognize and react to the new economics of increased competition on all fronts and an unpredictable market in a time of rapid and far-reaching change. Top management is totally committed to keeping the organization lean. As a result, we receive the constant admonition to "do more with less." This means finding creative solutions to new and difficult problems with existing human and financial resources in order to protect the interests of the investment community and the solidity of our financial standing.

As in all other departments at Herman Miller, the Resource Center has benefited from and has had to contribute to the changing tides of our corporate performance. It came into existence in 1976 when Herman Miller was doubling in sales annually. I began part time with no budget whatsoever. The library flourished and grew from a no-budget, small collection of perhaps 400 "donated" (i.e., discarded) books and a typewriter to an active information center. While budgets were

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developed and improved, the basic staff of one librarian—myself—has remained the same. I also manage the corporate archives, staffed by 1 full-time equivalent (FTE), an audio visual (A/V) department of 3 FTEs, a museum collection valued at $.5 million, a traveling exhibition service, until recently the sales literature distribution department of 13 FTEs, a small department of 2 that produces the basic pricing and specifications literature for our product, and a remote literature/information center at our Grandville, Michigan, site. All this implies incredible "opportunities" for my individual growth, but needless to say at times those opportunities hover above me as stressful threats. Fortunately, my profession, the technology, and my company have given me some tools to indeed do more with less.

I will outline five major strategies I have used to make it possible to increase services and resources without increasing staff or budgets. They fall under the following headings: Automation, Reorganization, People in Transition, In-House Services, and Participation. None of these are revolutionary, except perhaps item 3 (People in Transition), but all are worth pursuing aggressively and are sometimes overlooked. Used together, they are very powerful and very effective.

Automation

Many of my colleagues would, I suspect, be critical of my particular approach to automation. I would be accused of inefficiency and blundering by purists who insist on the correct hardware and software configuration from the start. In short, I have been basically willing to take what I can get. For online searching, I started with a TI silent terminal and a modicum of training. For an online catalog I began with a clumsy attempt at in-house programming on a shared VAX system (a miserable failure as I knew it would be, but a great and valuable experience). I now have a microcomputer configuration for online searching allowing for automatic logon, downloading, editing of search results, and quality prints using the new IBM Wheelwriter 3. My book catalog and one of the archives collections, i.e., Clippings, are on STAIRS on our IBM mainframe and searchable on site and from remote locations using a dedicated terminal and/or the microcomputer. I am presently serving on a committee reviewing systems like BASIS, Inquire, Documaster, and others as an alternative solution to STAIRS. We have also automated the interlibrary loan function and the circulation functions using the micro. Finally, I have been asked by the data processing department to review software packages they are contemplating purchasing for the company. I am actually considered an intelligent user. Based on my own experience, my advice is as follows:

(a) Take what you can get at the time, given your company's resources and standards, but always stay at least as technologically current as your data processing department;

(b) State and restate your needs, but be an articulate, intelligent, and cooperative critic;

(c) Always be ready and willing to take the next step forward, rather than fearing or resisting change; and

(d) Read, learn, and demonstrate whenever and wherever possible your capabilities, trusting yourself more than anyone else (especially your data processing department) to understand your unique needs and to judge the appropriate solutions.

Reorganization

Herman Miller, in its demanding need to accommodate growth and change, is forever reorganizing itself. Drucker has said that too frequent reorganization is a malady, a sign of a sick organization, and I believe that this is true; but some reorganization is necessary and good when it eliminates duplication of services and brings order to disorder.

Since I came to Herman Miller, I have reported to a marketing manager, plan-

ning manager, the vice president of finance, the vice president of corporate services, and the director of corporate communications, in that order. When I began, the corporate library was a part of marketing, but funded out of the office of the vice president for operations; archives was part of design and development; the film library and sales literature were part of marketing and sales; A/V services were part of corporate communications and design; and photograph collections were spread out all over the place. As each area came up for grabs, so to speak, I was able to make the necessary arguments to merge them with the corporate library so that we now truly have a "resource" center, a place or group to come to for a complete range of information services and resources to support one's daily work or a particular project. The whole is really greater than the individual parts. With each addition, my work load increased initially as I learned all I could about the new operation. I can assert, in fact, that I have actually done most (though not all) of the jobs the current Resource Center staff perform, from typing book cards to installing exhibits. As time went on, however, I saved both time and money for the department and the corporation since all related resources were in one place. I want to emphasize that we did not increase staff or budgets significantly to accomplish this centralization of resources. Indeed, we only increased coordination, cooperation, and accountability.

My position has consistently been to perform the following functions:

(a) Position the Resource Center as a comprehensive family of information resources and services that are necessary to the successful work of the organization;

(b) Be prepared to expand the scope of services as opportunity affords;

(c) Know and do as many different things as possible, i.e., be a generalist; and

(d) Study the organization, looking for related and/or competing services and dealing with that knowledge.

People in Transition

Herman Miller operates a Rehabilitation Services department, formerly called the Transitional Workshop. Workers suffering occupational injuries are managed through this function until they can return to their original jobs or are placed in new, permanent positions. The philosophy is that it is better for the worker and for the company to keep these people working rather than sitting at home collecting workers' compensation. Rehabilitation Services also provides an interesting and challenging labor pool for the rest of the organization. My department's greatest success story involves Sherry, who suffered carpel tunnel syndrome from her factory job. We trained her to be a projectionist, and her performance was so outstanding that the company agreed to shift her compensation budget to the Resource Center. She has been working in her new capacity for over two years.

Our sales literature department has used rehabilitated workers constantly to collate materials, apply stickers, and perform a wide variety of other miscellaneous, low-level-skill tasks. When we were told to open a new Resource Center annex at a remote site with no additional staff, we were stumped. Then we heard of a bright and resourceful woman in Rehabilitation, who was frustrated with her current sense of not belonging in any particular department. She has been a tremendous asset in the Center, and we recently received approval to keep her on a permanent basis.

Using displaced workers is not without risks. I have had to completely refile catalog cards, and our archivist does not trust—through experience—some transitional workers to handle the corporate archival materials with the care required. Our approach, then, has generally been as follows:

(a) Use only those people who really desire to work and contribute to our organizational goals;

(b) Be as demanding and positively atten-

tive to our transitional workers as to our permanent workers; and

(c) Think "transitional" whenever possible to relieve ourselves of low-level-skills work.

In-House Services

Nothing irritates me more than someone from Herman Miller paying good money to an outsider for services I can provide in-house at a greatly reduced cost. Likewise, I am determined to use in-house services whenever possible to cut expenses. If you give it any thought at all, you will realize that a company of any substantial size runs a number of mini-businesses within its organizational walls. Some are very apparent, such as mail services. Others are less apparent but just as useful. For example, we have an extensive truck fleet that travels all over the nation on an almost daily basis and which I use to ship my historical exhibits or newly purchased museum products. Other in-house services I use are the corporate photographer, word graphics to produce slides and transparencies, the print shop for our special stationery, our in-house travel department for reservations, and a variety of staff writers and designers for exhibits, brochures, and posters. Often, I am sure, we overlook the great variety of "consultants" every company has on business, design, and technological issues. In using these services, I try to abide by the following guidelines:

(a) Compare services. Always make sure the in-house service is indeed cheaper, as well as better.

(b) Insist on quality and accountability. Be as demanding as if it were an outside vendor.

(c) Be a good user. Understand how the in-house services work, their priorities, expertise, and requirements.

The only way to become really good at identifying and using in-house services is to know your organization inside and out. Attend brown-bag workshops when they are available, talk to your users about their jobs (everybody likes to talk about their own work), invite departmental representatives to address your department, read your internal newsletters, and be an attentive listener.

Participation

In 1950, Herman Miller adopted the Scanlon Plan of management, which is basically a participatory form of management. It recognizes the fact that nobody knows more about a job than the person performing it and provides a system, therefore, for all workers to obtain and provide information on increasing productivity and quality. The resulting benefits are then shared equally via a bonus plan. The system applies to all aspects of work, whether in the office or plant, and has resulted in incredible cost and labor savings over the years, as well as a very committed labor force.

Scanlon basically assumes the Y theory of management, i.e., that most people want to work, want to be accountable, and want to make a contribution. As a result of applying this philosophy and an organizational design complementary to it, the Resource Center has steadily improved in the performance of its mission. Our A/V department employees have taken it upon themselves to discover and correct technological inefficiencies and inadequacies regarding current equipment, vendors, and processes. The Resource Center's administrative assistant has made numerous changes in her daily work to improve response time to patrons. She has readily adopted automated solutions to library processing, making suggestions for improvements and enhancements. Each individual is responsible for contributing more than an eight-hour day of dictated activity, and we find that each and every staff member aggressively embraces the opportunity to participate in decision and policy making. I would advise every manager or supervisor to do the following:

(a) Listen to those who do the work—they understand best how it can be improved,

(b) Have a broader vision of what can be accomplished by a team rather than a manager and a number of subordinates, and

(c) Keep an open mind to all ideas and suggestions.

I want to survive, and I have learned that a sure way of dooming my services is by insisting on increased budgets and staffing year after year. While I could certainly even do more with more, my company has convinced me that I must do more with less. These strategies represent at least a few of the ways in which I can.

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Reorganizational Priorities for the Private Library: Achieving Excellence Through Change

Andrew Berner

Guy St. Clair

■ **Private libraries often require some degree of reorganization in order to provide better services to users. Specific suggestions are provided for analyzing the library, its staff, and services to determine the extent of reorganization needed. Recommendations are made for implementing change in a manner most suited to the special environment of the private library.**

IN the world of the private library it is not unusual to find an institutional conservatism which discourages innovation and change. Emphasis is often placed on maintaining the status quo, frequently at the expense of excellence. There are also occasions when, for one reason or another, the library administration has not kept up with needed changes, or the library's board of directors has lost interest, or the staff has become too occupied with routine duties to the detriment of services. If care is not taken to avoid these pitfalls and to overcome the conservative bias of most private institutions, the private library may stagnate and a pattern of disorganization and disuse will set in.

This is not to say that all private libraries are static and in need of reorganization, but there are situations when administrators and users become aware—sometimes through nothing more than a vague sense of uneasiness—that something is wrong in the library. This was the situation at the University Club Library, where we are employed.

Reputed to have some 135,000 volumes, the University Club Library is the largest private club library in the world. Several years ago, it became apparent to management, to the Library Committee, and most especially to the small group of individuals who used the limited services offered in the library that the library needed to be reorganized. Although long established as one of the finest private libraries in the country, during the 1960s and 1970s the library was no longer seen as an important part of its parent institution, and library staff was reduced through attrition as employees retired or were dismissed. In this atmosphere, the remaining staff was unable to maintain the status quo, much less provide improved or expanded services. The library

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found itself offering fewer services to the few people who still used the collection. (As this is not the appropriate forum to discuss the specifics of why and how this situation came to be, we will limit our remarks here to an exposition of how this problem was corrected. By doing so, we will offer suggestions about how these reorganizational procedures can be of use for other libraries.)

Through reorganization the library is now well used and appropriately financed, has an enthusiastic and visible support group, boasts a conscientious and serious directorate, is well staffed, and is, in our opinion, on the way to becoming, once again, one of the best private libraries. This state of excellence did not occur by chance, but through the implementation of an energetic and carefully coordinated program of reorganizational activities that were designed to bring the library up to a level of service at least equal to that which existed prior to its slide into desuetude.

While, in the case of our library, the need for reorganization came about as the result of neglect, there are also positive reasons for reorganization. For example, a decision may be made to add new services or to realign staff to provide services at a different level. In such instances, it might be necessary to reorganize in order to incorporate the required changes. An example of this kind of reorganizational effort might be a private humanities library that traditionally has avoided providing business sources to its users. As the library constituency changes, such sources are increasingly in demand. Should a decision be made to incorporate these materials into the library's collection and to train the staff in using them, some reorganization will be necessary.

These kinds of positive reorganizations would seem to be an exception. In most cases, the question of reorganization surfaces due to dissatisfaction with the library and its services. The need for reorganization, however, should always be questioned. Dissatisfaction does not in itself indicate that reorganization must be undertaken. No library, however well it functions and serves its users, is without some critics who are dissatisfied with the service they receive. This can result from a variety of factors, including unrealistic expectations from users, a lack of familiarity with the library's collection policies, or simply an inadequate understanding of the proper techniques of library management. Dissatisfaction can also legitimately result from the library's failure to adequately serve its users, though these failures may or may not necessarily be directly attributable to the library staff. The parent organization may have decided that in the interest of saving money library services would be curtailed or library staff reduced, either through dismissals or attrition, as was the case at the University Club. In extreme cases, library funding might actually be reappropriated for some other activity. The end result, over a short period of time (though sometimes not immediately recognized) is that the library is in trouble. Unable to adequately serve its users, the library quickly develops an image problem, and soon the user base is seriously eroded. At this point, someone or some group in the management level of the organization will recognize or be apprised of the problems in the library and the decision to reorganize will be made.

The decision to reorganize the library and provide better service marks the end of the initial "self-examination" process, but it is only the starting point for the overall reorganizational effort. Next, an extensive inventory and analysis process must be undertaken. Before any decisions can be made regarding the proper course the reorganization should take, it is necessary to have a full understanding of the existing situation, not only in terms of its deficiencies, but with regard to *all* aspects of library operations, both favorable and unfavorable. In some cases, if the librarian is asked to carry out the reorganization, he or she will already have a sense of the existing situation. It must be recognized, however, that when a decision is made to reorganize, the librarian is often perceived as part of the problem rather than part of the solution,

and someone new may be called in to carry out the reorganization. In this case, of course, the new reorganizational team and/or the librarian will need to gather as much information as possible about the existing situation.

An appropriate starting point for an analysis of the library is a consideration of the services being offered (or which might be offered). A complete inventory should be made of all existing library services, not only in broad areas, such as reference or circulation, but at a far more specific level, including services such as photocopying, reserving books, or maintaining periodical backfiles. There is no direct correlation between the length of the list of services offered and the excellence of the library; quality rather than quantity of services is most important. However, if the list of services is extremely short, serious thought should be given to whether additional services might improve the quality of the library. On the other hand, an extremely long list might indicate that too much is being attempted and that existing staff is being called upon to do more than can reasonably be expected. This was certainly the case at the University Club Library; no library containing 135,000 volumes and serving the reading and research needs of 4,000 members and their guests and families could be adequately maintained by two employees. Once we inventoried the services offered for users, staff was one of the first issues we had to tackle in our reorganizational effort. We could not attempt to begin a reorganization if there were too few people to carry out the day-to-day operations of the library.

In analyzing library services, there are several questions which must be answered concerning each service on the list. Foremost is whether the service is meeting user needs on a fairly broad basis. That is, is the service utilized by a reasonably large number of regular users, or is it used primarily by a select group? The latter is not necessarily negative; services which serve only a few may not necessarily be automatic candidates for elimination, but such services must be recognized as part of the library's usual operating policy and incorporated into the library's cost and service analysis. However, in no case must services be provided for a select group at the exclusion of services for the regular users. If this situation shows up in the analysis of the library's services, the "special" services are indeed prime candidates for elimination in a reorganizational effort.

It is here that we discern one of the major differences between private libraries and public libraries. In the United States, library training stresses the egalitarian nature of library services, and equal access to information seems to be of paramount importance. Obviously in a publicly supported institution, there must be equal services. This is not necessarily the case in the private library where, theoretically at least, the collection is owned by the members or subscribers, and unless public funds are used to support the collection and services, there is no obligation to serve anyone other than those members or subscribers who provide the support. Certainly this is a rule in which exceptions are more common than not, for few private libraries close their collections to serious scholars who apply to use them, and the object of the collections is to be used, not merely to be preserved. Nevertheless, the subject of equal services must be dealt with, and it is usually the library staff that is put in the position of deciding who receives what level of service. In a private collection, a high school student requesting permission to use rare materials may not be given the same consideration as a member of the organization or a serious scholar seeking access to these materials.

When analyzing library services, each service should also be examined on the basis of whether or not it is cost effective. The cost of a service is determined by the amount of staff time that is required to implement the service combined with direct costs, such as materials, postage, transportation, copying costs, etc. If, for example, you decide to create a books-by-mail service, costs will include not only the time the staff spends retrieving

and packaging the materials, but also the costs for Jiffy bags, postage, transportation to the post office, and similar fees when the book is returned to the library and put back on the shelf. Likewise, the cost of staff time is not simply the staff member's salary divided by the amount of time required to perform the service being analyzed. Staff costs to the institution include another 30 percent (approximately) for benefits; this extra percentage should be included in any analysis of staff costs for any specific services.

After examining whether each service satisfies users' needs and is cost effective, it must be decided if the service should be maintained at its present level, expanded, curtailed, or eliminated altogether. For example, at the University Club Library, current book acquisitions were kept at the existing level since our study determined that our problem was not in the number of books purchased, but in the small number of users who borrowed them. Concurrently, the quality of the current acquisitions was changed, providing more appropriate titles in terms of the library's collection policy. Periodicals, on the other hand, were determined to be insufficient to meet users' needs, so this service was expanded. While staff had previously attempted to conduct research for users, our analysis determined that this was our least cost-effective service and was used by a minimal percentage of our constituent users. Accordingly, this service was curtailed; staff now limits itself to bibliographic instruction for users, who must then conduct their own research. Personal book-buying for users was also eliminated. The library is not a bookstore and was never intended to be one. We determined that personal requests for purchases were inappropriate and far too costly in staff time, to say nothing of public relations problems when books didn't come in, when accounting errors were made, etc. The service was eliminated altogether.

Thus far, our analysis has concentrated strictly on existing library services. There will almost certainly be new services which you will need to offer in order to bring your library closer to that ideal of excellence, which is your ultimate goal. These new services can help counter any negative reaction you may experience when other services are curtailed or eliminated. At our library, a telephone reference service had never been offered. In fact, callers were informed that reference questions were not answered over the telephone. Simply instituting this service and promoting it as a *new* service had enormous public relations value, was cost-effective (since the librarian, the telephone, and the basic reference books were already there), and, in the eyes of the users, it brought the library closer to an ideal of excellence.

Services alone, however, do not make up a library. It is the collection which is chiefly responsible for attracting people to the library. If a recent inventory of the collection has been done, it will be a valuable tool for reorganization; if no inventory exists, it should be undertaken immediately. While an inventory of even a small collection can be a time-consuming task, it can provide a great deal of useful information. It should be remembered that reorganization is not going to be an overnight process, any more than the deterioration which led to the need for reorganization was. The inventory provides an opportunity to acquire the maximum familiarity with the collection, as well as the means to determine what is missing.

At the University Club Library, management and users believed that bad service was the result of large losses in the book collection, which were initially brought about due to a serious lack of security. Yet only one-third of the collection was on open shelves, and none of the rare books or other special collections was available to the browsing guest or member. There were supposedly 135,000 volumes, but a walk through the library spaces and an examination of the shelf list told us quickly that there were not 135,000 volumes there. This figure was obviously the result of years of exagger-

ated pride, although there were, as in any library, some missing volumes. For these reasons, an inventory was determined as high priority, and we began our efforts to finance and implement the project. For a collection of this size, the inventory was a long-term effort and, in fact, required five years to complete. At the end of the project, we had a precise figure for the size of the collection (83,962 volumes) and a precise loss rate (13 percent over 105 years). This gave us a respectable annual loss rate of less than one percent; however, the inventory revealed that losses were greatest in recent years. In addition, because we utilized a computer for inventory record keeping, we had the benefit of a computerized author and title catalogue to the collection. Our security "problem" was determined to have been one of perception, not of reality, and the losses, such as they were, could be incorporated into the costs of running the library. Obviously a project, such as an inventory, cannot precede other reorganization efforts, but must be carried out concurrently with them. While the inventory will provide valuable information, other areas of library operation must be considered as well.

Of critical importance is the funding received by the library, and, in the case of a library which is part of a larger institution, the library's position in the organizational structure of that institution. Funding is important not only in terms of the financial amount (though that has to be considered a major factor), but also in terms of where the funding comes from and who controls how it is spent. Most private libraries are supported by some form of investment, either endowments or other investment packages, which are usually supervised by a group not actively participating in the library's organization and operations. Funding has to be examined carefully, since there are special considerations in the private library world which do not carry over into public institutions. Primary is the library's ineligibility for tax-deductible gifts. If the library is truly private, that is, if it is part of a closed organization which does not offer any benefits to the public, it cannot receive tax-deductible gifts, a problem which has intensified in recent decades as potential donors have shied away from such gift giving. It is an administrative problem that must be resolved by the board of directors of the parent organization, but which has serious impact upon the quality of services offered in the library.

If tax-deductible gifts are not a possibility, then where does the library turn for operating funds? Certainly to the parent institution, which, simply by acknowledging the existence of the library and accepting the responsibility of housing and maintaining it, has an obligation to provide some part of its operating costs and, presumably, has been doing so at some level as long as the library has existed. In some organizations, the parent entity may provide salaries and upkeep of the physical plant. In others, custodial staff may be provided, but the library is expected to reimburse the organization for some share of the expenses of the upkeep and must supply its own library personnel. Yet in others, there may be some annual contribution to the cost of the library's materials and services. The point is, in practically every private library, the situation is unique and the financing structure is incorporated into that unique situation.

If financing is predetermined, and there is no opportunity for additional funding, where does the innovative library manager go for the funds needed for reorganization? He or she goes to the users. Most people who use a private library do so because the library provides something they cannot get elsewhere, be it a unique collection, a beautiful space, a particular ambiance they can't find in more public institutions, or any of a variety of special things they find in the library. These users can be effectively utilized. They can be invited to join a "friends-of-the-library" organization, and they will, more than likely, be flattered that you have asked them to become involved. If you initiate this effort (which we highly recommend), a private

library does call for some special handling, unlike some of the public library efforts along these lines. For example, even the most independent private library will not be appropriately served if the new friends group is formed for the sole purpose of raising money (although this is certainly a major consideration). In a private library, users are presumably already paying (directly or indirectly) to use the library. Some additional enticement must be provided for them to form a friends group, and this can be anything from having each additional contribution pay for a book added to the collection in the member's name, to programs, lectures, speeches, and social events that bring members together based on their mutual interest in the library.

Of course, no amount of user support can compensate for deficiencies in the library staff. It is necessary to examine the staff situation in the library, with an eye toward how it affects the services offered. This should include the creation of complete job descriptions for each position. These should not be the formalized type of job description that is generally handed to an applicant at an interview, but should include *all* of the tasks which each staff member performs on a regular basis. These job descriptions can assist in determining if realignment of positions is necessary to allow for a more equitable distribution of work, or, in some cases, if actual staff changes will be necessary as part of the reorganizational effort.

Other factors too must be carefully examined. Seemingly simple things, such as the physical arrangement of the collection and furniture, can have a major impact on the quality of library services. At the University Club Library, we found that a major part of staff time was spent retrieving back issues of periodicals from a stack room on another floor. A simple study determined that most of the requests were for periodicals received within the last several months. By moving a one-year backfile of the most requested periodical titles into the library office, a tremendous amount of staff time (and, accordingly, expense as well) was saved.

Similarly, an attempt should be made to maximize the availability of library staff to users. In our efforts to avoid interruptions, we sometimes forget that the main part of our jobs is to help users. If it is difficult for the user to locate the librarian on duty at any given time, or if the location of the librarian's desk makes it seem that the users are "interrupting the librarian" when they request services, the situation must be remedied. Generally this can be accomplished through a simple rearrangement of furniture, but perhaps a rearrangement of attitude is called for as well. This is not to say that your desk has to be directly in the center of the library, and, of course, practical considerations, such as telephone lines and electric cords, must be dealt with. But given these restraints, the library staff should be physically positioned in places conducive to providing services to users.

At this point, a tremendous amount of data should have already been gathered concerning services, the collection, physical arrangement, funding, organizational structure, and staff. Presumably, in the course of gathering and studying this raw data many areas for potential change will have been identified. The temptation is to start implementing these changes immediately in order to bring about a positive change as quickly as possible, but that is a course of action which is almost certainly doomed to failure. Few institutions can withstand the force of total change brought about over a short period of time, and private libraries, with their aforementioned conservatism, are less able (or willing) than most to undergo revolutionary, rather than evolutionary, change. Changes need to be made gradually, according to a strict schedule. In order to carry out these changes, it is necessary to decide the order in which they will be done. This brings us to the next step of the reorganizational process: setting priorities.

In setting priorities, it is necessary to differentiate between those problems

which affect users and those which affect staff. While those affecting staff will more than likely affect users indirectly, as a general rule those problems which directly affect users should be addressed first. The person in charge of the reorganization, whether this is the librarian, acting librarian, or a project manager hired for the specific program, should be prepared to draw on his or her personal strengths for these early reorganizational efforts within the framework of the priorities we've already described. This is simply because, when two or more projects have the same priority, you must be in a position to work with the one with which you are more comfortable.

It is good business practice to remove as many problems from sight as possible. If, for example, years of lackadaisical cataloging has led to a backlog so large that there are unprocessed books piled around in the library, these should be removed to a suitable storage area. This is one case, however, where "out of sight" cannot be equated with "out of mind." The physical removal of a problem is not in itself a solution, but simply an interim step.

Since substandard services have affected library users, it is important that opportunities be sought and utilized for building or rebuilding user support for reorganization. This support may not necessarily come from the library's existing user base, however small it may be. Those who have continued to use the library during its decline may be satisfied with the status quo and may, in fact, oppose efforts to change,usually for very personal reasons. They may fear, for example, that the more people you have using the library, the less private and personal will be the services received. For the new standards to be put into effect, it will be necessary to convince a sizeable group of users, or potential users, of the value of the services. This is where marketing the library and its services within the organization comes into play. However, be sure you have something marketable before you set out to promote the library and its services. All of the changes which you have identified as necessary through the fact-gathering phase of your reorganization need not be in place before you can promote the library, but certainly some of them must be accomplished prior to any public relations campaign.

In the private library, the staff is not always the best vehicle for promotion and public relations, although the staff must always be in a position to direct and influence these efforts. If a user support group is established, that in itself is good promotion for the library, but the members of that group can be used as well for further promotion and public relations. For example, the group may publish a newsletter with news about the group's activities, and this newsletter can be used to identify special gifts to the library, special services, new acquisitions, and such. Simply by existing to promote and support the library, the group is a built-in public relations opportunity for the library and its services. To reword a well-known advertising maxim, one must always "sell the steak and not the sizzle." No amount of promotion or public relations can replace good solid library services for the users, but when the services are accepted and appreciated by a sufficiently large number of users, that appreciation can be utilized.

Up to this point, all of the efforts have been devoted to gathering information, deciding what changes are necessary, prioritizing those changes, and laying the groundwork for the reorganization. Now it is time for taking action. Obviously, events will not be sequential, as we have suggested here, and, in most cases, some action will have been taken concurrently with the decision-making process. The library staff and management will begin with those changes with which they and the users are most comfortable. One caveat: Before any changes are made, be sure you have the authority to make those changes. This can be accomplished through a simple conversation with the board of directors, manager, or other persons in supervisory positions. Better yet, a detailed written statement of purpose, circulated to the aforementioned authorities, is appropriate and not at all out of

line in this situation. Such a document can have several beneficial effects. As a project proposal, it allows management to see your plans for the library and to express any reservations before you begin to put the reorganization into effect. Secondly, if organized along the lines of a "five-year plan," it also provides the time framework in which the reorganization will be accomplished. Although you will certainly find that Murphy's Law prevents your adhering precisely to any proposed schedule, having target dates in writing can be a valuable management guide. Finally, the document can be useful to you as a professional and as a manager. It's wise to have yourself protected in writing.

No matter what, don't try to move too quickly. Reorganizational efforts can take a long time; generally speaking results are concomitant with the amount of time devoted to them. The reorganization of the University Club Library has taken seven years, and, in fact, reorganization continues to be an on-going process. Appropriate changes and innovations should always be considered in an effort to improve the library and its services. In creating an awareness of the need for reorganization in a private library, and then carrying out that reorganization, you can overcome the institutional conservatism which characterizes most private libraries. Having accomplished that, and with the awareness that reorganization is an on-going process, you are well on the way to achieving the ultimate goal of excellence in the private library.

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Multiple-User Microcomputer Technology and its Application to the Library Environment

Cathleen D. McCarthy

■ **Excellence, as defined within the context of providing access and services to a wide range of users with varying functional requirements, is the focus of the special librarian involved in computer systems development. The pinched economic climate of the 1980s requires that library systems development take place within the matrix of limited resources. This paper explores the challenge of optimizing excellence in library systems development through the use of very recent advances in microcomputers. Specifically, it will describe the utilization of the multiuse capabilities of the IBM PC AT with hitherto single-use, library specific software running under the universally accepted environment of DOS. Specifications for a sample configuration are provided with estimated cost projections.**

IN August 1984, IBM unveiled its next generation contribution to microcomputer technology, the AT or Advanced Technology personal computer. Other computer manufacturers characteristically responded with a myriad of clones and improvements to the initial design, centering around the AT's most significant feature, the Intel 80286 microchip. (*1*) With the introduction of these next generation machines, librarians must now reformulate their options and expand their strategies to include these developments when automation or reautomation is on the agenda.

Restrictions to "one person, one processor, one program" have, in the past, limited the usefulness of the personal computer as a productivity tool in larger library operations. (*2*) These restrictions have been minimized by hardware advances, including the 80286 chip and fast clocks. They have been eliminated by UNIX-based operating systems that supply multiuse and multitasking capabilities as a matter of course. The librarian

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involved in systems development for particular situations will therefore profit by examining requirements in the light of the AT class personal computer's ability to support a number of users and a number of tasks simultaneously.

This paper is designed to shed some light on this new technology as it relates to the automation or reautomation of library operations. It cannot be comprehensive since the market in software and hardware solutions to multiuser, multitasking requirements is advancing faster than the human ability to keep up with it. The focus will be on thrift and strategic use of resources since these are prime considerations with all library systems development today. One solution that is in the process of implementation at the writing of this paper will be examined within the requirements of the operation that it was designed to satisfy.

For the purposes of this discussion, the term multiuser is defined as the ability for *more than one station or user to have concurrent access* to a program or set of programs commonly held in one CPU or file server. Multitasking is defined as the ability for *one or more users to perform multiple activities simultaneously.*(*3*) A small configuration should be seen as no more than four users per one CPU, while a medium-sized operation can be envisioned as a collection comprising 50,000 records at a maximum.

Hardware

Advanced technology microcomputers distinguish themselves from their predecessors in terms of processing speed, internal memory, and both quantity and quality of storage options. Table 1 summarizes these attributes across three IBM products.

Fast processing speed is the product of the interaction of several internal hardware pieces, the heart of which is the Intel 80286 (short form, 286) microprocessor. Running as a single-task machine or in "real address mode," this chip executes tasks six times faster than the 8088 chip standard to the IBM PC and PC XT. Operating in "virtual protected mode" or as a multitask machine, the 286 utilizes its ability to store data in RAM (known as virtual memory) to decrease processing time and create the illusion of running programs simultaneously. The illusion is accomplished through the 286's ability to switch back and forth between two tasks, storing one then the other in virtual memory until both are completed. (*4*)

Table 1. Comparison of IBM Microcomputer Products

Requirement	IBM PC and PC XT	IBM PC AT
multiuser	no	yes: under DOS 3 or 3.1 using a concurrency environment; also PC/Xenix & PC/IX
multitasking	no(PC) yes(XT)	yes: includes virtual memory feature (Mdisk)
processor	8088 chip	80286 chip 6X faster, 12X faster using (Mdisk)
clock	4 MHz	6 MHz to 8 MHz
bus	8 bit	16 + 8 bit bus
useable/ flexible RAM	640 K maximum	512 K standard enhanced package expandable to 3 MB
hard disk storage	not standard (PC) 10 MB standard (XT)	20 MB conventional configuration to enhanced package

The 286 chip speed is enhanced by an internal clock that pulses at six to eight MHz in most personal computers. Since the function of the computer clock is to synchronize the rate at which the CPU executes programming instructions, this faster clock is a reflection of the increased rate of instruction execution. Increased processing speed is the key element in the support of multitasking and multiusing. The architecture of the chip is the critical factor. Slower machines may be enhanced in memory enough to support concurrent software, but it is unrealistic to expect users to contend with the resulting degradation in response time.

Expandable memory forms the second ingredient in the success of AT technology. Despite the inability of DOS to address more than 640 K of RAM, these 80286-based machines are capable of supporting 3 to 18 megabytes of RAM. (*5*) While it may seem pointless to provide so much RAM beyond the 640 K barrier and beyond the requirements for virtual memory in a single-use environment, it is sensible to provide for concurrent software that splits RAM into packets of 640 K or less.

Hard disks provide a solution to the storage of large data files characteristic of even small library operations. They also provide fast access to the files through internal organization. Ten-to-twenty-megabyte hard disks provided with many standard hardware packages are sufficient for small to medium operations under most circumstances. Although DOS does not recognize or address more than 32 megabytes of hard disk, both hardware and software methods exist to get around this problem. Therefore third-party manufacturers have developed hard disks that contain 120 megabytes and over for even larger requirements. (*6*)

Software

Perhaps the greatest liability in the full use of increased processing speed and enlarged storage capacity is the monopoly that the DOS operating system exerts over the software application market. DOS lacks sophistication in the management of its memory resources and is unable to execute more than one task at a time. Because of the significant investment that the market has made in DOS as a support to application packages, software developers have compensated by providing a number of packages that create concurrent environments. A number of these are comparatively described in an article by Don Awalt entitled "Concurrent Environments." (*7*)

Most concurrent programs emulate multitasking environments through a process called time-slicing. This involves utilizing the interrupt signal of the system clock to suspend one task and storing its current status, while handing over the processor to the next task. In most cases each task passing through is allocated equal execution time on a round-robin basis. While time-slicing functions well with most programs, problems have been observed with communications software. (*8*) Breakdowns can occur when the time-slice allocated is insufficient to capture all characters being transmitted in a line. Communications requirements should therefore prompt the librarian to prefer those concurrent packages that offer control over time-slice partitions (eg., E-Z-DOS-IT).

Apart from time-slicing characteristics, multitasking packages can offer a myriad of features including the following:

- multiuser support,
- disk caching for extending the 640 K barrier,
- windowing or screen-partitioning for simultaneous display output,
- "cutting and pasting" or data exchange between simultaneously running programs,
- macro-level programming support,
- keyboard expansion capabilities, and
- "print spooling" or ability to print documents while other applications are running.

Depending on individual requirements for hardware and workflow, concurrent

packages should therefore be examined carefully.

One general requirement found in most library automation schemes is multiuser support. Until recently, the microcomputer option was viable only in those situations large enough to supply a personal computer for each user or small enough for one machine to be shared by all. Multiuser support therefore broadens the range of library operations able to benefit from recent microcomputer technology and relatively low hardware prices. A third constituency might then be added to those above, namely a small library with a small-to-medium-sized collection supported by a microcomputer, which in turn drives several linked dumb terminals, all sharing common software and files. While concurrent environments represent a significant leap forward, there are limitations that should be noted. Quite naturally these limitations originate in the single-minded nature of DOS.

Security was never viewed as an important issue when DOS was written since the single user could protect his/her files by either physically securing the machine or the storage devices or by superimposing a single-use security program on DOS. Creating multiple access to various functions implies a need for security for file and data integrity, especially if access by library patrons or non-staff is contemplated. While UNIX-based operating systems provide a multileveled security feature, these must be added on to DOS-based applications if they are not provided as a software feature. Security programs are plentiful in the marketplace. If a security program is in order, requirements for specific situations should be considered.

Equally disturbing is the fact that DOS does not provide a 'locking' device for records or files. Again UNIX-based operating systems have anticipated this requirement in concurrent environments. It is possible, and especially so when dealing with so-called 'integrated' library software, for two users to seek access in the same datafile to the same record for the purpose of updating the same information. Under the time-slicing scenario previously described, DOS would, in fact, handle both tasks one at a time. While both tasks may be successfully executed, a corruption of the index involved in the update or a loss of precision may occur. In other words, the records would remain while access to them might be lost.

It is noted throughout this discussion, where DOS has failed, UNIX seems to succeed. In the opinion of this author, UNIX is a powerful and effective operating system whose time has not yet fully come to the library environment. While application software and especially so-called 'turnkey' software operational under DOS is plentiful, it is sparse under UNIX. Several DBMS's functional under UNIX and capable of supporting library functions have nevertheless been identified. These include Oracle, EZ-Speed Record Management, and BRS Search.

It has also been suggested that UNIX is further limited by its structure and command language. Microcomputer-systems users have commented to this author that while it is well suited to an engineering and accounting (i.e., sophisticated) environment, it is inappropriate for inexperienced users. However 'shell' programs have been designed to obviate this problem, which should be investigated if UNIX becomes the operating system of choice.

Another possible limitation, alluded to by Richard Mason in his *Library Journal* article of 1984, is that the AT utilized under the ZENIX operating system (a UNIX-based OS), can support a maximum of only three users. (*9*) Concurrent environments under DOS tend to allow more users per AT. This problem will be eliminated with the spread of IBM's latest microcomputer, the RT, which supports the AT&T version of UNIX and is now licensed to allow a maximum of eight concurrent users. The RT can be converted to DOS by means of an AT card. Early reactions to the RT–AT configuration indicate that DOS compata-

bility is imperfect. It would be wise to test the application software on the RT–AT before deciding to buy.

This overview of hardware and software serves to illustrate the potential of the AT-class microcomputer functioning in a multitasking, multiuser environment for the small-to-medium-sized library operation. While it should be noted that mini- and mainframe computers are still the optimal choices for larger operations requiring complex file structures, the developments described above should catch the attention of those librarians developing automation schemes for smaller collections destined to serve limited user populations.

The final section of this paper will demonstrate one configuration involving the AT option. At the time of writing, the proposal for this configuration has been accepted, but implementation is only in the initial stages.

Application

The Canadian Centre for Occupational Health and Safety was created by the Parliament of Canada in 1978 to promote the right of Canadians to a healthy and safe work environment. This responsibility is carried out through the provision of information on occupational health and safety as direct responses to inquiries, as technical publications, and as connections to Centre-generated and Centre-supported electronic databases. Demand for these services is rising sharply, while the resources allocated to support them have remained static. The Centre has therefore adopted several strategies to meet the challenge of increasing productivity without increasing resource expenditures.

One of these strategies involves dedicating the in-house minicomputer to the provision of databases to external users, while removing internal management and support functions to customized microcomputer systems. Within the terms of this strategy, the document-support component of the Centre, called Information Response Services, proposed a multitasking, multiuser microcomputer system based on concepts described throughout this paper. This operation can be viewed as a small operation with a medium-sized (45,000) collection. What follows is a brief discussion of the configuration proposed to meet the internal management needs of one of the library-type functions within CCOHS.

The internal management functions identified for inclusion in the microcomputer system are as follows:

1. acquisition of priced, nonpriced, and donated materials, including the procurement of copied material from other institutions;
2. record of subscriptions to journals and serials acquired by the Centre;
3. inventory of the Centre's support document collection;
4. record of the circulation of that collection;
5. record of support material borrowed from other institutions; and
6. generation of statistical and management reports for the above.

The need for a common database management system that would deal equally well with all of these functions was identified early in the proposal process. This would promote consistency of records across data files and facilitate staff training and access. The database management system chosen would have to be transparent to nonsystems-oriented staff who would eventually be responsible for everyday maintenance and operation of the system, while at the same time flexible enough to adapt to a specialized environment. Finally, in order to achieve the ability for several people to interact simultaneously with various data files, the right combination of DBMS and a multilinking environment would have to be identified.

While several software options were considered, the combination of Inmagic (Version 7—released Spring 1986) and Multilink was identified as the most appropriate option under the circumstances.

Inmagic was chosen for its ease and transparency of operation, as well as its flexibility of structure for records, data files, and report-generation facilities. (*10, 11, 12*) For the concurrent environment, Multilink proved in test situations to be adaptable to the DBMS and to contain options that were considered important to the configuration. Potential problems concerning Multilink cited in the literature were not experienced when the configuration was tested in a multiuser situation. (*11*) Multilink's greatest disadvantage was deemed to be the size of the time-slice, which would not support telecommunications. This consideration was not seen as critical to the needs of this particular situation.

In terms of preferred hardware, IBM hardware was chosen by the Centre over the more economic IBM look alike or 'clone' hardware so widely available. While IBM clones represent a more economic solution, caution should be exercised in the choice of manufacturer. These machines claim close-to-total compatability but differ in varying degrees with the IBM prototype. These differences tend to be emphasized, sometimes to the point of disaster, when manufacturer-specified interrupt signals are used by the application software. Most concurrency software uses interrupt signals to function.

To further expedite implementation, the request for purchase specified that the hardware be installed by the vendor. Inmagic was judged to be easily installed, from instructions provided in accompanying documentation, once the hardware and the concurrency programs were working.

To accommodate the internal management functions, as well as the physical and organizational layouts of Information Response Services, two AT configurations will be established: one within the acquisitions and serials function and one to be situated in the physical collection itself. Two alternative solutions are available to the multiuse, multitasking requirement; the LAN network and the microprocessor configuration. The Centre opted for the latter solution because of its relative economy and its applicability to the situation.

The following list represents the larger of the two configurations in terms of hardware:

1 — IBM PC AT enhanced complete with 512 K of memory, keyboard, one 1.2 MB diskette drive and adapter, guide to operations & diagnostics, installation and set-up manual and basic reference manual, and serial & parallel adapter;
2 — J-RAM board with IBM (Total System memory 3 MB);
1 — Monochrome/printer adapter card;
1 — Monochrome monitor;
1 — Parallel printer cable;
3 — PC shadow terminals with cable;
1 — MULTILINK Advanced software;
1 — DOS 3.1;
1 — Surge protection device;
1 — Near-letter quality printer;
1 — 72 MB hard disk (internal) unit; and
1 — 45 MB streaming tape backup unit.

Using IBM equipment, the cost of this configuration is approximately US $16,500. If adaptable IBM clones are used, this cost can be reduced by at least five thousand dollars. This configuration is ambitious in its intentions toward concurrency, but reasonable in cost. It should be noted that provision has been made for system backup beyond the capabilities of the floppy disk drives. File and database backup capabilities are crucial to good system planning and are best provided for in specialized cartridge backup units. (*12*)

Copyright

It is postulated that copyright law, as it applies to application software—specifically "one person, one processor, one program"—is violated by the development of multiuser capability. In essence, only one copy of the application exists within the CPU or storage device. The concurrency environment, however, mul-

tiplies the single application program by the number of users capable of accessing the processor. Even though only one copy is purchased, it is in effect 'copied' by the user at the point of signing on to the system from a dumb terminal. Application software manufacturers can respond by either ignoring the issue altogether (thereby losing control of their product), protecting their software physically from multiuse (thereby losing some of their potential market), or by developing a licensing policy that accommodates the multiuse requirement. Before proceeding with plans to automate utilizing hitherto single-use software in a multiuser environment, it is advisable to clarify this intention with the supplier. Apart from the obvious protection from possible copyright infringement, it is evident that software manufacturers are quite willing to adapt to new situations and to offer helpful advice on achieving an effective multiuser environment.

Conclusion

This paper has demonstrated that multiuse and multitasking microcomputer systems are now available for small-to-medium-scale automation of library operations. Many of the stumbling blocks imposed by the unilateral nature of DOS have been overcome, while some important ones remain. Identified here are some of the more critical drawbacks. Despite the possibilities afforded by the development of the AT-class personal computer, it is crucial for any multiuser and multitasking scheme to be preceded by comprehensive study and planning. Since this strategy is relatively new in library automation, it is advised that hardware/software configurations be tested for compatability and performance prior to purchase and that several possibilities, which include prepackaged multiuser systems, such as Cuadra's Star or Avatar's ILS be compared before a decision is made. If at the end of these determinations the AT route is judged to be the most appropriate, then the automation team should proceed to implementation, building in enough flexibility in both human and financial resources to accommodate the fine tuning of the final configuration.

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A Serial Holdings List Using UNIX Refer

Judith I. Boyce

Bert R. Boyce

■ **Small consortiums of special libraries may wish to produce resource-sharing tools with minimal expense. The automated production of a union list of serial holdings can be accomplished through the use of readily available software without modification. The UNIX-based Refer system has been successfully demonstrated for this purpose by a consortium of Louisiana government libraries.**

Introduction

UNION listing activities to facilitate resource sharing, once thought to be the drudge work of serials, have blossomed and taken on a new personality in recent years." (*1*) After making the above statement, Weber credits both inflation and advances in technology as explaining this change. Many special libraries that might gain through resource sharing of this sort are certainly feeling inflation but may not be in a position to use national services like Faxon's (*2*) or that provided by OCLC. It may, however, be possible to utilize locally available resources at minimal cost.

If they have no serials automation currently available, union lists are often beyond the capabilities of loose organizations of special libraries, and the cost of designing a local automated system for this purpose makes that alternative even more unlikely. However, if micro or minicomputer equipment is available for occasional use, the possibility of adopting existing software exists. Seba and Smith (*3*) suggest that the use of commercially available software for relational database systems such as INQUIRE is an excellent choice. This is certainly true, but these capabilities are not required for simple union list construction.

The purpose of this paper is to describe the use of a widely available software package to maintain, search online, and print a simple union serials list for research-sharing among a loose consortium of special libraries.

LaGIN—Description

Created through state legislation, the Louisiana Government Information Network (LaGIN) consists of 49 state-supported agency library and information centers and their representatives. With the advice and consent of the Network's Steering Committee, the network coordinator designs and prepares programs and publications for the following rea-

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sons: to increase the awareness of available agency information and information resources, to decrease unnecessary collection duplication of those resources, and to facilitate information sharing among agency information centers and employees. A more complete description of LaGIN and its origins are provided by Kernodle. (*4*)

Need for the Serials List

One major work of the organization has been the publication of the *LaGIN Serials Record.* First published in 1981, the *Record* contained serials holdings for 11 of the more significant state agency libraries and resource centers. The administration and maintenance of the *Record* has been and continues to be the responsibility of the LaGIN coordinator. Need for a new edition developed as several of the libraries originally included ceased existence, other libraries sought inclusion, and the status of the holdings changed in others. The *Record's* current second edition is a compilation of nine state agency library holdings, giving the location of over nine hundred serial titles. The inclusion of a title in the *Record* indicates that the contributing agency will make this item available for research purposes to other member agencies, either by means of in-house use, interlibrary loan, or photoduplication of an item/article.

Because of the *Record's* size, an automated program was desirable to accommodate editing and to provide for the easy expansion and revision of subsequent editions. The Louisiana State Library, which employs the coordinator and supports the network, is without automation facilities and has no access to other agency automated programs nor funds to contract for such services. For this reason, project assistance was sought from the Louisiana State University School of Library and Information Science. Since the school was able to arrange use of the Department of Computer Science's hardware and software and to provide training in its use at minimal cost, no other systems were seriously considered. The Louisiana State Library loaned LaGIN the necessary terminal, modem, and telephone line for data entry. This terminal is still available for updates, but LaGIN has no access for other data processing activities since it has no funds to support them.

UNIX Refer

Refer, a UNIX-based bibliography system, was chosen primarily because of its availability at LSU on the Department of Computer Science's VAX11/780 and for its ease of use. The VAX11 series is arguably the most popular minicomputer currently sold and is the best known product of Digital Equipment Corporation (DEC). It is available in most research and engineering environments, and the UNIX operating system, developed by Bell Laboratories for earlier DEC equipment, has become arguably the most popular operating system for minicomputers and mainframes outside the IBM environment. It is now also available for the more powerful microcomputers (e.g., the IBM PC/AT). Many special libraries may well find UNIX and Refer already available in their environments.

Refer, in the form discussed here, is a part of a program package distributed by the University of California at Berkeley with its version of the UNIX operating system. It is designed for handling the bibliographies of research papers when using the UNIX word processing programs. Any changes would be distributed by Berkeley or Bell Laboratories to licensed users. Refer has been used to handle files of bibliographic references in the thousands and the addition of new records is a straightforward process. Ease of handling decreases as file size increases. Refer was originally developed by Mike Lesk of Bell Laboratories. It is essentially a preprocessor for the UNIX text formatting program. Addbib, which provides for ease of entry, was first written by Al Stongeberger at the University of California, Berkeley, and Sortbib and Roffbib, which we used to sort and format the citations, were also created at

Berkeley by Greg Shenaut. Descriptions of all these programs are available in the *UNIX Programmers Manual* (*5*) and in a paper by Bill Tuthill. (*6*)

Appendix I shows typical Refer records in a UNIX file. These were created using the Addbib program, which prompts for fields as shown in Appendix II. Those fields that are not needed are simply bypassed with a carriage return. We made use of only the journal, publisher, city, date, and abstract fields for the journal holdings list and could have modified Addbib to prompt only for those fields. As a matter of fact, we did not, but instead we simply by-passed them on entry. Appendix III shows a sample of the records after they have been passed through Roffbib.

The %J indicates journal title; the %I, publisher; %C, city; %D, date; and %X, the abstract field, which we used to carry OCLC numbers and holdings statements. Since Roffbib does not format this field, we were able to add non-standard data. Cross references were entered simply by incorporating them in a record using only a title field, e.g., "Par" See Public Administration Review.

Data Entry and Production

Since the LaGIN serials list had existed in a previous edition, it formed the basis of the current work. As a first step, the member libraries updated their holdings on this list and appended only new subscriptions. The LaGIN coordinator then verified the new citations and added OCLC record numbers where needed. The updated list was then entered into the Refer system using Addbib, sorted using Sortbib, and proof printed.

From the proofs the file was then edited to remove errors and to shift the position of some citations, which the sort had, for various reasons, placed in an undesirable position. New proofs were then run and the process repeated until no er-

Appendix I

The First 10 Lines of the LaGIN File Created by Addbib

```
1,25nu
 1
 2 %J ACADEMIC THERAPY
 3 %I ACADEMIC THERAPY PUBLICATIONS
 4 %C SAN RAFAEL, CALIF.
 5 %D 1968, VOL. 4
 6 %X OCLC 1798649
 7    LED    1981, VOL. 17 -
 8
 9 %J ACADIANA PROFILE
10 %C LAFAYETTE, LA.
```

Appendix II

The Addbib Entry Format

```
% addbib #lagin

Instructions?

                n

     Author:
      Title:
    Journal:
     Volume:
      Pages:
  Publisher:
       City:
       Date:
      Other:
   Keywords:
   Abstract:  (ctrl-d to end)

Continue? q
```

Appendix III

A Sample of the LaGIN Serials Holdings List Processed by Roffbib

Bibliography

ACADEMIC THERAPY, ACADEMIC THERAPY PUBLICATIONS, SAN RAFAEL, CALIF. 1968, VOL. 4.

OCLC 1798649
LED 1981, VOL. 17 -

ACADIANA PROFILE, LAFAYETTE, LA., 1969, VOL. 1.

OCLC 3775533
LC 1979, VOL. 7 - 1982, VOL. 10

ACTA CYTOLOGICA, INTERNATIONAL ACADEMY OF CYTOLOGY, CHICAGO, IL., 1957, VOL. 1.

OCLC 1417018
LH 1976, VOL. 20

rors were found. Ed, the standard UNIX line editor, was used for this purpose.

The final file was then printed on a high-quality machine to provide camera-ready copy and photocopied for binding. Copies were then distributed to the membership.

The Refer system produced a high-quality list with minimal effort. Because of the power of the UNIX editor, additions and changes will be quite easy for future editions. However, another benefit has also ensued. The Refer package provides a program known as Lookbib, which allows online access to any Refer file so maintained. Thus individual records can be easily accessed online by title or any added key words. Appendix IV shows a typical title search.

Appendix IV

A Lookbib Search for the Holdings Record of ACTA MEDICA

```
lookbib lagin
Instructions? y
Type keywords (such as author and date) after
  the > prompt. References with those key-
  words are printed if they exist; if nothing
  matches you are given another prompt.
To quit lookbib, press CTRL-d after the >
  prompt.
> ACTA CYTOLOGICA
%J ACTA CYTOLOGICA
%I INTERNATIONAL ACADEMY OF CYTOLOGY
%C CHICAGO, IL.
%D 1957, VOL. 1
%X OCLC 1417018
> LH 1976, VOL. 20
> EDT
%
```

While we anticipate that current access will be through the use of the printed list, the online capability will be useful as the file grows or in the case that it is extended to more libraries.

Generality

The UNIX system is a widely available operating system and Refer is easily obtainable. While designed to create bibliographies for research papers, it was used in this application without any modification. There is no particular reason that it could not be used for a much larger holdings list.

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The Preservation of Newspaper Clippings

Veronica Colley Cunningham

■ **During 1986, I visited five newspaper libraries: the *Bangor Daily News*, the *Boston Globe*, the *Boston Herald*, the *Falmouth Enterprise*, and the *Worcester Telegram and Evening Gazette*. I was interested in seeing how these libraries handled newspaper preservation. In this article, I will discuss the following aspects of newspaper preservation: climate control, storage, in-house preservation methods, options for full professional treatment of newspapers and clippings, and the advantages and disadvantages of microfilming over keeping a newspaper in its original form.**

Climate and Light Control

NEWSPAPERS were probably not intended to be a permanent record, nor were they probably intended for long-term preservation. Since they are manufactured from wood pulp, newspapers are highly acidic and, consequently, subject to deterioration due to humidity and temperature. Relative humidity should be kept at 50 percent, plus or minus 5 percent, and the temperature maintained at 68 degrees Fahrenheit, plus or minus 2 degrees. Paper does well stored in a much cooler temperature; however, since people need to work with the newspapers, 68 degrees is considered a comfortable environment for both. Seasonal and daily fluctuations in humidity weaken the cellulose fibers in the paper and accelerate deterioration. It is important that temperature and relative humidity be 68 degrees and 50 percent respectively for 24 hours, 365 days a year, in order for it to be effective.

Light accelerates the deterioration of paper. Intensity of light combined with long-term exposure is responsible for damage. Collections of permanent value are best stored in areas with no natural light where artificial light is incandescent. Fluorescent tubes should be covered with ultra-violet filtering sleeves. Light, and also heat, can be controlled through the use of blinds, shades, shutters, and drapes.

Bound newspapers suffer far less deterioration than bundles of unbound newspapers. The Northeast Document Conservation Center (NEDCC) recently filmed a run of newspapers for a public library, part of which were bound and

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part loose. The bound volumes only showed signs of discoloration and deterioration around the edges. However, the loose papers had deteriorated significantly; they were yellow and sufficiently brittle as to make them difficult to film.

Storage and Handling

All the libraries that I visited store their clippings in manila envelopes. The outside of each envelope lists the subject, by-line, or personal name. However, some of the envelopes used were long and thin; often there were too many clippings in one envelope. Some of the clippings had to be folded many times, and when replaced after use, were refolded. Quite often damage resulted to the smaller clippings left in the envelope; they would be pushed to the bottom and would start to crumble.

Folding and unfolding can cause clippings to tear along the folds. When manila envelopes are used, the 8" x 5" size seems preferable. Clippings do not need to be folded as much, there is wider access, and, consequently, removal and replacement of the clippings is much easier for the filer and less damage is done to them. The newsprint, however, accelerates the deterioration of the envelopes.

The use of archival envelopes may be considered, but unless the clippings within the envelopes have been deacidified first, archival quality evelopes will do little to deter further breakdown of the clippings. Their use will only prevent migration from one envelope to another; therefore, it is questionable whether it is worth the added expense of transferring the entire retrospective collection to archival envelopes. Ideally, archival storage materials should always be acid free, but considerations are slightly different when working with the poor quality of newsprint.

If the collection of clippings is not going to be microfilmed in the future, one way to protect clippings from damage would be to mount them on archival paper—archival quality Xerox paper works well for this. A wheat starch paste can be used to adhere the clippings, or methyl cellulose, which can be obtained from a conservation supplier. The methyl cellulose needs only to be mixed with water to the desired consistency, and it is reversible. Mounting the clippings gives them a firm support and also reduces the need for folding. The clippings need to be adhered on part of all sides, so that if one article is pulled out and replaced without removing the folder, little damage will occur to the other clippings in the file. Users of a file need to be educated to remove the entire file so that removed items can be returned without causing damage. Overstuffing the file folders can also lead to damage.

One advantage of mounting the clippings is that the date, subject, and by-line of the article can be typed or written on each sheet. Another advantage is that if, in the future, a decision is made to turn the clipping file into either microfilm or microfiche, the mounted clippings will be far easier to handle at the camera station, and, consequently, cost less to film.

We recently filmed a newsclipping collection for a client in the health care field. Each clipping was mounted with the newspaper's name and the date of publication included. Each date noted contained about 30 to 40 clippings. The first page of the mounted material was on a letter heading including the date, which made any further targets unnecessary. As the clippings were mounted, it filmed very quickly, since there was little extra handling at the camera station.

Photocopying newsclippings provides an alternative to keeping the originals, which may be discarded after copying. The photocopier needs to be well maintained: glass and rollers cleaned and toner replenished in order to provide sharp, legible copies. Archival Xerox paper, which is thought to last for 100 years, is available. It is advantageous to type and

write on photocopies, and the same format for access already in use in a library can continue. More than one copy can be made if the article covers more than one subject. Another advantage is that if the photocopies are the same size, they can be stored in standard folders using standard filing equipment.

Encapsulation is not recommended unless the clippings have intrinsic value. If they do, they should be deacidified prior to encapsulation. There is some preliminary scientific evidence indicating that sealing an acidic item in polyester film may hasten its deterioration. If deacidification is not possible and a decision to encapsulate is made, leave one or two sides of the encapsulation open to allow for the movement of air. Inclusion of acid-free buffered paper as a backing to the clipping will retard deterioration. Encapsulation allows the item to be handled without causing further damage.

I visited two newspaper libraries that were putting newsclippings on microfiche, but each used a different method. The newspaper at one library has been on line since 1977. Complete copies of all daily issues from the year 1872 to the present are on microfilm. This library is in the process of transferring its newsclippings to microfiche. Currently the staff are processing a collection on Finances, Corporations and Industrial Enterprises. Large files are pulled to increase drawer space. Each file is then checked to make sure that it contains material related to a specific company, as well as checked for location and city/state. These are then placed in chronological order of month, day, and year. The clippings are mounted on pink 8" x 10" construction paper, and the title of the publication is written in using black ink. The cards are filmed using a Scott 200 microfiche camera/processor that produces a completed fiche every 72 frames. The fiche can be updated as necessary. After filming, the fiche are spot checked for damage, the file is offered to the writer, and, if not accepted, is thrown out. The library uses a Lektriever filing system.

The other library, a much smaller one, clips articles of personal, local, and state interest, including congressional material that relates to the state. The clippings are filmed every day, using a Canon 161G processor camera and 16 mm film. The clippings are ordered by subject, by-line, and personal and obituary groupings. Once clipped, the appropriately headed fiche are pulled from the file, and the new clippings are attached until filmed. The processed reel of film is transferred to a Microseal film inserter, and the film is then fed into a channel on the fiche, which is already headed with the subject and the opening date for that fiche. When the fiche for that subject is full, the closing date is added to the heading. A new fiche will then begin with the date of the next clipping for that topic. It seems to be an extremely efficient operation, and there is a fiche-to-fiche duplicator available so that copies can be made for reporters or patrons.

Each of these systems has built-in processing, which raises a question as to the archival quality of the finished product. As neither fiche system is connected to running water, it is questionable whether the residual chemicals are being effectively removed during the washing process. To check for residual hypo content of the processed film, a methylene blue test needs to be performed within 48 hours of processing. This test may be performed by an independent laboratory that is equipped to perform the test, or performed in-house by using one of the kits commercially available. (1) If the film is not processed to archival standards, it would be possible to have duplicate copies made of the fiche already in the library collection.

With the exception of one library, whatever method is used for storing the information—whether original clips in envelopes, mounted clippings, photocopied clippings, or film or fiche—all the libraries I visited have one problem in

common: security. Is the library open all night, is it staffed? Is the material allowed to leave the library? Is there an effective sign-out procedure? How much information is lost, and how can it be prevented? These questions are asked to give you time to pause and consider whether the security you have is adequate or needs to be improved. So much work goes into developing a clipping collection that when loss occurs, the loss involves more than the physical item. The one library that was the exception insists on material being used in the library, which results in little loss.

Professional Treatment

The clippings can be deacidified to neutralize the acid in the paper. This can be done using aqueous or nonaqueous methods. The aqueous method requires that the material be washed first and then placed in a solution of an alkaline salt. Not all artifacts can be placed in water because they may contain water soluble media. As this process usually involves two immersions and a drying, the aqueous method is time consuming and expensive. It is less expensive to deacidify nonaqueously using any one of several Wei T'o solutions, these being the only nonaqueous solutions commercially available. However, neither of these processes should be attempted in-house or by non-professionals. Reasons for this include the difficulties of handling wet paper, which can tear easily, and the toxicity of the solutions used for nonaqueous deacidification.

In 1980 NEDCC treated the *Hartford Courant*, late 18th and early 19th century editions, for the Connecticut Historical Society. The volumes were disbound, tape was removed, the pages were washed and deacidified, and each folio was guarded and mended. It was then collated, placed in folders, and boxed. In the treatment proposal, microfilming was suggested, not as an alternative, but as a way by which to reduce the handling of the original material.

Microfilming

In microfilming, the camera master negative is produced on silver halide negative film, which, when stored under ideal conditions, can last up to 1000 years, much longer than present day paper. The film becomes archival and suitable for preservation through the manner in which it is processed, particularly the washing by which residual hypo is removed from the film.

There will continue to be objections to the use of microfilm. Nonetheless, microfilming as an approach to preservation is with us to stay, until a better, more efficient, longer lasting, and less expensive technology takes over in the future.

Newspapers are excellent candidates for microfilming for a number of reasons: they are usually oversize and take up a lot of space; they are often stored in basements or in attics, which hastens deterioration; they are heavy use items because of the variety of information they contain, including coverage of local events, advertising—which is of itself a commentary on social change, legal notices, and editorials, in addition to the current events of the day. The heavy use causes rapid deterioration, including torn or missing pages.

Microfilming provides the following advantages:

1. It provides long-term preservation of historical records of which newspapers form a significant part.
2. It substitutes for the original and provides a service copy that saves wear and tear on the original document.
3. It reduces volume by approximately 90 percent, quite a consideration in a large library collection or any library with limited space for growth.
4. In comparison with any kind of res-

toration treatment, microfilm is relatively inexpensive.

5. If thoroughly indexed and catalogued, and this is not always the case, although the record is probably better for newspapers, microfilm results in fairly quick, easily retrieved information.
6. Microfilming also provides security against theft and mishandling of the original.

The disadvantages of microfilming include the following:

1. It is difficult to obtain high quality reproductions.
2. It is difficult to make paper copies from the film, although reader-printers are improving all the time.
3. Other equipment is needed in order to read the material.
4. Using a film reader can be uncomfortable and stressful on the eyes if used for long periods of time.
5. Without good register or indices, the film is almost impossible to use.
6. Microfilming can be expensive; however, it is better to film than to lose the material.

Recently, I was contacted by a public library director who called to say that between the library's holdings and those of the local newspaper, she could put together a whole run of the paper. I suggested that in order to estimate the cost of microfilming, I needed an approximate page count and a report on its condition. She sounded a little reluctant to do this because of staff shortages. A few weeks later, I arrived in my office to find an absolutely massive parcel on my desk. It was duly opened, and to my dismay I found a bound volume of that newspaper that was so poorly wrapped, that as I unpacked it, pieces were falling into the box and onto the floor. No wonder the librarian was reluctant! We tried using a fine spatula to lift and count the pages, but it proved to be an impossible task. If that volume is representative of the entire run, and I'm told it was one of the better ones, then the newspaper has become almost too brittle to preserve at all.

If bound volumes are to be retained in their original form, they must be stored under conditions that will deter further deterioration. Professional treatment, such as a deacidification process that uses a buffering agent, can also delay deterioration. This should be considered when the newspaper is unique due either to its location or to a specific period in history. Overall, microfilming provides a reasonable alternative.

Conclusion

I have tried to show how libraries are handling the storage and preservation of their newsclipping collections, and to share some thoughts on changes that can result in longer life for those collections. For newspapers that are not on-line, or have not been microfilmed, storage conditions have been mentioned and preservation options considered. There is no one ideal solution, for the solution depends on many variables: the size of the collection, the size of the staff, and, inevitably, the size of the budget.

As Clark Nelson states in an article in the *Drexel Library Quarterly*, "While preservation is mainly concerned with an original document, we as custodians of the past must make every effort to preserve the information it contains for as long as it is physically possible, in whatever form offers the longest life." (*2*)

References

1. Laboratory testing and in-house kits are available from the following sources:
American Microfilm Labs
Processing Services
480 Cochituate Road
Framingham, MA 01701
617/875-8252

Eastman Kodak Company
600 South Michigan Avenue
Chicago, IL 60605
314/427-8727 (call for testing center nearest you)

MICROD International
P. O. Box 1567
Corona, CA 91720
714/735-5400

2. Nelson, Clark W. "Archival Preservation." *Drexel Library Quarterly xl* (Jan. 1975): p. 93.

Acknowledgments

I would like to thank those newspaper librarians who warmly welcomed me during visits made in preparing this paper.

This paper is based on a talk given to the SLA Newspaper Division at the 1986 SLA Annual Conference.

Veronica Colley Cunningham is director of microfilm services at the Northeast Document Conservation Center in Andover, Massachusetts.

1987 Candidates for SLA Office

For President-Elect

CLIFTON

MATARAZZO

• **Joe Ann Clifton** is manager of information services for Litton Industries, Inc., Woodland Hills, Calif.

Past Employment: chief librarian and then manager of technical libraries at Litton Industries, Inc.

Education: Santa Monica City College; University of California, Los Angeles.

SLA Member Since: 1956.

SLA Chapter Activities: *Southern California Chapter:* president-elect/president (1975–1977); program chair (1974–1975); advertising manager (1965-1969); chair, Speakers Bureau (1968–1970); consultation chair (1979-1980); chair, Scholarship Event Committee (1975–1976); chair, Management Seminar Committee (1975–1976).

SLA Division Activities: *Library Management Division:* chair-elect/chair (1981–1983); chair, Long-Range Planning Committee (1981-1982); chair, Nominations Committee (1984–1985), member (1985-1986). *Information Technology Division:* chair-elect/chair (1977–1979); chair of following committees: Nominating (1980-1981), Name and Scope (1977–1978), Membership (1968-1969), Public Relations (1967–1968). *Science-Technology Division:* chair, Student Stipend Committee (1974–1975); chair, Nominations and Elections Committee (1973–1974). *Aerospace Division:* chair-elect/chair (1973–1975); chair, Nominations Committee (1968–1969; 1977–1978). *Pharmaceutical Division:* auditor (1976–1978).

SLA Association-Level Activities: member, Board of Directors, chair-elect/chair, Division Cabinet (1984–1986); SLA representative to ASIS (1986–1987); member of following committees: Long-Range Planning (1984–1986), Awards (1985–1986), Nominations (1982–1983), Division Cabinet Committee on Formation of Divisions and Scope (1977–1978), Government Information Services (1971–1974), Publisher Relations (1969–1971), and Recruitment (1968–1969); chair, Chapter Cabinet Committee on Chapter's Role in Non Host Conference (1976–1977); SLA program coordinator, AFIPS Fall Joint Computer Conference (1969–1973); SLA representative, World Simulation Organization (1971–1973).

Other Professional Activities: California Networking Task Force; Shirley Alldredge Lecturer for the SLA Rocky Mountain Chapter (1982); John Cotton Dana Lecturer for the Library Schools of UCLA, USC, and Immaculate Heart (1968).

Other Professional Memberships: American Society for Information Science: chair-elect/chair, Los Angeles Chapter; deputy chair, 1973 ASIS Annual Conference; member, Board of Directors (1974–1977; 1980–1985); chair, SIG on Information Analysis and Evaluation. She has chaired the following Society Committees: Professionalism and Membership, as well as four Award Jury Committees—Award of Merit, Watson Davis, Chapter of the Year, and SIG of the Year and has been a member of the following committees: Executive, Budget and Finance, Awards & Honors, Nominations, and the ASIS Organizational Structure Task Force. She is also a member of the American Library Association; California Library Association; CSLL Continuing Education Committee; Associated Information Managers; Association for Computing Machinery (San Fernando Valley Chapter secretary and Board member); Society for Information Display; National Archivist; Association for Information and Image Management; American Association for the Advancement of Science; Los Angeles Regional Technical Information Users Council (founder and chairman); and the American Federation of Information Processing Societies, History of Computing Committee.

Honors: American Society for Information Science "Watson Davis" Award for Continuous Dedicated Service to the Membership (1978); Certificate of Achievement in Recognition of Outstanding Contributions to Litton Industries, presented by the YWCA Leadership of Women in the Economic, Civic and Cultured Life of Greater Los Angeles (1978); Los Angeles Chapter of ASIS Award for Outstanding Member (1976); Litton Management Club Award for Outstanding Contributions as Director of Programming (1973, 1974); Certificate of Appreciation from Society of Information Display in Recognition of her Contributions to the Creative Management of the Society (1972). Ms. Clifton is listed in *Who's Who of American Women, Who's Who in the West, Who's Who of Women in Communications, Dictionary of International Who's Who, Distinguished and Outstanding Personalities of the West and Mid West,* and the *Gold Book.*

Publications: *Computers in Information Data Centers,* co-editor, AFIPS Press (1973); *Directory of Speakers on the History of Computing,* editor, AFIPS Press (1981); *Entrepreneurship and Intrapreneurship in Corporate Libraries,* editor, Library Management Division, SLA (1986); research reports and other articles in professional journals. She is also a member of the Editorial Board of the *Journal of Cost Analysis.*

• **James M. Matarazzo** is associate dean and professor at the Simmons College Graduate School of Library and Information Science, Boston, Mass.

Past Employment: assistant science librarian and map librarian (1965–67); government documents librarian (1967–68); serials librarian/head of technical reports (1968–69) at the M.I.T. Libraries.

Education: B.A., Boston College (1963); M.S., Simmons College (1965); M.A., Boston College (1972); Ph.D., University of Pittsburgh (1979).

SLA Member Since: 1965.

SLA Chapter Activities: *Boston Chapter:* chair, Membership Committee (1967–70); chair, Education Committee (1970–73); director (1973–75); president (1979–81).

SLA Division Activities: chair, Human Resources Section/*Library Management Division* (1985–86).

SLA Association-Level Activities: SLA representative to the Library Binding Institute (1971–74); Student Relations Officer (1974–76); member, Special Committee on Continuing Education (1976); faculty advisor, Simmons/SLA Student Group (1971–76; 1979–); chair-elect, Chapter Cabinet (1983–84); chair, Chapter Cabinet (1984–85); member, SLA Long-Range Planning Committee (1983–85); and chair, Membership Services Section (1983–85).

Other Professional Memberships: American Library Association; New England Library Association; Association for Library and Information Science Education.

Honors: Marion & Jasper Whiting Foundation Fellowship (1976–77); Teaching Fellow, University of Pittsburgh (1976–77); Distinguished Visiting Professor, Texas Women's University (Summer 1983); Visiting Professor, University of Washington (Summer 1985); SLA Professional Award (1983).

Publications: He has authored 7 books, 1 research report, 3 articles in *Special Libraries,* 10 articles in other journal publications, plus 20 articles in SLA chapter and division bulletins. His most recent publications include: *Closing the Corporate Library: Case Studies on the Decision-Making Process* (SLA, 1981); *Scientific Engineering and Medical Societies: Publications in Print,* 4th ed. (R.R. Bowker Company, 1981); and "Lessons From the Past: Special Libraries in Times of Retrenchment," *Canadian Library Journal* (August 1983).

For Chapter Cabinet Chair-Elect

MOWERY

WAGENVELD

• **M. Kay Mowery** is library services coordinator for the California State Library, Sacramento, Calif.

Past Employment: specialist, Library Services, General Electric Company, NASA/Mississippi Test Facility (1966–71); librarian/information specialist, Sacramento Area Council of Governments (1975–76); U.S. documents librarian, California State Library (1976–77); information resources specialist, California Governor's Office of Planning and Research (1977–81); Pest Management Division librarian, California Department of Food and Agriculture (1981–86).

Education: A.B., University of Michigan-Flint (1973); A.M.L.S., University of Michigan (1974).

SLA Member Since: 1974.

SLA Chapter Activities: *Sierra Nevada Chapter:* charter member; vice-chair, Committee to Organize the Sacramento Region Provisional Chapter (1975–76); vice-president/membership director (1976–77); president (1977–78); consultation officer (1979–80); program director (1980–81); publications/publicity director and bulletin editor (1981–83); member, Membership Committee (1983–); chair, Nominating Committee (1985–86). *San Francisco Chapter:* member. *Southern California Chapter:* member.

SLA Division Activities: *Social Science Division:* secretary/treasurer, Urban Affairs Section (1976–78); vice-chair (1978–79); chair (1979–80); speaker, Annual Conference Program (1982); division secretary/treasurer (1980–82); vice-chair (1982–83); chair (1983–84); Nominating Committee chair (1985–86). *Environmental Information Division:* Membership Committee chair (1985–); director (1986–88); member, Conference Program Planning Committee (1986–87). *Food, Agriculture and Nutrition Division:* member; speaker, Annual Conference Program (1986). *Geography and Map Division:* former member; speaker, Annual Conference Program (1979).

SLA Association-Level Activities: member, Nominating Committee for Spring 1985 Elections; member, Joint Cabinet Program Planner's Manual Committee (1984–85).

Other Professional Activities: member, Sacramento City College Library/Media Technology Program Advisory Committee (1980–), chair (1984–).

Other Professional Memberships and Honors: Council of Planning Librarians: Publications Committee (1981–83), chair (1982–83), treasurer (1985–87); California Library Association; Beta Phi Mu.

Publications: Several articles and bibliographies on planning and intergovernmental relations in California; one article in the Geography and Map Division Bulletin; an article on "California's Information Service to the Legislature" prepared for the Summer 1986 issue of *Interface,* the quarterly newsletter of

ALA's Association of Specialized and Cooperative Library Agencies Division.

• **Linda M. Wagenveld** is manager of the Resource Center at Herman Miller, Inc., Zeeland, Mich.

Past Employment: administrative assistant to the director, Atlanta Public Library, Atlanta, Ga. (1975–76); assistant research scientist, International Development Data Center, Georgia Institute of Technology, Atlanta, Ga. (1973–74); teacher, English Literature, Warren Township High School, Gurnee, Ill. (1968–70).

Education: B.A., Hope College, Holland, Mich. (1968); M.Ln., Emory University (1974); presently an M.B.A. candidate at Grand Valley State College, Allendale, Mich.

Member of SLA Since: 1975.

SLA Chapter Activities: *Western Michigan Chapter:* president (1982–83); program chair/president elect (1981–82); chair, Public Relations Committee (1983–84).

SLA Division Activities: *Library Management Division:* member. *Business and Finance Division:* member.

SLA Association-Level Activities: member, Program Planning Committee (1985–86); member, Public Relations Committee (1985–).

Other Professional Memberships: Phi Beta Mu (1974–); MIDBUG (Michigan Data Base Users Group) (1980–).

Publications: three.

For Division Cabinet Chair-Elect

HARDNETT

WEBSTER

• **Carolyn Hardnett** is chief librarian at the *Baltimore Sun,* Baltimore, Md.

Past Employment: library assistant (1970–76), librarian (1976–85), *Chicago Tribune,* Washington, D.C., bureau.

Education: Hampton University (1969).

SLA Member Since: 1977.

SLA Chapter Activities: *Washington, D.C., Chapter:* positive action liaison (1981–83). *Baltimore Chapter:* speaker, "How to get the most out of your SLA Membership" Program (1985); director (1986–87).

SLA Division Activities: *Newspaper Division:* chair, Hospitality Committee (1980); speaker, Newspaper Bureau Libraries Program, 1980 Annual Conference, Washington, D.C.; member, Program Planning Committee (1980); Membership Committee (1980–81); Continuing Education Committee (1981–82); secretary/treasurer (1982–83); New York Conference program planner and chair-elect (1983–84), chair (1984–85); chair, Awards Committee (1985–86). *Library Management Division:* member (1985). *Information Technology Division:* member (1985).

SLA Association-Level Activities: Positive Action Committee for Minority Programs (1980–83), Division Cabinet Committee (1983–84).

Other Professional Activities: guest lecturer, University of the District of Columbia, School of Library Science, Lorton College Program: Profile of a Special Library (Newspaper) (1982), Reference and Information Gathering in a Special Library (Newspaper) (1983); lecturer, Kent State University School of Library Science News Media Library Workshop (1984). Participated in several Regional Newspaper Workshops in 1983 and 1984.

Other Professional Memberships: Metropolitan Washington Caucus of Black Li-

brarians: founding member (1981), corresponding secretary (1982); National Association of Black Journalists (1985); Association of Black Media Workers, Baltimore Chapter, parliamentarian (1985–86).

● **Lois Webster** is manager of information resources of the American Nuclear Society, La Grange Park, Ill.

Past Employment: library advisor, Du Page County Girl Scout Council, Glen Ellyn, Ill. (1973–74); field director, Springfield Council of Girl Scouts, Springfield, Ill. (1951–54).

Education: Northern Illinois University, DeKalb, Ill., School of Library Science (1977–82); College of Du Page, Glen Ellyn, Ill., Library Technology Certification (1973); B.A., Millikin University, Decatur, Ill. (1951).

Member of SLA Since: 1977.

SLA Chapter Activities: *Illinois Chapter:* chair, Bylaws Committee (1980–1983; 1986–87).

SLA Division Activities: *Nuclear Science Division:* chair, Ad Hoc Committee of Past Nuclear Science Division Chairs (1986–87); past chair (1986–87); chair (1985–86); chair-elect (1984–85); secretary (1982–84); Membership chair (1981–82); Public Relations chair (1980–81).

SLA Association-Level Activities: member, Division Cabinet Outreach Committee (1986–87).

Other Professional Activities: Suburban Library System of Illinois, SLA representative, Advisory Committee to the Board of Directors (1983–85); Metropolitan Chicago Library Assembly, Board of Directors (1982–85), Executive Committee (1982–85); American Society for Information Science (1981–); American Nuclear Society, Chicago Section (1980–).

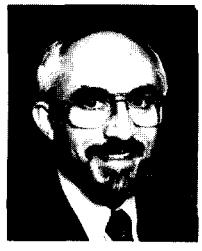
Publications: "Foretelling the Fortune of the Library," *Information and Special Libraries in 2009: Informed Speculations,* Special Libraries Association, Illinois Chapter, 1984. "The Special Library at the American Nuclear Society," *Illinois Libraries 62* (No. 3), March 1980.

For Directors (1987–90)

MERCURY

MILLER

SEMONCHE



TCHOBANOFF

● **Nicholas E. Mercury** is director of information services at System Planning Corporation, Arlington, Va.

Past Employment: reference librarian, Institute for Defense Analyses (1970–1981).

Education: B.A., George Mason University (1980); M.S.L.S., Graduate School of Library and Information Science, Catholic University of America (1982).

SLA Member Since: 1980.

SLA Chapter Activities: *Washington, D.C., Chapter:* president (1986–1987), vice-president and program chair (1985–1986), chair, Information Technology Group (1984–1985); program chair, Information Technology Group (1983–1984).

SLA Association-Level Activities: Statistics Committee (1984–1987), chair (1984–1985).

Other Professional Activities: member, Board of Directors, Interlibrary Users Association of the Washington-Baltimore Area (1982–); member, Steering Committee, Committee on Information Issues (1984–). Mr. Mercury was a panelist at the SLA Continuing Educations Programs in Winnipeg and Boston on "Corporate Library Excellence." He was on the program of SLA's first State-of-the-Art Institute on "Government Information."

Other Professional Memberships: District of Columbia Library Association.

• **Mary Jane Miller** is a member of the AT&T Bell Laboratories Libraries and Information Systems Center, Holmdel, N.J.

Past Employment: From 1972–1977, she was group supervisor at the Bell Laboratories Library in Atlanta, establishing the information center at a new R&D and manufacturing facility. She then transferred to the Whippany, N.J., Bell Laboratories Library. In 1982, she became manager of the Holmdel, N.J., Information Center. This year she assumed responsibility for selected Library Network special studies.

Education: B.A., Berea College, Berea, Ky.; M.S. in L.S., University of North Carolina, Chapel Hill, N.C.; Leadership Development Program, Center for Creative Leadership/ University of Maryland.

Member of SLA Since: 1970.

SLA Chapter Activities: *South Atlantic Chapter:* treasurer. *New Jersey Chapter:* bulletin business manager; chair, Public Relations Committee; 1st vice-president, president-elect; president; immediate past president; and chair, Public Relations Committee.

SLA Association-Level Activities: Ad Hoc Committee on Public Relations; Joint Cabinet Committee on Promotional Materials.

Other Professional Memberships: Associated Information Managers.

Honors: Phi Kappa Phi, Beta Phi Mu.

Publications: "Constructing Job Descriptions for Library Support Staff Positions: A Modular Approach," *Managing the Electronic Library,* M. Koenig, Ed., New York, Special Libraries Association, 1983.

• **Barbara Semonche** is chief librarian with the *Durham Herald-Sun Newspapers,* Durham, N.C.

Past Employment: Environmental Protection Agency library intern (1974–76). Earlier employment in Iowa, Illinois, Tennessee, and North Carolina as a speech and hearing therapist, teacher of deaf and impaired hearing children, language development researcher, and elementary school teacher (1956–74).

Education: M.A. in Library Science, University of North Carolina-Chapel Hill (1976); M.A. in Special Education, University of North Carolina-Chapel Hill (1967); Certificate in Deaf Education, University of Wisconsin-Milwaukee (1961); B.A. in Speech Pathology, University of Iowa (1956).

SLA Member Since: 1977.

SLA Chapter Activities: *North Carolina Chapter:* director (1986–87).

SLA Division Activities: *Newspaper Division:* chair (1983–84); *News Library News,* bulletin editor (1984–86); Student Stipend Award, chair (1980–81).

SLA Association-Level Activities: SLA Committee on Graduate School Advisory Boards; SLA Professional Development Committee; Joint Cabinet Program Survey Committee.

Other Professional Activities: North Carolina Library Association; North Carolina Microcomputer Users Group, secretary (1986–87); the Society of North Carolina Archivists; National Micrographics Association; and the University of North Carolina-Chapel Hill School of Library Science Alumni Association, president elect (1986).

Publications: Ms. Semonche has delivered papers on newspaper library management and technology to publishers, editors, journalists, and librarians at national and international conferences. Consultation activities have taken her to a half dozen newspaper and journalism libraries in the south and west. She has toured over 40 newspaper libraries in the United States, Canada, and Europe.

She has written nine articles on such topics as the history of newspaper librarianship (*Editor & Publisher;* March 31, 1984), newspaper indexing (forthcoming in *Collection Building*), and microfilming newspaper clippings (a chapter in *Guidelines for Newspaper Libraries,* 1983 edition). From 1981–83 she wrote and edited a North Carolina newspaper library periodical, *Carolina Live Wire.*

• **James B. Tchobanoff** is the section manager of the Technical Information Center of Pillsbury Company, Research & Development Laboratories, Minneapolis, Minn.

Past Employment: manager, Technical Information Center, Pillsbury Company (1976–81); senior clinical medical librarian (1975–76), clinical medical librarian (1972–75), University of Missouri-Kansas City, Medical Library; postgraduate trainee, Postgraduate Training Program for Science Librarians, University of Tennessee Medical Units (1971–72); librarian I, St. Clair Shores Public Library (1968–70).

Education: B.S., Chemistry, University of Michigan (1968); A.M.L.S., University of Michigan (1971); Certificate, Postgraduate Training Program For Science Librarians, University of Tennessee Medical Units (1972).

Member of SLA Since: 1976.

SLA Chapter Activities: *Minnesota Chapter:* president-elect (1978–79); president (1979–80); past president/director (1980–81).

SLA Division Activities: *Food, Agriculture & Nutrition Division:* chair-elect (1981–82); chair (1982–83); past chair/director (1983–84); chair, Directory Committee (1981–86). *Library Management Division:* chair, Tellers Committee (1985–86). *Science & Technology Division:* member. *Information Technology Division:* member.

SLA Association-Level Activities: member, Committee on Committees (1980–84); Board of Directors: Division Cabinet chair-elect (1983–84), Division Cabinet chair (1984–85); Long-Range Planning Committee: member (1983–84), chair (1984–85); member, Reseach Task Force (1986–87); chair, Special Committee on Research (1986–87).

Other Professional Memberships: American Association for the Advancement of Science; American Chemical Society; Industrial Technical Information Managers Group; Medical Library Association.

Honors: Beta Phi Mu (1971); SLA President's Award (1986).

Publications: Mr. Tchobanoff has published one book, one research report, two articles in *Special Libraries,* four articles in other national/international journals, and several articles in chapter and division bulletins. His most recent publications are as follows: "Overview and Highlights of the SLA Long Range Plan," *Special Libraries 76* (no. 3): 177–182 (Summer 1985); "A Pragmatist's Approach to Creating a Private File," *Special Libraries 76* (no. 2): 115–120 (Spring 1985); and "Utilizing the Professional Information Staff: The Role of Professional Librarians in Assimilating Technical Information," published in: *The Information Connection: Making a Powerful Resource Work for You,* Dougherty, editor, Chicago, Institute of Food Technologists, 1981, pp. 8.1–8.10.

Actions of the Board of Directors October 23–24, 1986

The SLA Board of Directors met at SLA headquarters in Washington, D.C., on October 23–24, 1986. Actions taken and reports of note are summarized below.

1987 Budget—The Board approved the budget for 1987. The balanced budget projects income of $2.1 million.

Board Vacancy—Judith J. Field, Minnesota Reference Library, was elected by the Board to fill the vacancy left by the resignation of Director Jane Cooney. Ms. Field will complete the term in 1989. Ms. Cooney resigned to become executive director of the Canadian Library Association.

1987 Election Nominees—The Nominating Committee for the 1987 election presented the slate of candidates for Association office to the Board. The candidates are as follows:

President-Elect:

Joe Ann Clifton, Litton Industries, Woodland Hills, Calif.
James M. Matarazzo, Simmons College, Boston, Mass.

Chapter Cabinet Chair-Elect:

M. Kay Mowery, California State Library, Sacramento, Calif.
Linda M. Wagenveld, Herman Miller, Inc., Zeeland, Mich.

Division Cabinet Chair-Elect:

Carolyn J. Hardnett, *Baltimore Sun,* Baltimore, Md.
Lois Webster, American Nuclear Society, LaGrange Park, Ill.

Directors:

Nicholas E. Mercury, Systems Planning Corporation, Arlington, Va.
Mary Jane Miller, AT&T Bell Laboratories, Holmdel, N.J.
Barbara Semonche, *Durham Herald-Sun,* Durham, N.C.
James B. Tchobanoff, Pillsbury Company, Minneapolis, Minn.

Nominating Committee Guidelines—The SLA Nominating Committee Guidelines were also approved by the Board. The Committee recommended no substantive changes to the guidelines, but did insert wording that indicates that the Association treasurer should be close to SLA headquarters and that, "All questions of possible conflicts of time, commitment, and interest should be resolved before a candidate is chosen."

1988 Nominating Committee—The final business regarding elections was the approval of the Spring 1988 Nominating Committee. The committee will be chaired by Jack Leister, University of California at Berkely, and members are Mary E. Dickerson, Ontario Legislative Library, Toronto, Canada; Cornelia A. Kelley, University of Virginia, Charlottesville, Va.; David E. King, Standard Educational Corporation, Chicago, Ill.; and Janet Rigney, Council on Foreign Relations, New York, N.Y.

Committee Funding—The Board, prior to the final approval of the FY 87 budget, approved funding requests of several committees. Those committees receiving funding are as follows: Scholarship ($165); Committee on Cataloging ($125); Special Committee on Retired Members' Activities ($500); Finance ($800); Copyright Law ($450); and Anaheim Conference Program ($10,500).

Annual Conference—"Expanding Horizons: Strategies for Information Managers" was approved as the 1988 Annual Conference theme. Atlanta was selected as the 1994 Annual Conference site.

Child Care—A motion regarding the provision of child care at the Anaheim Annual Conference was withdrawn after numerous Board members expressed concern over liability with Association-funded child care. It was agreed that staff would continue to provide information to delegates on child care available at conference hotels.

Special Program Fund Award—Grace Jackson Brown received an $850 Special Program Fund Grant for 1987 for her proposal "Libraries and Information Centers Within Women's Studies Research Centers." Her project will investigate a group of libraries and

information centers that specialize in women's studies research and will develop a comprehensive guide to those resources devoted to women's studies research.

Inter-Association Cooperation—In line with the Association's goal of inter-association cooperation, the Board approved a motion establishing official SLA representatives to the following information organizations: Associated Information Managers, Association of Records Managers and Administrators, Canadian Association for Information Science, International Federation for Documentation, and the Society of American Archivists.

Finances—In other financial matters, the Board: appointed Garner, Bloom & Klein, Chartered, as Association Auditors for FY 86; approved an Association "Refund Policy" allowing refunds for amounts over $5; approved the Manager, Membership Development and Marketing, job description and position; approved in principle the revised SLA Staff Manual; and approved a request to purchase a laser printer.

"Global Information Access—Expanding Our World"

SLA's 78th Annual Conference
June 6–11, 1987
Anaheim, California

The 78th Annual Conference of the Special Libraries Association will be held in Anaheim, California, from June 6–11, 1987. This year's theme, "Global Information Access—Expanding Our World," provided the nucleus from which the ideas for programs and sessions relating to the international aspect of information management were drawn. The broad scope of programs planned for conference week will provide an enriching experience for all attendees. The conference will feature valuable continuing education seminars and workshops to enhance professional growth. Expert speakers have been scheduled to present the general and division sessions. Social events are also being planned to provide fun and a chance for you to relax with your colleagues at the end of a long conference day. This conference is one that you won't want to miss.

Nine Good Reasons for Attending the Anaheim Conference

Professional Development Programs. The SLA Conference will feature over 30 professional development activities designed to meet the needs of both new and experienced information professionals.

The Professional Development Program will include approximately 20 Continuing Education Courses that offer something for everyone. Topics such as "Online Database Construction," "Corporate Library Excellence," "New Technology and Its Impact on You," and "Making Money: Fees for Information Service" will be offered. The Professional Development Program will cover a broad range of topics designed to sharpen your skills in meeting the challenge of library and information management.

Division Programs: Business and Learning. All SLA divisions will hold business meetings during the conference. This will give you the opportunity to find out what is happening within your division and to voice your opinion on future decisions. Many divisions will also sponsor educational sessions that will be technical in nature and cover areas of special interest to the division.

Products and Service Exposition. The Exhibit Hall is one of the most important components of an SLA Conference. Over 250 exhibits will be displayed at this year's Annual Conference. These booths will be staffed by knowledgeable people representing topnotch manufacturers and suppliers specializing in products relating to the library field.

The exhibits will provide you with information on such products as:

- library software
- audiovisual materials & equipment
- data processing equipment
- microforms & microform equipment
- library furniture
- information storage & retrieval

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- office furniture & equipment
- copying & duplicating equipment
- specialized books & periodicals
- mini computers
- micro computers
- portable copying equipment
- films.

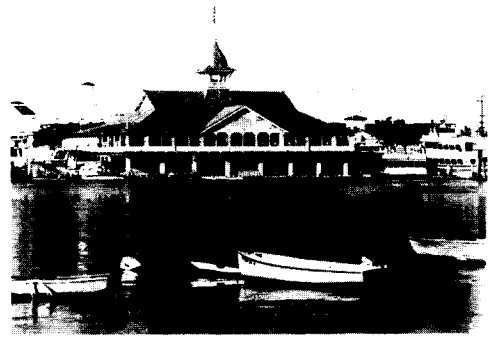
You will also learn about such services as:

- publishers
- government information services
- library binders
- subscription agencies
- book jobbers
- indexing & abstracting services
- alerting & search services
- database search services
- consultants.

In Anaheim this year, the Exhibit Hall will be located in the Anaheim Convention Center. If you are unable to register for the program sessions of the conference, but are interested in examining the various products and services in the Exhibit Hall, write for a complimentary exhibit hall pass and specify the number of persons attending. Send a self-addressed, stamped envelope to: Manager, Conference & Exhibits, Special Libraries Association, 1700 Eighteenth Street NW, Washington, DC 20009.

The Exhibit Hall will be open Sunday, June 7, to Wednesday, June 12. Special events are also planned for the Hall, including an Association Reception on Sunday afternoon. Be sure to allow ample time in your schedule to visit the Hall.

General Sessions. The opening General Session planned for the Anaheim Conference will feature keynote speaker Dr. Arno Penzias, Vice President of Research and Development, AT&T Bell Laboratories. A distinguished panel of experts will examine and discuss the topics presented during the second General Session—"The Cultural, Political and Economic Aspects of International Information Exchange." Attendees at these General Sessions will be provided with a global view of today's information field and discover numerous ways in which the ideas discussed may be implemented in their professional lives.



Balboa Pavilion. (All photographs courtesy of the Anaheim Area Visitor & Convention Bureau.)

Meeting Your Peers. One of the advantages to be gained by attending a national conference is the opportunity to meet a wide range of fellow professionals. Many excellent and practical ideas can be gained by interacting with thousands of the best teachers in the field—your peers. Social events have been scheduled to allow time for you to relax with your colleagues.

Employment Clearinghouse and Career Advisory Service. The SLA Employment Clearinghouse is a service available to all conference registrants and employers. Through this service, job applicants and employers are brought together to discuss future employment.

If you have any questions about the special librarianship and information management field in general, or your career in particular, take advantage of the SLA Career Advisory Service. Experienced SLA members will serve as counselors to help you find the answers you need. Both services are confidential.

Full details will be provided in the *Preliminary Conference Program,* which will be available in early March.

Field Trips. More than one dozen field trips sponsored by SLA and many of the divisions have been scheduled for this year's conference. Some trips will allow you to visit a place of special interest to

your division. Others will allow you to learn about the geographic area and its history. And some are just for your pleasure and enjoyment.

Cost. SLA works hard to help its members get the best value for their money. Seminars, field trips, and special events are planned so that attendees receive the most for each dollar spent. SLA has used its group-buying power to arrange special low prices on hotels, car rentals, and air fares. Take advantage of this service by staying in a designated conference hotel and by using SLA's official airline.

Anaheim. The Anaheim/Orange County area of Southern California is famous for the many attractions available to visitors. Disneyland and Knotts Berry Farm are two major sites of interest that are close to the conference locale. The flavor of early California can be enjoyed by a visit to the Mission San Juan Capistrano, founded in 1776, while the nearby Laguna Beach area contains the local artists' colony with shops for souvenir hunting. The San Diego Sea World and Zoo, the Queen Mary, and a tour of Universal Studios are just a few more of the options available to sightseers. Plan to be there next June.

Conference Programs

Continuing Education Courses. SLA continuing education courses have been instrumental in providing information professionals with a wealth of knowledge. SLA's Continuing Education Program is designed to meet the changing needs of information specialists by preparing them for new duties and responsibilities in such areas as management, new technology, and library automation techniques. Knowledgeable instructors have been chosen for their expertise in the topic area, acquired through both library and academic experience.

This year's conference will feature approximately 20 continuing education courses. Throughout its existence, the Continuing Education Program has earned an excellent reputation as a highly respected resource in the information management profession. Participants will earn 0.6 Continuing Education Units (CEUs) and a certificate upon completion of each course.

Sailing along the Southern California coastline.

Middle Management Institute. The Middle Management Institute (MMI), designed for information professionals with five or more years of managerial experience, is the second phase of SLA's Professional Development Program. Developed to provide practical training in specific areas of management, this certificate program will sharpen participants' overall organizational and decision-making skills through expert instruction and interaction with peers.

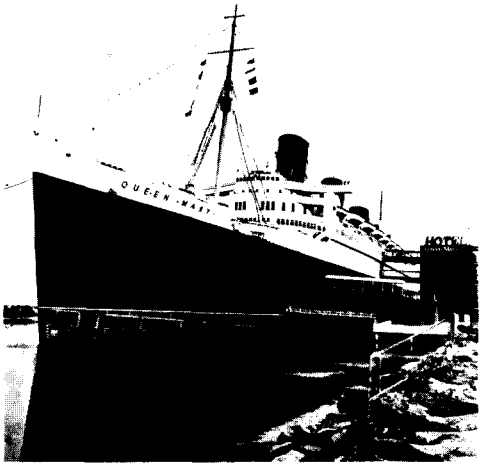
The MMI is a 75-hour sequence, consisting of five independent, yet interrelated units, including:

1. Management Skills
2. Analytical Tools
3. Human Resources
4. Marketing and Public Relations
5. Technology and Applications.

Each unit is a 15-hour, 2½ day session.

MMI units are held in various locations throughout the U.S. and Canada each calendar year. The "Marketing and Public Relations" and "Management Skills" units will be offered in conjunction with the 1987 Annual Conference.

Participants will earn an SLA Management Certificate and 7.5 CEUs. Certification is based on completion of all



The Hotel Queen Mary at the Harbor in Long Beach, Calif.

five MMI units within an approximate two-year period.

For further details regarding Annual Conference Professional Development Activities, refer to your *Preliminary Conference Program,* which will be mailed to SLA members in March 1987, or contact: Director, Professional Development, Special Libraries Association, 1700 Eighteenth Street NW, Washington, DC 20009.

Conference Housing. The Anaheim Hilton Hotel and Towers and the Anaheim Marriott Hotel have been designated as co-headquarters hotels during the 1987 SLA Conference. Additional sleeping rooms will be held at the Inn at the Park. All three hotels are conveniently located near each other and the Anaheim Convention Center. Room rates range from $71 to $112 (single) and $81 to $128 (double). For additional room rate information, please refer to the December issue of *SpeciaList.*

Registration. Registration will take place in the Anaheim Convention Center. Since we are expecting a sizable attendance at this conference, we strongly recommend advance registration. In addition to avoiding long, time-consuming lines, advance registration can also save you money. The registration fees for this Annual Conference are as follows:

*Member, Advance (by May 1)	$ 95.00
*Member, One-Day	$ 65.00
*Member, On-Site (after May 1)	$125.00
Non-Member Advance (by May 1)	$110.00
Non-Member, One-Day	$ 75.00
Non-Member, On-Site (after May 1)	$145.00
Student/Retired/ Accompanying Person	$ 45.00

*SLA member rates apply to SLA, ASIS, ARLIS/NA, AALL, and Western Map Librarians Association members.

All SLA members will receive full registration and ticket information in the *Preliminary Conference Program,* which will be mailed to you in March. If you have any questions regarding the Conference, or if you are a nonmember and wish to be placed on the mailing list to receive a *Preliminary Program,* please contact the Manager, Conference and Exhibits, Special Libraries Association, 1700 Eighteenth Street, NW, Washington, DC 20009; (202) 234-4700.

JOIN US IN ANAHEIM FOR SLA's 78th ANNUAL CONFERENCE!

IFLA 1986

"The New Horizons of Librarianship Towards the 21st Century"

Pat Molholt

The International Federation of Library Associations and Institutions (IFLA) met in Tokyo on August 22-29, 1986, for the 1986 IFLA Conference. Delegates to this year's conference, while basking in traditional Japanese hospitality, debated the future of the profession and the influence of information technologies, as well as enjoyed cultural and social activities that are the hallmark of such conferences. In addition, pre- and post-scripted to the conference were an array of special tours and travel offerings ranging from visits to Kyoto and Nara to several days in China. Despite the strong Yen, 700 overseas delegates from 62 countries attended the 52d General Conference held at Aoyama Gakuin University in Central Tokyo. In addition there were 1100 Japanese participants.

The conference, like Japan itself, was well organized. The reproduction and distribution of conference papers, however, defeated even the Japanese penchant for efficiency. First, surprisingly few papers were translated from their original language into any of the official IFLA languages and even fewer still were translated into Japanese. Secondly, in an effort to give preference to those attending a session, as opposed to those merely collecting papers for later reading, the Organizing Committee ordered that distribution would not take place until after the session had begun. This, of course, disturbed the speakers and resulted in sessions starting officially and then being interrupted for the distribution of papers. Finally, far too few copies of the papers were available; such that in some cases, only one in five attendees actually received a copy, and then it may have been in a language other than their native tongue. These, however, were mere technicalities in a conference better remembered for the graciousness of its host country, including a lengthy appearance of Their Imperial Highnesses the Crown Prince and Princess.

The theme of the conference, "The New Horizons of Librarianship Towards the 21st Century," was evoked in numerous papers. Particularly interesting in this regard were those papers that looked both at the assets and the liabilities accompanying new technologies. Papers on bibliographic control, international MARC, and multi-lingual coding schemes were set in the context of automation. More problems and promises were described rather than actual performance.

The Division of Special Libraries was exceptionally active during this conference. A Pre-Session Seminar on Industrial and Scientific Information for Development held at the Kanazawa Institute of Technology in Kanazawa examined the role of the special library in the process of national and regional development. Speakers from such countries as Sri Lanka, India, Sierra Leone, and Ma-

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laysia discussed the problems of collection, retention, and delivery of information in their home settings. The issue of technology as a tantalizing but unaccessible solution was also raised. Developed countries were urged to remember the limitations faced by developing countries and not to design systems wholly dependent on technology unavailable in many settings.

In a session sponsored jointly by all sections in the Division of Special Libraries, Bob Hayes, dean of the Graduate School of Library and Information Science at UCLA, reported on a research program which focuses on strategic planning for libraries in the research university of the future. Specific concerns included the effect of technology, the information resource requirements of major disciplines, and the role of information resources in the work of scholars. Also under the auspices of the division, Ching-chih Chen and Robert Stueart of Simmons presented information on Project Emperor I, a videodisc project, illustrating the use of that technology for high-density, multimedia information processing, storage, and dissemination.

The Science and Technology Section presented a panel discussion on the role of technology in libraries and its effect on librarianship. Pat Molholt, a past president of SLA, gave the lead talk. Her remarks were responded to by individuals from Japan, Australia, Malaysia, and East Germany.

On matters of IFLA business, it was decided that the dues of association members would remain at their present level. This is good news despite the effect it will have on IFLA's units and core programs. There has been a noticeable belt-tightening in IFLA over the last two or three years with a 10 percent cut in budgets in effect for the current year. At the Tokyo meeting all units of the association were requested to prioritize their current year budget requests. The exercise at the division level proved enlightening as closer attention was paid to the proposed projects of all of the sections within a division.

The next conference will be held in Brighton, England, on August 16–21, 1987. Elections will be held at that meeting, with nominations for Standing Committee membership and other offices due to the headquarters in the Hague by February. Nominations should be coordinated among the U.S. associations. For further information and nomination forms, individuals may contact the SLA office. One further note on the Brighton meeting—it will be the last conference organized under the able administration of Secretary General Margreet Wijnstroom. Ms. Wijnstroom, who has had a long and distinguished career with IFLA, will be retiring in 1987. The search for a replacement has been under way for nearly a year and it is hoped that an individual will be chosen and available to work with Ms. Wijnstroom on the preparation of the 1987 meetings.

Reviews

Authority Work: The Creation, Use, Maintenance, and Evaluation of Authority Records and Files, by Robert H. Burger. Littleton, Colo.: Libraries Unlimited, Inc., 1985. 126 pp. ISBN 0-87287-491-5. $23.50.

Robert Burger offers an evaluative rather than prescriptive book on the principles and practice of authority work. His goal is to examine the process of creating, maintaining, and evaluating authority records both individually and as a system.

Although he focuses on the theoretical nature of authority work, his emphasis is on the creation of automated and non-automated records within the cataloging process. The various types of headings (subject headings excluded) which receive authority control are examined, and the evolution of cataloging codes and their impact on authority work are given an historical perspective.

By their very nature and purpose, authority files will grow and change. The accommodation of this growth and change is identified and determined chiefly by catalogers who nurture and use them. However, reference and acquisition personnel, as well as the public, are also served by them. The relationship of authority files to bibliographic files varies. Burger identifies four distinct relationships: independent, coordinated, meshed, and automated links.

There has been little research in the measurement and evaluation of authority systems. Libraries generally practice varying degrees of quality control by checking legality and accuracy of data and format, as well as comprehensiveness of data, before records are filed. Once absorbed, the individual record is subject to occasional update, but there appear to be no mechanisms for measuring quantitative and qualitative attributes of the system itself. Although bibliometrics is a consideration for measurement of file growth, the methods of analysis for record size, use, and behaviour have never been fully developed.

Burger identifies three current families of automated authority systems: those independent of bibliographic files (OCLC); those related but not electronically linked to bibliographic files (RLIN, LC); and those which have some form of electronic link to bibliographic files (NYPL, MELVYL, WLN). He provides a feature-by-feature comparison of each of the six systems, but does not provide a preferential summary. Although his intention was to show examples rather than make a comprehensive study, the omission of Utlas, Inc., is regrettable. Authority record to bibliographic record ratios reported by each of these systems appear to be based on non-standard measurements, a fact he clearly identifies but does not explore.

Finally, he speculates on the future of automated authority files and feels that it will bring more "source" files, more vendors, and more networks. The latter prediction is perhaps contentious, but well reasoned. He concludes by emphasizing the need for continued study in authority work and identifies deficient areas of research.

This is an invaluable tool for librarians contemplating or in the process of automating authority files, despite a lack of attention to economic factors. The appendix is especially noteworthy as an analysis of MARC authorities coding from a practitioner's perspective. Bibliographic references are especially helpful to readers wishing to explore specific topics.

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Canada

Cataloging and Catalogs: A Handbook for Library Management, by David F. Kohl. Santa Barbara, Calif.: ABC-Clio, 1986. 270 pp. ISBN 0-87436-434-5. $35.00.

One of six volumes in the Handbook for Library Management series, *Cataloging and Catalogs* is a compendium of quantitative research done between 1960 and 1983. Only North American journals were surveyed. The author states his intention to include research published in monographic form, as well as research from British journals in later editions of the series.

The introduction states that the "Handbooks for Library Management have been designed for library managers and decision makers who regularly need information, but who are chronically too short of time to do involved and time-consuming literature searches each time specific quantitative information is desired. . . . By looking under the appropriate subject heading in the Handbook, librarians can find summaries detailing the research findings on that topic. . . . Furthermore, if a more complete look at the study is

desired, the user is referred to the bibliographic citation number so that the full study can be consulted."

Journals surveyed for the Handbook series include 34 widely known titles, such as: *American Libraries, Canadian Library Journal, Harvard Library Bulletin, Library Trends, Online, School Library Journal, Special Libraries,* and *Wilson Library Bulletin.* Topics covered in *Cataloging and Catalogs* range from "AACR2" and "MARC" to "Cross-references" and "user success rate." Further subdivisions of each topic highlight general information or research specific to various types of libraries: academic, special, public, and school, if applicable.

Will this volume, *Cataloging and Catalogs,* help "library managers and decision makers" find information and save time in the process? The answer depends, of course, on the question or what data the manager needs. For example, should one wish to discover how libraries handle "backlogs," the research included might not be very helpful. The two studies quoted were published in 1968 and 1979 respectively.

Although many larger libraries have either converted or are considering moving to an online catalog, the card catalog still predominates. Therefore, card production would seem to be a viable research topic. Only four articles are cited, dating from 1971 to 1979. The summary information from one article (bibliography no. 706) is cited twice under the topic "Card Production," once on page 12, again on page 13. Such repetition occurs throughout the volume. A "see" reference should be sufficient, especially when the occurrences are within two pages. Several articles are cited four or five times. One is summarized 21 times, often with no break between repeats, except the heading "Academic" or "Special" library. A few of the summaries of this article: "Subject cataloging practices in North American Medical School Libraries," (bibliography no. 712) are very brief. Again some use of "see" references (surely familiar to librarians), would be more efficient and not cause the reader to flip too many pages.

The 55-page bibliography of articles cites 807 articles surveyed. The reader must note that the bibliography lists articles summarized in the entire six-volume series. Also the arrangement of bibliographic entries is usual: "Entries in the Bibliography are sequentially arranged by the citation reference numbers that correspond to the numbers appearing at the end of each research summary throughout the six volumes." Of the 807 bibliographic entries, 109 (13.5%) are cited in *Cataloging and Catalogs.* (One-sixth of the total number of citations would be about 135.)

The following analysis indicates the currency of research cited in the series as a whole and *Cataloging and Catalogs* specifically: 35.5 percent (42 articles) in *Cataloging and Catalogs* were published between 1980 and 1983; 27.5 percent (30 articles) published from 1975–79; 21.1 percent (23 articles) from 1970–74; and 12.7 percent (14 articles) from 1960–69. For the complete Handbook series, almost 51 percent (411) of the articles cited were published between 1970 and 1979. Thirty-five percent (282) were published during the last four-year period included: 1980–83. These numbers indicate that the amount of quantitative research being published in library and information sciences journals is increasing yearly.

Cataloging and Catalogs summarizes much interesting quantitative research, unfortunately much of it was published before 1980. This volume might have limited usefulness for larger libraries; however, because the bibliography covers all six volumes, having all volumes to refer to would be more useful. Librarians should also note many areas of information sciences needing current research, especially as automation becomes an important component of cataloging and catalogs.

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Cataloging Microcomputer Files: A Manual of Interpretation for AACR2, by Sue A. Dodd and Ann M. Sandberg-Fox. Chicago: American Library Association, 1985. 272 pp. ISBN 0-8389-0401-7. $40.00.

The aim of this comprehensive manual is to assist the cataloger in the application of AACR2 rules to the cataloging of microcomputer files. In a format similar to *Anglo-American Cataloguing Rules,* 2d ed. (ALA, 1978), it supplements and updates *Guidelines for Using AACR2 Chapter 9 for Cataloging Microcomputer Software* (ALA, 1984). It should be noted that the file description, rather than the physical description of the software, is the focus of attention. Thus, the file is considered the intellectual work forming the basis for describing machine-readable data, while the 5¼" floppy disk, for example, is merely its physical

manifestation. The unique characteristics of software cause difficulty for the cataloger attempting to provide information to the potential user, and the descriptive process is more demanding than that for printed materials. Both authors have extensive experience in cataloging machine-readable data files. They supply clear directions for choosing access points; determining editions, publishers, distributors, and dates of production; and constructing detailed notes so that AACR2 rules may be uniformly applied.

An introductory chapter describes the hardware and software components of a microcomputer system; provides photos of hardware and peripherals; and defines terms such as ROM, RAM, bits, and bytes. Charts detail approximate machine/interface dimensions for cassettes, disks, and tape reels; and preformatting specifications for floppies. The main body of the book presents the rules of chapter 9 of AACR2, discusses interpretations and modifications based on the latest conditions and developments in software, and provides specific examples of rules applications giving both British and American usage where needed. Distinction is made between data files and program files. Files downloaded from mainframes are excluded from the scope of the book, as are serials in machine-readable form. The cataloger is directed to obtain information both from within the file (by running the software) and from outside labels and containers.

Attention is given to detailed notes dealing with compatibility, access, and use. The authors recommend a system requirements note that includes information on the make and model of the computer, its memory size, operating system, software requirements, and hardware modifications. The second note specified deals with the physical carrier, such as floppy disk, computer cassette, and computer tape reel, as well as accompanying material, such as backup or demo disks. Classification and subject cataloging of microcomputer files are also treated. The cataloger is advised to provide the same degree of subject analysis for nonbook material as for print materials in the collection.

Twelve step-by-step cataloging examples of microcomputer files are given in the last chapter. Drawn primarily from school libraries and media centers, they include games, educational programs, WordStar, and dBase III, and provide detailed instructions and applications of material presented in earlier chapters. Further clarification of terms is provided by a 15-page glossary.

The book is outstanding for its logical organization and presentation of complex material. An essential tool for any cataloger dealing with microcomputer software, its present use would appear greatest for school, public, and college libraries circulating this material, rather than for special libraries. It is recommended for catalogers presently involved with machine-readable data files, or anticipating being so, and as a model guide to the application of AACR2 rules to nonprint materials.

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Creating the Perfect Database Using DB MASTER, by Trish McClelland. Glenview, Ill.: Scott, Foresman and Co., 1985. 244 pp. ISBN 0-673-18039-5. $17.95 pbk.

Anyone who regularly browses the shelves of a local bookstore cannot help but notice the proliferation of publications on microcomputers and software. Current books range from simple explanations with cartoon illustrations of the workings of the computer for the novice user to advanced handbooks written in profuse jargon for the experienced programmer. *Creating the Perfect Database Using DB MASTER* is aimed at the beginner who the author defines as "(1) someone who has never used a microcomputer; (2) someone who has never created a database; or (3) someone who has never used DB MASTER."

DB MASTER is a file manager from Stoneware, Incorporated, of San Rafael, California, that can be organized to emulate a hierarchical database. It is a menu-driven program that does not require the user to memorize any commands. ADVANCED DB MASTER is the version written for the IBM PC or its compatibles. Both versions are covered by McClelland. DB MASTER has been used for a number of library applications, primarily on Apple systems, that vary from the production of printed catalogs for small collections to acquisition order files.

Trish McClelland, a software consultant and writer, has written this book not only to provide the beginner with detailed instruction in the use of DB MASTER, but also to outline "a technique for creating the perfect database." McClelland never defines what she means by "perfect." She implies, however,

that if readers follow the process she describes then they will create a database that "far surpasses our expectations." The process described is simply the combination of some traditional systems analysis concepts with specific instructions for creating a database with DB MASTER. The author describes the tasks involved in such a way as to make them seem like common sense: "Organizing your needs and writing them down is the logical place to start." No process in and of itself, however, will produce flawless results. Users who do a thorough analysis of their needs may discover that DB MASTER does not meet them satisfactorily.

The book is organized into 11 chapters that take the reader step-by-step through the creation of a sample database, a supplies inventory system. There are two appendixes, a glossary of 50 computer terms, and an index.

Following an introductory chapter, McClelland describes the process for constructing the "perfect" database through a series of 12 questions to determine the database user's needs. The questions cover the determination of fields for a record, field type, field lengths, computed fields, screen displays, report formats, database organization by the primary key field, database statistics, screen titles, and selecting records by category or date. The chapters that follow take the information gathered and develop the sample database.

Although McClelland helps the novice computer user by defining key terms such as "database" and "record" through the use of analogies, many beginners will get lost very quickly in the mass of detail about DB MASTER and ADVANCED DB MASTER. Readers interested in databases will find a thoroughly detailed explanation of one type, the file manager, but a better overview of the various types of database management systems available can be had by consulting any of the reviews of database management systems in any of the major microcomputer magazines. In fact, McClelland downplays the limitations of a file manager like DB MASTER. She does make reference to two of the program's limitations, however, when she points out the problem of frequent "disk swapping" with large databases and the need for a minimum of two disks for each file.

This book is most appropriate for the new owner of DB MASTER. By adhering to the technique outlined, the reader should be able to construct the best database possible within the limitations of DB MASTER. While examples of complete menu screens and samples of printed reports would have aided immeasureably in following the process, the reader working with DB MASTER on his PC with this book in hand should not find this fault a handicap.

Overall, *Creating the Perfect Database Using DB MASTER* is a far from flawless text. McClelland attempts to meet the needs of a beginner audience that is too diverse. The recent purchaser of DB MASTER who wants to make serious use of the program will find a great amount of explanation that also could be obtained through a thorough reading of the program documentation and practice with the system. McClelland's clear writing style, her admonition to users to understand their needs before beginning the design of a database, and advice such as "the design of the screen can make or break the entire database" or "when designing a report form, remember: keep it simple," make this book an improvement over the typical user manual. The novice PC user and the reader interested in a comprehensive discussion of database management systems should look elsewhere.

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Improving Communication in the Library, by Barbara Conroy and Barbara Schindler Jones. Phoenix: Oryx, 1986. 195 pp. ISBN 0-89774-172-2. $25.00 pbk.

Improving Communication in the Library is a concise overview of both interpersonal and organizational communication in libraries. While it does contain some theoretical material, its focus is on practical techniques for improving communication rather than an exhaustive study of the topic. This book was written primarily for library managers; however, it is also appropriate for library staff and library/information science students.

There are three main sections in *Improving Communication.* Part I, "Organizational Communication in Libraries," discusses communication as a human information system, with emphasis on how communication works in an organization. Chapter 3 in this section is devoted to special concerns of the library manager regarding communication. Part II focuses on interpersonal communication in the context of organizations, covering relationships and conflict, communication skills, and the

additional expertise needed for effective participation in small group situations. In part III, change and its impact on communications and working relationships are examined. In contrast, chapter 8 in this section illustrates how communication strategies can be used to implement and enforce change in the library setting.

Improving Communication is well indexed. Short bibliographies are provided at the end of each chapter, with many sources taken from management literature rather than library literature. A selected bibliography of additional readings is given at the end of the book. There are only a few illustrations; however, those that are included are clear and simple and highlight the text. Diagrams showing communication networks in chapter 1 are especially good. Chapter 2 also has some interesting tables that present an analysis of the strengths and weaknesses of various forms of internal and external media.

This reviewer was impressed by the authors' grasp of the literature of organizational behavior. Well-known authorities in this area, such as Herzberg, McClelland, McGregor, and Vroom, are cited throughout the book. Chapter 6, "Small Group Communication," is especially noteworthy as a discussion of group behavior which incorporates many theories of group dynamics. The authors discuss cohesiveness, norms, leadership, and roles, and how these are manifested in the small group setting.

In conclusion, *Improving Communication in the Library* is highly recommended for both library and personal collections. It is practical rather than theoretical, easy to read, and well organized. It is a valuable source of information for librarians at all career levels, from library/information science student to experienced library manager.

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Information Specialist as Team Player in the Research Process, by Julie M. Neway. Westport: Greenwood Press, 1985. 194 pp. ISBN 0-313-24508-8. $29.95.

In the foreword, F. W. Lancaster notes that our profession should begin to emphasize the librarian as a skilled information resource manager rather than view the library as a collection of artifacts. This statement provides a good setting for this book, which was written for those librarians and information professionals who are particularly interested in providing services to researchers. Further, the specific focus in these pages is on the information subject specialist, who can successfully integrate into discipline-oriented research teams and provide team members with needed information in accordance with their unique research orientation.

After a general discussion of the history of the team concept, the team research process is examined in subsequent chapters, in social sciences and humanities, in physical and biological sciences, in medical settings, and in business. In each instance, case studies illustrate successful examples of information professionals who have joined these teams. The differences in the approach of disciplines to research is explored in sufficient detail to make the differences quite explicit; it is a useful feature to have these characteristics brought together in one place, and to find them documented in sufficient detail for interested readers to pursue in greater depth. On the other hand, this book is extensively footnoted; while the wealth of citation is valuable, this reader found the citing style obtrusive and ultimately very annoying, since it constantly distracts from a smooth reading of the text.

The concept of the clinical librarian as a member of the health sciences research team is familiar to most readers. Extending this concept to scholarly disciplines seems both sensible and overdue. The author underlines the fact that acceptance by researchers is not easy for librarians to achieve. To succeed, librarians need, at a minimum, both credentials in the subject area and a solid understanding of communication theory. Most important, librarians must acquire familiarity with types of information needed in different stages of the research process. In scientific research, for example, in the first stage, scientists need assistance in formulating the problem and appropriate investigative procedures. In the intermediate stage, research needs become more detailed and specific. Finally, the information need shifts to the general body of scientific knowledge, in order to integrate and interpret findings. Scientists seem more willing to accept the assistance of information professionals than do researchers in many other fields, where the information person may have to work harder to be accepted. The terms "information officers," for librarians in

social sciences and humanities research, "information scientists," for librarians in scientific research, and "information specialist/broker," for those in business, were all suggested in lieu of "librarian."

The book concludes with a glance into the future, where information specialists will possess advanced university degrees, provide information and personalized services to researchers—exclusive of the library as an institution, and will become important gatekeepers and counsellors in informal communication networks.

This is an upbeat view of an area in which specialized information professionals can develop both valuable services for clients and personally satisfying careers of considerable challenge. Special librarians in research environments will find topics of interest in these pages, as will academic librarians, library school students, and faculty.

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Librarian in Search of a Publisher: How to Get Published, by Brian Alley and Jennifer Cargill. Phoenix: Oryx Press, 1986, 172 pp. ISBN 0-89774-150-1. $22.50 pbk.

Two years ago, a membership survey of the St. Louis Metropolitan Area SLA Chapter revealed that a majority of members wished to learn more about "writing for publication." For a variety of reasons—including career advancement, tenure requirements, personal satisfaction—special librarians and other information professionals seem particularly eager these days to see their names in print. Novice authors who lack the motivation, confidence, and experience to write that first book review or article will find some encouragement and practical advice in this publication.

Most librarians employed full time say they are simply too busy to do research or write for publication. This book's strength is in its sound advice for those harried souls who need to "get their act together," and the first section encourages librarians to set goals, manage time, and acquire the proper equipment as part of the writing process. The authors also wisely recommend that beginning writers contribute to newsletters and write reports, letters to editors, and reviews as a start.

Unfortunately, there is more substantial information on the actual writing and publication of articles and books in *Librarian/Author: A Practical Guide On How to Get Published,* edited by Betty-Carol Sellen (NY: Neal-Schuman, 1985). Moreover, I strongly disagree with Alley and Cargill's assumption that "your writing skills are sufficiently well honed to allow you to produce a readable article," (p. 55) for my experience as an editor and journal referee indicates we could all stand improvement in grammar and style. To that end, the Sellen book contains several chapters that attend to writing style, where Alley and Cargill overlook the problem, except for the inclusion of a few relevant resources in the appendix.

Overall, I recommend Alley and Cargill as a "self-help" manual for the librarian who has never been published and needs encouragement and basic facts on the writing-publishing game. Others who have some experience in this area will find the Sellen book more appropriate, as it provides a more in-depth and critical view of the library publication process. Both books should inspire more special librarians to contribute their knowledge and insight to our growing body of literature.

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Library Automation for Library Technicians: An Introduction, by Joan I. Tracy. Metuchen, N.J.: Scarecrow Press, 1986. 163 pp. ISBN 0-8108-1865-5. $16.00.

With more educational institutions offering courses for library technicians, and with more libraries requiring such courses for employment, there is a need for this introductory textbook. It covers the gamut of skills needed to perform all types of library technician positions, beginning with a general discussion of library organization and automation using microcomputers, as well as mainframes. Following chapters are devoted to automated procedures for acquisitions, cataloging and processing, serials control, circulation, user services, and support services, such as word processing and spreadsheets. Applications for libraries of all sizes, public and academic, are outlined. The author, assistant librarian for

Technical Services at Eastern Washington University, writes clearly and is well informed on her topic.

The automated systems described in the text are based on the most commonly used library systems, such as OCLC, LIBRIS, WLN, Bataphone, Follett Book Trak, LINX, CHECKMATE, ULYSIS, etc. However, the procedures described are general in nature, and are meant to provide an overview applicable to all hardware and software. This creates a problem of generalities: In covering all types of libraries and so many systems, none of the specifics of any one can be detailed.

Much of the introductory information is valuable for the novice, such as the basics of floppy disk care and handling, and the cardinal rule of backing up stored data. Another strength of the publication is its timeliness. For the most part, the current technology is included. The obvious exceptions are the fully integrated library systems, such as CLSI and DataTrek, and optical disk technology. Special library managers, especially, will also notice the omission of software designed for technical libraries, such as Battelle's BASIS and TECHLIB.

What detracts most significantly from this text is its physical appearance. Illustrations are awkward and amateurish. The text appears to have been typewritten and offset, rather than typeset.

Chapter one is intended for an audience of those who have never worked in a library before. It includes an outline of the "typical" library organization. In that it presents a traditional, hierarchical structure, some newcomers may be surprised to find their organizations structured in entirely non-traditional ways. Organization charts resembling multi-layered onions instead of the usual pyramid are not uncommon in libraries where employees now cross formerly sacrosanct divisions between public services and technical services.

This reviewer sought to compare Tracy's book with similar publications and found there were none. Titles listed in the standard bibliographic sources do not compare because they do not specifically address automation topics for the technician or because they are not as current.

A five-page glossary, a brief bibliography, and a good index are included. Review questions at the end of each chapter are an asset to those using the text in a classroom setting.

Although recommended primarily for public and academic libraries that wish to provide training resources for their employees, library schools will also want to purchase this fine text.

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Reference Services and Library Instruction, by David F. Kohl. Santa Barbara: ABC-Clio, 1985. 324 pp. ISBN 0-87436-432-9. $35.00.

This is the third volume of a planned six-volume series, Handbooks for Library Management. The first two, which have already been published, deal with administration and acquisitions. The title is somewhat misleading: at first glance one would assume it is a handbook in the sense of a guide to the subject, a "how-to" of reference and instruction. In fact, it is basically a compendium of summaries of statistical survey results in pertinent aspects of reference work. These summaries in general are quite brief, ranging from one to two sentences to a paragraph. Virtually every summary begins with "a . . . survey showed" or "a study reported on . . . ," giving figures only, with no commentary on the significance of the data reported. As in the earlier volumes in this series, the information has been culled from articles published between 1960 and 1983 in 34 journals from North America only. The policy was to include published research from this limited set of journals under the assumption that they represent the "primary locations for quantitative library research, and that materials published outside of the United States and Canada or in monographs is not as essential." This is a somewhat questionable assumption, as is the comment by the publisher that this is a way to "add authority to the decision-making process."

The issues chosen within reference include such aspects of online searching as costs, effectiveness, and techniques; patron use of tools (catalogs, indexes, translations); quality of tools in specialized subject areas, e.g. marine biology; accessibility; and visibility. The section on library instruction encompasses attitudes, impact, staffing, and techniques. In general, the subject areas are clearly delineated and all of the major issues within reference and instruction are included, but the distinction between "Patron use of tools" and "Use of tools" is not at all clear. "Accessibility" and "Visibility" are also quite closely

linked, but because of the alphabetical arrangement of the subjects, one could easily miss related surveys.

The set sequence used within each individual subject areas is "general," "academic," "public," and "special," listed chronologically, although not every topic lends itself to summaries in each type of library. The lack of a detailed subject index is disappointing, and can be frustrating for the user; one has to rely solely on the extensive table of contents, which has approximately 200 subject access points in reference and 25 in the instruction section. Within each subcategory, the actual statistics reported are not necessarily comparable. For example, in the section of "Patron use of tools—Card catalogs—Public" the first study refers to what information patrons were looking for in a card catalog, whereas the other study describes preference for an online catalog versus a card catalog. What would perhaps have been more useful would be a comparison of studies in the same topic either within different journals or in different time periods. In no case is there any comment or evaluation of the methodology used, which can be extremely critical in statistical reporting. However, the information itself can be quite interesting, even if related out of context.

What is especially misleading is the bibliography of articles, which includes articles summarized in the entire six-volume set, not just the particular volume. In a sense, that might prove valuable to a researcher; however, since the arrangement appears to be by journal title with no clear indication of how the order of journals was chosen (it is not alphabetical), the reader cannot isolate any one subject area or even a time period. Each summary within the text has a reference number which corresponds to the bibliography. There is an author index, which again refers to the entire list of articles within the bibliography.

Once one accepts the premise that these findings are quick, concise summaries of the key issues in reference and instruction, and that the handbook is not designed to be a comprehensive guide to the literature in these fields, it can be useful and quite fascinating reading. However, because of its many limitations, I do not find it essential for every library.

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Technical Standards, by Walt Crawford. White Plains: Knowledge Industry Publications, 1986. 299 pp. ISBN 0-86729-191-5. (Professional Librarian Series.) $28.50 pbk.

It would appear at first glance, and based on the title, that this volume is a "must" in the personal reference collection of any librarian who is serious about keeping up to date on another (but perhaps less known) facet of librarianship which might be a problem or require clarification at one time or another. As one delves through this handy (and really well-written) reference work it becomes obvious that the focus is actually not totally on librarians but on those who must more seriously, and more often, face the problem of standards in related professions such as publishing. However, the author says that this "is a basic introduction to technical standards with particular focus on libraries and automation." Some examples, he indicates, come from the library field, "some from everyday life." (And what doesn't come from everyday life?)

A major portion of the work examines almost 40 current standards (of the Z39 variety) and of these only about a dozen refer to library-oriented standards. Almost twice as many concern publishing activities. There are also 34 international standards (ISO) discussed, but the bulk of these parallel Z39 standards. In addition, there are 29 standards on automation (X3 types) reviewed. Interesting and perhaps as important as all this is, the "must" level of need for immediate access to such data by the librarian now drops considerably, but certainly not to the point of irrelevancy. Obviously there are certain specialists in the library field who may be interested in extant standards or developing new ones in areas such as preservation of library materials or automation in connection with technical services, but for whom this work may prove too elementary. Of course for the uninitiated there are extensive chapters on the "standards process," "standards organizations," and "resources for agency involvement." But when one considers the price of the volume ($28.50 as a paperback; $36.50 as a hardcopy), it seems a rather dear price just to have for highly infrequent use by a librarian (except for those who are flush or wish to sacrifice another reference tool). Of course one should not construe from this opinion that librarians should give technical standards a back seat, but should rather develop an acute awareness of how such stan-

dards are devised, where they come from, and their possible usefulness.

Happily enough, there seem to be very few errors in the work; in fact, almost none of the typographical variety. But there are a few minor errors which I feel are too bad when one considers the author's background and experience. For example, on page 35 "New York Public Libraries" could be a number of word combinations involving The Research Libraries or The Branch Libraries or even just the singular "Library," but *not* what is printed. Considering that The Research Libraries of the New York Public Library is heavily involved (as a member of RLG for whom the author works) in automation (and not a too recent entrant either), it seems ill advised to use a hypothetical example involving card stock and catalog drawers, staples no longer used as part of public catalogs. On page 181 under a discussion of the standard X3.17–1981 there is the statement: "We've all seen OCA-A printing." Have we? I know OCR means "optical character recognition," but what variation does "-A" give OCR? No mention is made in the glossary of OCR or any variation, and in the general index are only page entries referring to the "-A" and "-B" varieties, although there is a very technical discussion of OCR on page 199 all in very terse code. Now this is certainly not written for a librarian, but rather for someone quite well versed with the complexities of automation activities which only *may* affect a library operation.

On the other hand, to his great credit, the author is not reluctant to take particular standards to task. An example is on page 213: ISO 1951–1973. The subject of the standard is "lexicographical symbols particularly for use in classified defining vocabularies," and in concluding his discussion on the standard the author says; "The standard itself does not make consistent or coherent sense; many definitions are incomplete or largely useless. One can only speculate on the cost of developing this peculiar standard." This kind of criticism by the author is not unique, and to this reviewer this is a refreshing set of thinking read throughout the text.

This review is of necessity a mixed one, not in terms of Mr. Crawford's impeccable reliability as an expert in the field, but as regards for whom the work is truly intended and at what level. A bit of a conundrum. Despite a highly commendable and frank approach to the subject, the fine appendixes (such as Appendix A: Layers of Standards in a Library Catalog), the well-executed glossary, and indexes, the volume is, in the end, excellent supplemental reading for librarians who are beyond the starting stages of their career and have specialized interest in standards. I'm a retired librarian, but I'm glad that *I*, for one, read the book.

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Using Government Publications Volume 2: Finding Statistics and Using Special Techniques, by Jean L. Sears and Marilyn K. Moody. Phoenix: Oryx Press, 1986. 231 pp., index. ISBN 0-89774-124-2. $74.00.

Statistical questions involving the use of U.S. government publications can produce panic even in seasoned librarians. Many government documents, textbooks, literature guides, and bibliographies are available, but none are really comparable to *Using Government Documents Volume 2: Finding Statistics and Using Special Techniques*. This admirable book provides ready and systematic access to government statistics and other specialized government sources. The organization by subject is very useful and makes the guide particularly suitable for user education.

Do you need to look up wage surveys, morbidity statistics, or the consumer price index? For each you will find a general search strategy, short bibliographic checklists for specific subjects, and a discussion of each title (limited comparisons of some titles). Information on relevant online databases and GPO Subject Bibliographies is at the end of each chapter.

The majority of statistical subjects covered are financial: economic indicators, business and industry statistics, income, earnings, employment, prices, consumer expenditures, and foreign trade statistics. Population, vital statistics, energy, defense and the military statistics, crime and criminal justice statistics, and projections (population, economic, education, health and energy and environment) are the subjects of other chapters.

Special techniques discussed are historical searches, the National Archives, legislative histories, budget analyses, treaties, technical reports, patents, standards and specifications, and foreign broadcast information service reports. This section is more of a hodgepodge than the statistical part, but that reflects the nature of the sources.

Volume 2 seems to be a very useful adjunct to Volume 1, which dealt with statistics only

in passing. However, the first 34 pages of Volume 2 (Introduction and chapters on search strategy and the basics of searching) are reprinted verbatim from Volume 1, as is the appendix of government agency addresses.

General search strategies are also repeated in almost every section of every chapter. Each begins with a reference to *Statistical Abstracts* and *Historical Statistics* and ends with *American Statistics Index*. While it is good to be reminded of these extremely useful sources, the repetition of the annotations comes across as unnecessary padding. The quantity of deliberate duplication is in contrast to the substantive and non-duplicative content of the rest of the book.

Selection of cited sources appears to be as comprehensive as possible, given the wide subject range. Certainly some of the chapters, particularly the scientific and technical ones, could have been expanded, which makes unnecessary repetition all the more regrettable. Given the penchant for duplication it is too bad that the index to Volume 2 (otherwise satisfactory) does not integrate the index from Volume 1 and that the table of contents from Volume 1 does not appear in Volume 2.

Users will find that this is a book geared to their needs, as well as the needs of the professional librarian. Almost any academic or large public library should consider buying this book. Special librarians can be guided by their need for access to the types of information covered.

Librarians who do not feel they can afford or justify purchase of this book will probably want to know where they can consult it. That the price makes this valuable resource one that many librarians will have to think twice about buying is unfortunate, especially since more economical use of space could presumably have produced a more compact and affordable (possibly single volume) work.

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LETTERS

A LITTLE SLA FOLKLORE

In thinking about the appointment of Emily Mobley as the associate director of libraries at Purdue University, I was stimulated to review the involvement that Purdue librarians have had over the years with Special Libraries Association. A substantial number of us have served the Association as presidents of the Indiana or other chapters, as well as members and chairpersons of divisions and committees and as representatives to other organizations.

I was somewhat awed, however, when my review turned up the "Purdue Chair" on SLA's Board of Directors. Theodora Andrews, Purdue's pharmacy, nursing and health sciences librarian, served as a director from 1966 to 1969. Molete Morelock, Purdue's interinstitutional librarian, served as director from 1971 to 1974. My term as a director was from 1974 to 1977, followed by president-elect, president and past-president from 1978 to 1981. Emily served as Chapter Cabinet chair-elect and chair from 1984 to 1986. She is currently serving as president-elect (1986–87) to be followed by president and past president (1987–1989).

While it is true that the Purdue libraries cannot take credit for Emily's contributions to SLA prior to 1986, we do claim her now with justifiable pride, as we do all other Purdue librarians who have served the Association so well for many years with few interruptions. It is also our hope that present and future Purdue librarians will continue to be committed to SLA and perpetuate our involvement.

I have not analyzed the composition of past Boards to determine whether any other organization has provided such a service record to SLA. If there are any, I applaud them. If not, it may be appropriate to designate a chair on the Board of Directors as the "Purdue Chair."

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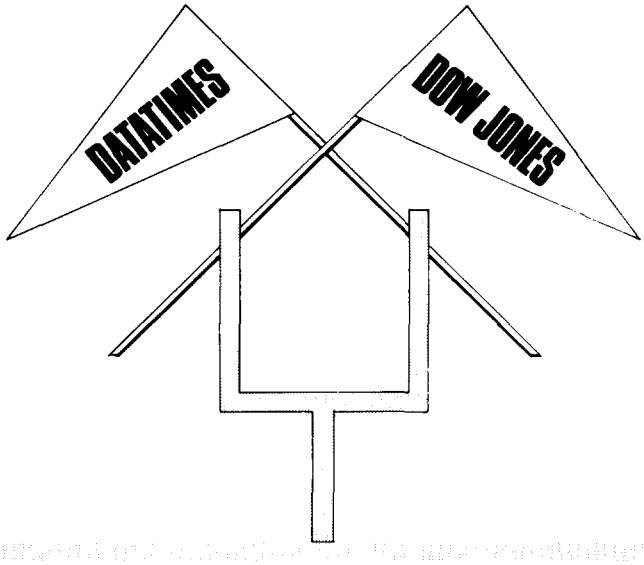

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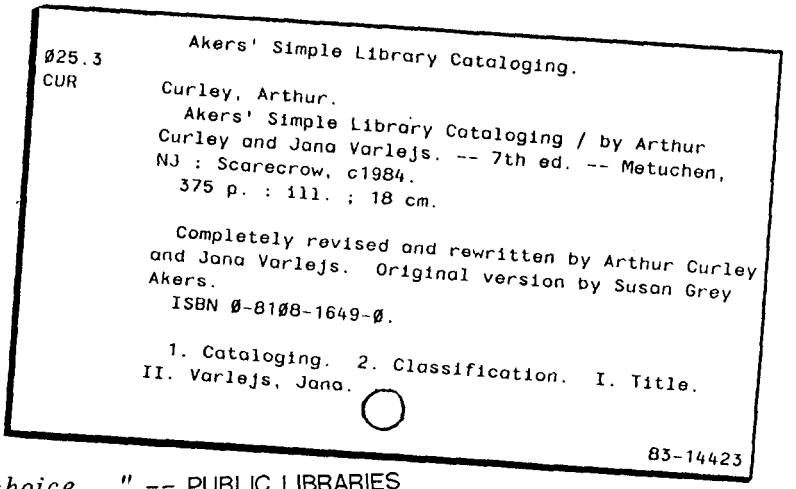

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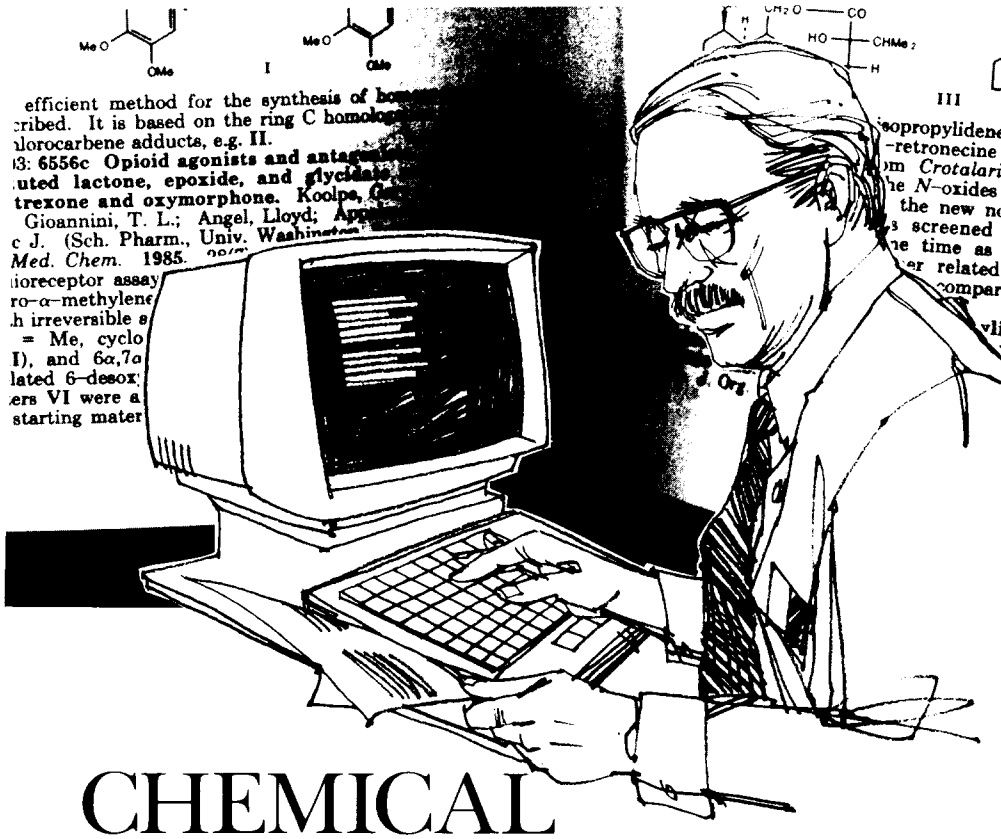

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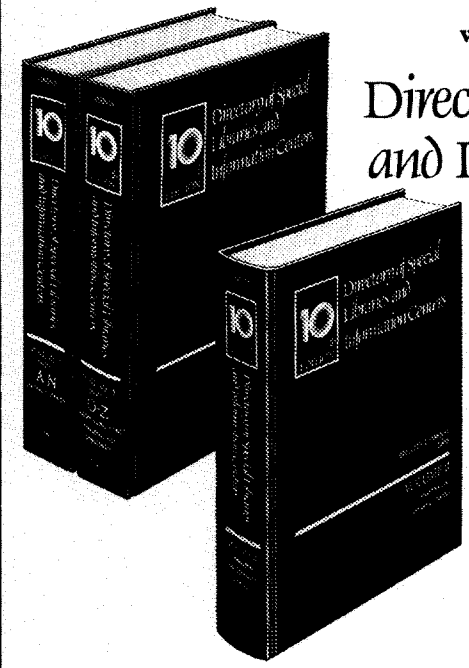

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